Increasing Peer Interactions for Students With Behavioral Disorders via Paraprofessional Training

Kimber W. Malmgren
University of Wisconsin–Madison

Julie N. Causton-Theoharis
Syracuse University

Beverly J. Trezeg
DePaul University

ABSTRACT: As more and more students with behavioral disorders (BD) are included in general education classrooms, the use of paraprofessionals in one-on-one support roles has expanded. Unfortunately, the use of paraprofessionals to provide one-on-one assistance can result in social isolation for students with disabilities. This multiple-baseline single-subject study examined the effectiveness of a paraprofessional training program designed to teach paraprofessionals to facilitate interactions between elementary-age students with BD and their peers in the general education classroom. Baseline and postintervention observational data reflecting: (1) the proximity of the paraprofessionals in relation to the students with BD; (2) the amount and type of facilitative behaviors displayed by the paraprofessionals; and (3) the rate of peer interactions experienced by the participating students with BD were collected for three paraprofessional/student pairs over a 7-week period. Rates of student interaction increased following the intervention. Rates of paraprofessional facilitative behavior also increased, though less markedly. Additionally, after the training intervention, all participating paraprofessionals faded their assistance more frequently and spent less time in the immediate vicinity of the students they served. Recommendations for use of paraprofessionals in the classroom and for paraprofessional training are discussed.

In recent years, the number of students with disabilities who are served primarily in general education classrooms has been on the rise (U.S. Department of Education, 2002). In the most recent National Report to Congress, the U.S. Department of Education reported that almost half of all school-age children receiving special education services are served in general education settings for at least 89% of the school day. Although the original goals of including students with disabilities in general education classrooms centered on increasing the academic achievement of all children (Will, 1986), those goals have now expanded to also focus on increasing social competence and fostering positive relationships between students with disabilities and their peers (Lewis, Chard, & Scott, 1994).

Unfortunately, students with behavioral disorders (BD) are often considered among the most difficult students to include in general education classrooms (Yell, 1995). Currently, only 26% of all students with BD spend more than 89% of the school day in the general education environment, while another 23% spend between 40% and 89% of the school day in general education classrooms (U.S. Department of Education, 2002). The only students less likely to be included in general education settings for the majority of the school day are those receiving services under the Individuals with Disabilities Education Act (IDEA) categories of Mental Retardation, Autism, Deaf-blindness and Multiple Disabilities (U.S. Department of Education).
By definition, students with BD have difficulty with interpersonal relationships and social adjustment, and these difficulties make it more challenging to achieve the stated goals of the movement toward inclusive settings. The emotional and behavioral qualities associated with this disability demand that educators attend to the social and emotional needs of this population to increase the students’ chances of success in all settings. Additionally, attention to these skills may be most important in general education settings, where difficulties with peer interactions and acceptance can be even more pronounced.

Relationship Between Peer Interaction and Learning

Academic and social needs often go hand in hand. Educational theorists have long noted the important role of social interaction in learning. In particular, Lev Vygotsky’s work provides a theoretical foundation for understanding the role and importance of social interaction between students. Specifically, Vygotsky drew attention to the way that children co-create meaning through social interaction (Mahn, 1999). Vygotsky’s theory suggests that social interaction is a necessary element of learning, particularly for students with special needs. He theorized that learning development originates on the social plane and that learning progresses first through person-to-person interaction and then individually through an internalization process (Fogarty, 1999).

Motivational theorists (e.g., Brendtro, Brokenleg, & Van Bockern, 1990; Glasser, 1998; Maslow, 1970) have also highlighted the role of interaction in students’ sense of belonging. That sense of belonging is then linked theoretically to students’ sense of self-worth, which leads to self-actualization (Maslow, 1970). Social interaction is the foundation of this sense of belonging: without it, students are in danger of being isolated or ignored. For students with BD, who frequently have difficulty with peer interaction (Algozzine, Serna, & Patton, 2001) and have difficulty building and maintaining friendships (Kauffman, 2001), this issue is a real concern. These issues underscore the importance of not only including students with disabilities in general education classrooms, but educating them well in those environments, taking into account both their academic and overlapping social needs.

