

*TRAINING SUPPORT STAFF TO EMBED  
TEACHING WITHIN NATURAL ROUTINES OF  
YOUNG CHILDREN WITH DISABILITIES IN  
AN INCLUSIVE PRESCHOOL*

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We evaluated a program for training 4 support staff to embed instruction within the existing activities of 5 children with disabilities in an inclusive preschool. The program involved classroom-based instruction, role playing, and feedback regarding how to effectively prompt, correct, and reinforce child behavior. Descriptions of naturally occurring teaching opportunities in which to use the teaching skills were also provided. Following classroom training, brief on-the-job training was provided to each staff member, followed by on-the-job feedback. Results indicated that each staff member increased her use of correct teaching procedures when training was implemented. Improvements in child performance accompanied each application of the staff training program. Results are discussed in terms of using effective staff training as one means of increasing the use of recommended intervention procedures in inclusive settings. Areas for future research could focus on training staff to embed other types of recommended practices within typical preschool routines involving children with disabilities.

DESCRIPTORS: embedded teaching, preschool, staff training, severe disabilities

An area of growing interest within intervention services for young children with disabilities is the teaching of meaningful skills

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in inclusive settings. Increasing numbers of young children with disabilities attend community-based preschools alongside typically developing children (Bricker, 1995). For children with disabilities to receive maxi-

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imum benefit from attending inclusive preschools, it is important that the children receive effective instruction within the preschool setting (Brown, Odom, Li, & Zercher, 1999; Losardo & Bricker, 1994).

One means of providing instruction for children with disabilities in inclusive preschools that is receiving increased attention is embedded teaching. Embedded teaching involves a variety of instructional approaches, variously referred to as naturalistic teaching (Bricker, 1995), incidental teaching (McGee, Morrier, & Daly, 1999), or milieu teaching (Warren & Kaiser, 1988; Wolery, Anthony, Snyder, Werts, & Katzenmeyer, 1997). Embedded teaching incorporates or embeds instruction within regularly occurring routines during the preschool day without breaking the flow of the routine or the ongoing activity (McDonnell, 1998; Venn *et al.*, 1993). Embedded teaching is considered to be advantageous relative to more traditional discrete-trial teaching in structured, circumscribed sessions by increasing teaching opportunities, minimizing disruption in child participation in classroom activities, and enhancing skill generalization (Losardo & Bricker, 1994; McDonnell, 1998).

Despite reported benefits of embedded teaching, there has been little research that demonstrates specifically how to train support staff to embed teaching within ongoing routines in inclusive preschools. The lack of research on training preschool staff is problematic in several ways. Most notably, it is well established that preschool personnel typically have no formal experience or training in instructional methods for use with young children who have disabilities (Bricker, 1995). In addition, there has been a general lack of research on training support staff to provide instructional and related services in early intervention settings, and especially in inclusive settings (Crow & Snyder, 1998; Wolery & Werts, 1994). Among investigations that have addressed training staff in

early intervention settings, the research has shown little impact of training on day-to-day work performance (see Crow & Snyder for a review). The lack of research on training preschool staff in effective teaching procedures may represent one reason why a notable gap exists between best practices recommendations and standard practice in inclusive preschools (Garland, 1995). That is, if staff members are to be expected to incorporate recommended practices such as embedded teaching within their daily routines, it is important that methods of training staff in performing such practices be demonstrated and disseminated.

To maximize the benefits of research in this area, it is important that investigations include components that are generally considered to be critical for successful staff training (see Reid & Parsons, 2000, for a summary). Specifically, the training procedures should result in improvement in staff performance during the regular work routine. Equally important, training should result in improvement in the day-to-day functioning of the children who are the recipients of instructional activities (Ingham & Greer, 1992; Jahr, 1998).

The purpose of this investigation was to evaluate a program for training paraprofessional staff in an inclusive preschool to embed teaching within the daily routine of young children with disabilities. In accordance with the recognized characteristics of successful staff training, attention was directed to potential changes in day-to-day work performance as well as to changes in the performance of children with disabilities.

## METHOD

### *Setting and Participants*

The study was conducted in a full-day child-care program that served approximately 160 typically developing children and 5 children with disabilities in a town of ap-

proximately 20,000 people. The majority of children in the program were Caucasian, and a minority were African-American and Asian-American. The morning component (4 hr) operated as a formal preschool program, with a scheduled curriculum of activities. The afternoon component operated in a child-care format, consisting of indoor or outdoor free play and snacks. The children were in classroom groups of approximately 12 children, with all children in a group being of similar chronological age. Two staff members were assigned to each classroom. No more than 2 children with disabilities were assigned to the same classroom. The program was the official educational placement for the children with disabilities as designated by the local education agency. These children attended the program for an average of 6 hr each weekday. The local education agency provided 2 part-time support staff and a part-time special education teacher (staff supervisor) to oversee the education programs of the children with disabilities. A program director from an early childhood program that was contracted by the local education agency supervised the special education teacher. The support staff and their supervisor, although being primarily responsible for support and services for the children with disabilities, also interacted with the children without disabilities in the classroom as part of the daily routine. The regular child-care and preschool staff, who were primarily responsible for services for the typically developing children, also interacted with the children with disabilities. These staff members did not have formal educational training in early childhood services and varied in terms of their experience with the program (range, 3 months to 15 years).