Paraprofessionals’ Role in Facilitating Interactions

Often, students with BD are included in general education classrooms only if they can be provided with one-on-one support from a paraprofessional. When students are supported in this way by paraprofessionals, several factors exist that can inhibit the interactions with peers that might normally take place. The presence of a paraprofessional has been described as presenting both a physical and symbolic barrier that interferes with the relationships of students with disabilities (Bishop, Jubala, Stainback, & Stainback, 1996). Additionally, other researchers have indicated that the unnecessarily close proximity of a paraprofessional often interferes with peer interactions and relationships (Giangreco, Edelman, Luiselli, & MacFarland, 1997). One recent qualitative study documented that the rate of interaction with peers during academic times for one student with BD decreased almost to zero whenever the paraprofessional assigned to support him came in close proximity (Malmgren & Causton-Theoharis, 2003).

At the same time, the number of paraprofessionals hired to support students with disabilities who are included in general education classrooms is increasing (French, 2003; Pickett, Likins, & Wallace, 2003). As more paraprofessionals are hired to support students with disabilities in classrooms, additional attention must be paid to the repercussions of this trend. Some researchers have also indicated that paraprofessionals are typically not well prepared for the roles to which they are assigned (Brown, Farrington, Knight, Ross, & Ziegler, 1999; Giangreco, Edelman, Broer, & Doyle, 2001; Wadsworth & Knight, 1996). Specifically, Brown et al. suggested that those paraprofessionals who work with students that have the most challenging learning and behavioral issues are often the school staff who are least prepared and those lacking formal educational training. Previously, in most states and districts, paraprofessionals were not required to have job-specific content knowledge on their hire, nor were they offered any kind of training relevant to the specific tasks they would be required to perform after their hire (Passaro,
Pickett, Latham, & HongBo, 1994). However, since the inception of legislative acts such as No Child Left Behind (2001), paraprofessionals facilitating instruction in classroom settings are required to have a minimum of two years of college education, and they must meet rigorous standards of quality documented by state or local assessments. Given that close proximity of paraprofessionals to students has been linked to decreased levels of interaction for students with disabilities, BD in particular, and given the increased standards for quality to which paraprofessionals will be held, providing them with training and tools to successfully support students with BD in inclusive settings is an important endeavor.

The purpose of this study was to examine the efficacy of a training program designed to increase the number of facilitative behaviors displayed by paraprofessionals assigned to provide one-on-one assistance to individual students with BD. Specifically, the overall effect of changes in facilitative behavior on students’ interactions with peers in the classroom was of most importance. We define facilitative behaviors as behaviors exhibited by an adult that are intended to facilitate a peer interaction for a target student. The intervention under study has been used in previous research, resulting in increased facilitative behavior and increased rates of peer interaction for students with multiple disabilities (Causton-Theoharis & Malmgren, 2005). Because of the marked social and behavioral needs of students with BD and the increased use of paraprofessional support for this population and other low-incidence populations (Giangreco, Doyle, Halvorsen & Broer, 2004), interventions aimed at increasing peer interactions for this specific population are critical. These research questions guided this study: Does participation in a one-on-one training for paraprofessionals result in an increased rate of facilitative behaviors displayed by those paraprofessionals? Does participation in this training by paraprofessionals result in increased rates of peer interaction for the students whom those paraprofessionals support?

Methods

Setting and Participant Selection

Participants in this study were student/paraprofessional pairs. To be included in this study, student participants were required to meet the following four criteria: (1) be an elementary school student receiving special education services for a BD; (2) be educated in a general education classroom for 89% or more of the school day; (3) be supported by a paraprofessional during times of academic instruction in the general education classroom; and (4) have social goals related to interaction with peers included in his or her most recent individualized education program (IEP).

This study was conducted in two elementary schools in a mid-sized Midwestern school district. Before initiation of the study, researchers contacted the principals of the 30 elementary schools in the district to determine which schools housed student/paraprofessional pairs that potentially met the study criteria. Principals who indicated that their schools contained potential pairs were asked to forward a letter explaining the study's procedures to the special education teachers in their buildings. The researchers then contacted the special education teachers and, if a special education teacher indicated that one or more student/paraprofessional pairs in their building met the selection criteria, he or she was asked to forward information about the study to the appropriate paraprofessionals and to the general and special education teachers with whom those paraprofessionals worked. The researchers then met with the collaborative teams of special education teachers, general education teachers, and paraprofessionals to explain the study's procedures and to answer questions about participation. When a team expressed interest in participating in the study, the special education teacher was asked to send a letter explaining the study's procedures and a request for informed consent to the parents of potential student participants. On receiving parental consent for student participation, the students’ assent was also solicited.

The three student/paraprofessional pairs that were included in the study were drawn from two elementary schools in the district. The setting for Pair 1 was a kindergarten classroom housed in an elementary school (School A) that served students in kindergarten through second grade. Pairs 2 and 3 were located in third and fifth grade classrooms, respectively, in an elementary school (School B) that served students in grades three through five. There were 14 students enrolled in the kindergarten classroom, 21 students in the third grade.
classroom, and 27 students in the fifth grade classroom. The percentage of students receiving free or reduced-price meals was 28.7% at School A and 28.1% at School B.

Participants

Note that pseudonyms are used in the following description of participants and in the ensuing reporting of results.

Students. Participant 1, Adrian, was an African American male kindergarten student. His IEP stated that he needed daily support from a paraprofessional in the classroom due to his behavioral and social needs. The types of behavioral concerns listed on his IEP included flight from the classroom and concerns about physical safety within the classroom. His IEP indicated that he displayed “explosive episodes within the classroom.” These episodes were characterized by incidents of kicking, hitting, biting, throwing, and knocking over objects. The social/emotional goals in his IEP were centered on the areas of communication and classroom social skills.

Participant 2 was a Caucasian fifth grade student, Brett. Brett was supported by one paraprofessional for the majority of the day. Brett’s IEP contained social/emotional goals related to interacting appropriately with peers and engaging in problem-solving behaviors with peer, rather than adult, assistance.

Participant 3, Ty, was a third grade Caucasian student. Ty had a difficult time adjusting to school routines, engaging and interacting with peers, and forming positive relationships with peers. The social/emotional goals in Ty’s IEP were focused on expressing frustration appropriately, resolving differences with peers effectively, and working cooperatively with peers.

Paraprofessionals. Two of the three adult paraprofessionals were female, and all three were Caucasian. Paraprofessional 1, Mr. Aron, was a 20-year-old male in his first year of employment as a paraprofessional. Mr. Aron had completed two years of postsecondary education in the area of music performance. Paraprofessional 2, Ms. Bennett, a 55-year-old woman with an undergraduate degree in art education, had 20 years of experience as a paraprofessional. Since completing her undergraduate degree, Ms. Bennett had also earned several graduate credits. Paraprofessional 3, Ms. Taylor, was a 50-year-old woman and had no postsecondary education; however, she had 18 years of experience as a paraprofessional. Mr. Aron provided support to Adrian, Ms. Bennett provided support to Brett, and Ms. Taylor provided support to Ty.

Intervention

The intervention consisted of three hours of individual paraprofessional training conducted by the second author. The training session was conducted at the school where the paraprofessional was employed. The authors used an adapted form of Unit 7 of a professional development curriculum entitled “Supporting Students with Disabilities: A Curriculum for Job-Embedded Paraprofessional Development” (Ghere, York-Barr, & Sommerness, 2002) to train the paraprofessional participants in this study.

The training consisted of four major activities aimed at enhancing perspective, establishing the importance of interaction, and increasing the paraprofessionals’ knowledge of strategies for facilitating peer interaction in the classroom. Because the intervention was delivered individually, the time needed to complete each of the training components varied by participant; therefore, the average length of time to complete each of the activities is reported in the following text.