*Staff participants.* Four staff members participated in the project across 2 school years. Each was employed as an assistant to support the children with disabilities. Joan and Mary participated in the study during the

1st school year. Joan was 41 years of age and had been working at the preschool for 6 months. She had completed 2 years of college in a field unrelated to teaching and had 5 years of preschool experience. Mary was 30 years of age and held an undergraduate degree in mass communications. She had 18 months experience at the preschool. Lee and Sue participated in the study during the 2nd school year, having been employed as support staff less than 1 month from the start of the 2nd school year. Lee was 28 years of age and had a high school degree and 10 years experience working as a one-to-one assistant for a person with disabilities. Sue was 23 years of age and had a 2-year degree in recreation therapy. She had 2 years experience working as a regular teacher assistant in the center prior to being hired as a support person for the children with disabilities.

These staff members were selected for the study because they were employed as support personnel with the main purpose of providing educational services to the children with disabilities. Joan and Mary had received prior training for providing systematic instruction during formal, circumscribed teaching sessions (Schepis, Ownbey, Parsons, & Reid, 2000). However, prebaseline observations indicated that they did not use these teaching skills during naturally occurring classroom routines. Lee and Sue had not received prior training on teaching skills.

*Child participants.* Five children with disabilities, Sam, Joe, Jan, Max and Sherry, participated to assess the effectiveness of the trained target skills. The children were between the ages of 3 and 5 years ( $M = 4$  years). Scores on the Vineland Adaptive Behavior Scales indicated that the mental ages of the children ranged from 9 months to 2 years 11 months ( $M = 1$  year 7 months). All children functioned in the severe range of intellectual disability except Joe, who functioned in the moderate range. Jan and Joe had a diagnosis of autism. Sam had a

diagnosis of Down syndrome, and Max had cerebral palsy and was nonambulatory. All of the children required assistance with toileting and eating. Max, Jan, and Sherry were nonverbal and used gestures and sounds to communicate. They were being taught to use a voice output communication aid (VOCA). Sam and Joe used gestures and one- to three-word phrases to communicate. During this investigation, Sam and Jan were taught by Joan, and Sherry was taught by Mary in Year 1. Joe was taught by Lee, and Max was taught by Sue in Year 2.

#### *Staff Behavior Definitions*

A teaching opportunity was defined as a question or instruction given by a staff person that was intended to evoke a response from the child. Specifically, a *question* was defined as a query directed to a target child that required a communicative response, whereas an *instruction* was defined as a request directed to a target child to perform a physical action. If an opportunity to teach was scored, then whether the teaching opportunity was provided correctly or incorrectly was also recorded. To be recorded as correct, any use of prompting, error correction, and reinforcement had to be performed according to the following definitions, drawn from previous research on the training of teaching skills (Parsons, Reid, & Green, 1996). *Correct prompting* was defined as use of a least-to-most assistive instructional strategy to evoke a child's response to a question or instruction in which each successive prompt (if more than one prompt was required) involved more assistance than the previous prompt and occurred within 5 s of the previous prompt (e.g., a verbal prompt followed by a verbal plus gestural prompt). An incorrect prompt involved not providing more assistance on each successive prompt to evoke a child's completion of a target response, providing full physical assistance as the first level of prompting, not pro-

viding the prompt within 5 s of the previous prompt, or not providing any additional prompts if the child did not perform the requested behavior. *Correct error correction* was defined as a child performing a behavior that was different than what was requested or instructed (i.e., an error) and the staff person providing the child with more assistance than provided on the preceding prompt. For example, if the child made an error when given a verbal prompt to complete an activity, the staff person might give a verbal prompt plus partial physical assistance to help the child complete the activity correctly following the second presentation of the request. Correct error correction also required that the amount of assistance provided after the child's error be sufficient to evoke the child's correct completion of the behavior on the child's second attempt. Incorrect error correction involved not providing the child with more assistance after an error or the assistance did not result in the child correctly completing the behavior on the second attempt. *Correct reinforcement* was defined as providing a positive consequence (e.g., praise) within 5 s after the child's completion of the target behavior. Incorrect reinforcement involved providing a positive consequence when the child did not complete the target behavior or a consequence was not delivered within 5 s of the child completing the behavior.

In summary, a teaching opportunity was scored as correct only if each application of prompting, error correction, and reinforcement met the above definitions for correct application. In cases in which prompting was not provided following a teaching opportunity (i.e., the child responded to the first question or instruction) and error correction was not necessary (the child did not make an error), the teaching opportunity was scored correct if reinforcement was provided correctly.