The first training activity involved a personal reflection. The paraprofessional was asked to describe how he or she felt and acted in two different situations: a time when he or she felt connected to a group and a time he or she felt disconnected from a group. The paraprofessionals were then asked to examine their own responses and compare those feelings and action words to their impressions of similar situations for the students with BD whom they supported. On average, this training component took 25 minutes to complete.

In the second activity, paraprofessionals were asked to complete a “circle of relationships map” adapted from Peerpoint, Forest, and O’Brien (1996) that depicted their own relationships. The map consisted of four concentric circles that increased in size incrementally. The innermost circle represented family and close friends. The next circle represented people with whom the paraprofessional socialized regularly. The third circle represented people with whom the paraprofessional socialized occasionally. Finally, the fourth and outermost circle represented people who were paid to spend
time with the paraprofessional. Once the paraprofessional indicated people within each circle, he or she was then asked to complete a similar map for the target student. After completing the student's map, the paraprofessional was asked to compare his or her relationship map to the one created in reference to the student. Differences between the two relationship maps were highlighted and discussed. The time required for this activity was approximately 35 minutes.

The third activity consisted of answering the question “Why are social relationships important?” The paraprofessional and trainer discussed several reasons that social relationships and interactions could be considered important for students in schools. The trainer highlighted theoretical and empirical evidence that underscored the role of peer interaction in learning. The time needed to complete this component of the training was approximately 30 minutes.

In the fourth training activity, the paraprofessionals were asked to describe how they might act as a bridge between students with disabilities and their peers. This training component was conducted over a 90-minute period. During this portion of the training, the trainer provided additional ideas to prompt the paraprofessional to describe strategies or situations that would fall into four broad categories of facilitative behavior: (1) teaching or modeling interaction skills; (2) highlighting similarities between students or strengths of the target students; (3) interpreting peer behaviors for the target student or a peer; and (4) moving students together to work in close physical proximity to one another. Fading assistance and reducing paraprofessional proximity to the target student were also discussed as strategies that could be used in combination with strategies from any of these four categories.

At the conclusion of the training session, the trainer summarized each of the facilitation strategies generated through the fourth training activity. The following day, the trainer provided the paraprofessional with a typed list of the strategies generated during his or her training session. This list was also shared with the general and special education teacher(s) who comprised the collaborative team.

**Data Collection Procedures**

**Observer training.** Before the commencement of data collection, the first and second authors trained two data collectors in the use of the observation data collection instrument. The data collectors were both female graduate students in special education. Training continued with the data collectors until both observers completed three consecutive observations with 100% agreement. Nine observations conducted over three training sessions were required to achieve this level of agreement.

**Proximity data.** At the onset of each observational probe, proximity data were collected using a time sampling procedure. Data were collected at 5-second intervals for a period of 90 seconds, once per observational session and prior to the collection of data pertaining to rates of facilitative behaviors and peer interaction. To determine the general proximity of a paraprofessional to a student, data collectors observed and recorded whether the paraprofessional was less than 3 feet (within arm’s reach) or more than 3 feet from the target student. The proximity variable was calculated as the mean percent of observational probes in which the participating paraprofessionals were observed to be within 3 feet of the target students. This mean was calculated for both the baseline and postintervention phases.

**Facilitative behaviors.** For the purpose of data collection, facilitative behaviors were coded in four categories: (1) teaching or modeling skills; (2) highlighting similarities; (3) interpreting behaviors; and (4) moving students together. “Teaching or modeling skills” was operationalized as explaining or showing the student how to interact or directing the student to interact with a peer. “Highlighting similarities” was operationalized as verbally identifying commonalities between the target student and one or more peers. “Interpreting behavior” was operationalized as explaining to peers any unconventional behavior(s) exhibited by the target student that could have communicative intent. Finally, “moving students together” was operationalized as directing students (either the target student or a peer) to physically move so that the target student was then working in close proximity to one or more peers.

**Student interaction.** Peer interactions were defined as any two-way interaction that included either a verbal or active nonverbal behavior and caused another individual to initiate a verbal or nonverbal response. This could have included questioning, directing, gesturing, nodding, carrying out a direction,
or physically or verbally resisting an initiation. Judgments about the perceived positive or negative qualities of particular interactions were not recorded.

To capture the rates of paraprofessional facilitative behavior and student interaction, 5-minute observational probes were used. During these probes, data collectors documented both the rate of reciprocal peer interaction between the target students and their classmates and the specific facilitative behaviors of the paraprofessionals. Each type of facilitative behavior used by the paraprofessionals was coded in one of the four categories mentioned previously. In addition, the observers noted whether or not the facilitative behavior was successful (i.e., leading directly to an interaction for the target students).

**Design**

A multiple-baseline, single-subject design across three paraprofessional/student pairs was used in this study. Observational data were collected during consistent instructional times when the students were engaged in academic tasks and when peer interactions within the classroom were considered appropriate. Prior to data collection, the classroom teachers identified instructional periods that would be most appropriate for observation. Data collectors came to classrooms each day at the identified times, but they only collected data if the target student was present, the paraprofessional was present, and the instructional activity being implemented allowed for peer interaction. In some instances, when more than one instructional period in a day was identified as a potential observational setting, observational data were collected twice in one day for a pair. For Pair 1, most observations occurred during the language arts block and during math centers. For Pair 2, the majority of observations occurred during language arts and science instruction. For Pair 3, most observations occurred during the science and social studies instructional periods. Observational data were collected over a seven-week period.

**Baseline phase.** To determine the natural frequency of the target behaviors, data on peer interaction and facilitative behaviors were collected prior to the implementation of the intervention with any of the paraprofessionals. Baseline data were collected for all three pairs until stable baseline trends were established for both facilitative behaviors and peer interactions. The intervention was conducted first with Mr. Aron, second with Ms. Bennett, and third with Ms. Taylor. The order in which the intervention was conducted was dictated by the availability and schedules of the paraprofessional participants.

**Postintervention phase.** After the intervention was conducted with each paraprofessional, postintervention data were collected. The postintervention data collection procedures were identical to those used prior to the intervention during baseline. Data was collected following the intervention until the data trends were stable for all three pairs.

**Data Display and Evaluation**

Data were charted for each of the paraprofessional/student pairs by plotting the rate of student interaction for each observational period and the rate of facilitation by the paraprofessional. Data reflecting rates of student interaction are reflected in Figure 1. The methods of data analysis involved examining changes in phase means (i.e., baseline and postintervention) and calculating the percentages of nonoverlapping data in the postintervention phases.

**Procedural Reliability**

To ensure the fidelity of treatment implementation, each of the three training sessions was audiotaped. An independent rater listened to the taped sessions to guarantee that the four components of the training were presented during each session. During all three of the training sessions, the procedural reliability data indicated that 100% of the training components were included.

**Interobserver Agreement Checks**

Interobserver agreement was checked during 26 (18%) of the 146 total observations conducted over the course of the study. The interobserver agreement checks were distributed across all three participant pairs with 13 (50%) occurring during the baseline phase and 13 (50%) occurring during the postintervention phase. For the proximity data, a point-by-point agreement ratio was calculated, whereby the number of instances of agreement between two observers was divided by the number of agreements plus disagreements. The resulting
number was multiplied by 100 to yield 99% interobserver agreement.

Frequency ratios were used to compute agreement for the peer interaction data and facilitative behavior data since these behaviors are considered "free operant behaviors" (Kazdin, 1982, p.52), meaning that there are no restrictions on the number of times that these behaviors could have occurred during each observational probe. Interobserver agreement for the variable capturing the number of nonfacilitated (i.e., spontaneous) peer interactions experienced by the target students was 88%. Interobserver agreement for the rate of paraprofessional facilitative behaviors was 100%.

Results

Paraprofessional Facilitative Behavior

During baseline, only one of the three participating paraprofessionals displayed any behaviors that were coded as facilitative during the observational periods. During Observation 11, Mr. Aron, Paraprofessional 1, directed Adrian to interact with a peer. This directive was unsuccessful. At no other time during the remaining combined 66 baseline observational periods were any of the paraprofessionals observed attempting to facilitate interaction for the three student participants. This translates to mean baseline rates of .00 successful and .07 unsuccessful facilitative behaviors per 5-minute observations for Mr. Aron and .00 for both successful and unsuccessful facilitative behaviors for both Ms. Bennett and Ms. Taylor. Mean rates of facilitative behavior are described in reference to the 5-minute observational windows because of their very low frequency. A summary of paraprofessional facilitative behaviors by phase is provided in Table 1.

After the intervention occurred, rates of paraprofessional facilitative behavior increased markedly for Mr. Aron, but only slightly for Ms. Bennett and Ms. Taylor. Mr. Aron's overall mean postintervention rate of facilitative behaviors was 1.59 per 5-minute observational period, which translates to 51 observed facilitative behaviors over 32 observations. This was the combination of mean rates of .75 unsuccessful facilitative behaviors and .84 successful facilitative behaviors per 5-minute observational period. Ms. Bennett, on the other hand, displayed only one unsuccessful and one successful facilitative behavior during the 14 postintervention observations conducted in her classroom setting. This translates to .14 facilitative behaviors per 5-minute period, or .07 successful and .07 unsuccessful facilitative behaviors. Ms. Taylor exhibited one unsuccessful and four successful facilitative behaviors during 33 postintervention observations. These behaviors translate to rates of .03 unsuccessful, .12 successful, and .15 total facilitative behaviors per 5-minute observational period. See Table 1 for a comparison of rates of facilitative behaviors by phase.

Types of Facilitative Behaviors

During the training session, four broad categories of facilitative behaviors were presented. As stated above, across all baseline

| TABLE 1 |
| Summary of paraprofessional Behaviors by Phase |
|---------|---------|---------|---------|---------|
|         | Mr. Aron |         | Ms. Bennett |         | Ms. Taylor |         |
|         | Baseline | Post-int | Baseline | Post-int | Baseline | Post-int |
| Percent close proximity | 77% | 55% | 41% | 8% | 87% | 57% |
| Mean rate of total FBs per 5 min | .07 | 1.59 | .00 | .14 | .00 | .15 |
| Mean rate of successful FBs per 5 min | .00 | .84 | .00 | .07 | .00 | .12 |
| Total "teaching or modeling skills" | 1 | 39 | 0 | 1 | 0 | 2 |
| Total "highlighting similarities" | 0 | 3 | 0 | 0 | 0 | 0 |
| Total "interpreting behavior" | 0 | 0 | 0 | 0 | 0 | 0 |
| Total "moving students together" | 0 | 9 | 0 | 1 | 0 | 3 |

Note. Post-int = Postintervention phase; percent close proximity = percent of 5-second time-sampled observational probes in which paraprofessional was observed to be within 3 feet of the target student; mean rate of total FBs per 5 min = mean rate of facilitative behaviors observed during all 5-minute probes for each phase; mean rate of successful FBs per 5 min = mean rate of facilitative behaviors observed during all 5-minute probes for each phase that resulted in an interaction for the target student.
phases, only one facilitative behavior was observed. In this instance of “teaching or modeling skills,” Mr. Aron directed Adrian to apologize to a peer. Because Adrian did not comply, the facilitative behavior was coded as unsuccessful. After the intervention, a total of 58 facilitative behaviors from three of the four categories of behaviors were noted. The large majority (n = 51 or 88%) were attributed to Mr. Aron. Of the 58 total facilitative behaviors that were observed, 41 (71%) were coded as “teaching or modeling skills,” 13 (22%) were coded as “moving students together,” and four (7%) were coded as “highlighting similarities.” No instances of “interpreting behavior” were observed.

Overall, 55% of the facilitative behaviors observed were considered successful, resulting in an interaction for the target student. With regard to the relative success of the different types of facilitative behaviors, 54% (n = 22) of the “teaching or modeling skills” behaviors were considered successful, as were 54% (n = 7) of the “moving students together” behaviors and 75% (n = 3) of the “highlighting similarities” behaviors.

Paraprofessional Proximity

During baseline, Mr. Aron was noted to be within 3 feet of Adrian in 77% of the timesampled observational probes. Ms. Bennett was observed within 3 feet of Brett in 41% of the observational probes during baseline, and Ms. Taylor was so noted in 87%. After completion of the training intervention, the percentage of time that all three participating paraprofessionals spent in close proximity to the target students declined. Postintervention, Mr. Aron was observed within 3 feet of Adrian in 55% of the probes. Ms. Bennett was observed within 3 feet of Brett in only 8% of the postintervention probes and Ms. Taylor was observed within 3 feet of Ty in 57% of the observations. See Table 1 for summary of paraprofessional proximity by phase.

Peer Interactions

Phase means. Figure 1 depicts mean rates of peer interaction for the target students over the course of the study. Rates of peer interaction are reported as the number of observed interactions per minute. The mean rates of peer interaction for all three target students increased subsequent to employment of the intervention. During baseline, Adrian’s mean rate of peer interaction was .21 interactions per minute, while after the intervention, Adrian’s mean rate of interaction was .51. Brett’s average interaction rate was less than .01 during baseline. After the intervention, Brett’s average rate of interaction was .97. The mean rate of peer interaction during baseline for Ty was .20. Postintervention, Ty’s rate of interaction rose to 1.54 interactions per minute.

Percentage of nonoverlapping data. In addition to phase means, percentages of nonoverlapping data points were also calculated. For Adrian, only 6% of the data points in the intervention phase did not overlap with his baseline data. For Brett, 57% of the postintervention data points did not overlap with the baseline interaction data. For Ty, 33% of the postintervention data points did not overlap with the data from the baseline phase.

Discussion

Following the intervention in this study, rates of peer interaction increased for all three student participants. At the same time, rates of paraprofessional facilitative behavior increased only slightly, although not in exact proportion to or correlation with the increases observed in rates of peer interaction. The majority of interactions observed for the target students following the intervention were noted to be “spontaneous,” (i.e., not immediately preceded by an adult-initiated facilitative behavior). However, even though many of the peer interactions that were noted by our data collectors were not preceded directly by a facilitative behavior, we did see evidence that the strategies covered in the training intervention did have an effect. For example, embedded in the four facilitative behavior strategies covered in the training was the idea that paraprofessionals should fade their assistance once it is given. Conscious attention to the need to fade individual support as a way of serving students more effectively resulted in all three paraprofessionals actually spending more time farther away from the students they were assigned to support. The percent of time during the time sampled observations that each paraprofessional spent within arm’s reach of the target students decreased for all three paraprofessionals following the intervention. Additionally, the idea of enlisting peers to work with the student with a disability (an example of a facilitative behavior incorporated
Figure 1. Rates of peer interaction by student.

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Note. Data points to the left of the solid vertical line reflect baseline behavior.
Data points to the right of the solid vertical line reflect postintervention behavior.
in both the “teaching or modeling skills” and “highlighting similarities” segments of the paraprofessional training) naturally decreased the need for direct paraprofessional intervention while simultaneously increasing opportunities for peers to interact. These are examples of ways in which paraprofessional actions that are facilitative in nature were not always captured in the 5-minute windows of observational data collection.

In terms of the facilitative behaviors that were observed postintervention, “teaching or modeling skills” was used by the paraprofessionals more than any of the other three strategies. This is likely because this particular strategy encompassed the widest range of behaviors and because the behaviors that fall into this category are strategies familiar to the paraprofessionals. For example, directly telling a student to interact with a peer (e.g., “Donald, you and Max should quiz each other on your spelling words”), is not an uncommon or unusual action in an elementary classroom. However, the emphasis on these strategies in the paraprofessional training was that the paraprofessionals were encouraged to use such strategies consciously and with a higher goal in mind. The strategy coded as “interpreting behavior” encompassed a smaller, more specific set of paraprofessional actions (e.g., “Loren sometimes leaves the table when he is frustrated. Perhaps you could offer to help him with his math problem the next time he does that.”). These types of facilitative behaviors would only be appropriate in instances when the target student’s behavior, although unusual, had a communicative intent that was easily explained to peers. We believe it is for this reason that the distribution of facilitative behaviors displayed after the intervention was so uneven and skewed in favor of the “teaching or modeling skills” strategy.

Social Validity

In addition to the changes noted by the observers, the participating paraprofessionals’ and teachers’ unsolicited comments provided additional evidence of the success and value of the intervention. For example, Ms. Taylor noted that she never thought of herself as a “bridge” for interactions and that she may have unintentionally blocked student interactions in the past without knowing that these interactions might be desirable. Several days after the intervention, Ms. Taylor also commented that she now recognized the educational value in providing Ty with “more physical space” and time to independently interact with his peers. The general education teacher who worked directly with Mr. Aron commented that she noticed a difference in the way Mr. Aron interacted with Adrian after the intervention. This teacher also commented that she thought a similar training could be beneficial to all professionals working with students with BD.

Limitations

We recognize several limitations to our findings. First, the timing of the intervention (i.e., data collection occurred near the end of the school year) and the relocation of one of the three student participants precluded us from collecting maintenance data following the conclusion of the study. This circumstance also prevents us from reporting that the observed changes in behavior lasted for additional weeks or months beyond the completion of the study. However, we should note that the intervention itself was relatively brief (completed in one afternoon), and, therefore, the three to four weeks of data collection represents a fairly long postintervention phase. Future investigations should address the sustainability of changes in peer interaction patterns observed and generalization of these changes to other settings.

Another limitation to our findings was that the percentage of nonoverlapping data points for Participant 1, Adrian, was low. Only 6% of the data points posted postintervention did not overlap with Adrian’s baseline peer-interaction data. However, it is important to note that the majority of overlap in data could be attributed to one specific baseline data point. During this particular observation, Adrian’s interaction with a peer regarding a loose tooth temporarily inflated his baseline rate of interaction for that particular probe.

Conclusion

It is common for students with BD to have difficulty with peer interaction. The trend toward physically placing more and more children with disabilities, including those with BD, in general education classrooms acknowledges the importance of interaction with peers in educational settings. However, simply placing students with BD in general education classrooms is not enough to ensure
that productive engagement with peers will ensue. Providing students with BD with a one-on-one assistant potentially compounds the problem since one-on-one assistance often interferes with natural peer interactions.

When one-on-one support is deemed a necessary element of a child’s special education service, the role of the assigned paraprofessional should be carefully planned and executed. Paraprofessionals typically do not view building connections between peers as a part of their job responsibilities. In order to maximize the benefit of paraprofessional support and comply with calls for higher standards for paraprofessionals in classrooms, we suggest that paraprofessionals receive more training, including training specifically related to the facilitation of interactions with peers during the school day.

During the baseline phase of this study, the three paraprofessional participants combined were observed making only one attempt to facilitate peer interaction for the target students. Following the intervention, all three paraprofessionals spent less time in the immediate vicinity of the target students, and all three paraprofessionals were observed attempting to facilitate interactions. Additionally, and perhaps more importantly, all three participating students were observed engaging in more interactions with their peers. Whether these kinds of increases in interactions can be sustained and whether these interactions will lead to greater acceptance and academic achievement remains to be investigated.

As BD students are increasingly included in general education environments, the professionals charged with serving them need to be trained in skills that benefit the students’ greatest areas of need. The training in this study did result in an increase in peer interactions for student participants. We suggest that future research in this area focus on the feasibility of large-scale implementation of this kind of training and on the relative utility of the specific facilitative skills covered by the intervention. This type of intervention research could help facilitate the appropriate and supported inclusion of students with BD in general education environments in the future.


REFERENCES

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