### *Child Behavior Definitions*

The child behavior of concern was each child's response to a staff member's teaching opportunity (i.e., a teacher question or instruction), which involved (a) an independent response, (b) a prompted response, or (c) no response. An *independent response* was defined as a child completing the target behavior following the staff person's first request or instruction without requiring additional prompting or error correction. A *prompted response* involved a child completing the target behavior with additional staff assistance (i.e., prompting or error correction) after the first request. *No response* was defined as a child not responding independently and not being prompted to respond by the staff person such that the child did not complete the target response.

### *Observation Procedures and Interobserver Agreement*

Support staff were observed individually during naturally occurring classroom routines. Each observation session entailed 15 consecutive 1-min intervals. Observers included two experimenters, the supervising teacher, and a student assistant. Within each interval, the observer recorded the first teaching opportunity observed. Subsequently, the observer recorded whether the teaching opportunity was completed correctly or not. The observer also recorded whether the child completed the behavior requested or instructed by the staff member without further assistance (i.e., an independent child behavior), with a subsequent prompt from the staff member, or if the behavior was not completed. If a teaching opportunity occurred during an interval but the scoring of the teaching components (prompts, error correction, and reinforcer delivery) was not completed within that interval, the observer completed scoring of the teaching components in the next interval and then waited

for the beginning of the next 1-min interval to begin observing a new teaching opportunity. The percentage of teaching opportunities with correct teaching was calculated by dividing the number of intervals with correct teaching by the number of intervals with teaching opportunities, multiplied by 100%.

Interobserver agreement was measured during 35% of all sessions, including each staff member, child, and experimental condition. Interobserver agreement was determined on an interval-by-interval basis for correct teaching and child responses. Interobserver agreement was calculated for overall, occurrence, and nonoccurrence agreement by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%. For correct staff teaching, overall agreement averaged 94% (range, 69% to 100%), occurrence agreement averaged 72% (range, 0% to 100%), and nonoccurrence agreement averaged 90% (range, 63% to 100%). The lower figure for occurrence of correct teaching was the result of a low frequency of occurrence during several sessions such that a small number of disagreements deflated the average. To illustrate, on 94% of all agreement checks, there was a total of only 1 or 0 disagreements between observers on the occurrence of correct teaching.

For independent child responses, overall agreement averaged 92% (range, 71% to 100%), occurrence agreement averaged 58% (range, 0% to 100%), and nonoccurrence agreement averaged 90% (range, 67% to 100%). The lower average for occurrence of independent child responses was the result of a very low frequency of occurrence during several baseline sessions (see Results), with a small number of disagreements deflating the average. Specifically, on the majority of all agreement checks there were no disagreements between observers on occurrence of independent responses, and on 94% of the

checks there were 2 or fewer disagreements. For prompted responses, overall agreement averaged 92% (range, 70% to 100%), occurrence agreement averaged 75% (range, 0% to 100%) and nonoccurrence agreement averaged 89% (range, 57% to 100%). For no responses (i.e., neither an independent nor a prompted response to a staff question or instruction), overall agreement averaged 93% (range, 70% to 100%), occurrence agreement averaged 79% (range, 33% to 100%), and nonoccurrence agreement averaged 89% (range, 50% to 100%).

#### *Experimental Design*

A multiple probe design (Horner & Baer, 1978) across 2 staff members during Year 1 and 2 staff members during Year 2 was used to evaluate effects of the intervention.

#### *Experimental Conditions*

*Baseline.* Baseline observations of teaching performance by support staff occurred during routine morning activities between 8:30 a.m. and 9:30 a.m. Staff members were unaware of which days of the week and which specific times observations would occur. (the observation sessions occurred at varied times between 8:30 a.m. and 9:30 a.m. on weekdays). Activities during this period included breakfast, circle time, and free-play activities. In addition, the target staff were responsible for teaching various objectives such as color recognition in accordance with the educational plans of the children with disabilities (see below). Circle time included story reading, singing, various group games, and snacks. During free-play activities, children played as they chose in different interest centers in the classroom, such as reading, music, writing, computers, fantasy or dress up, housekeeping, and manipulative toys. Classroom staff prompted and praised the children's engagement in games and free play, assisted with self-care routines (e.g., during breakfast), and generally supervised child ac-

tivity. After each baseline observation, the observer expressed appreciation to the staff person for the opportunity to observe teaching interactions but did not provide any feedback regarding her teaching behavior. Observers had previously been present in the classroom due to a number of activities involving systematic observations that had been in place for over a year. On average, baseline observations occurred 2.2 times per week per staff member and child (the number of observations varied due primarily to child absences). Baseline lasted 4 weeks for Joan, 2 weeks for Mary, 2 weeks for Lee, and 13 weeks for Sue.

*Embedded teaching-skills training program.* We provided staff members with a training package consisting first of classroom-based training, involving written and verbal instructions and examples, followed by role-play activities. Next, brief on-the-job training was provided, and then on-the-job monitoring and feedback were instituted. The classroom-based training involved one session, lasting from 60 to 90 min, and was conducted individually with each staff person in a private room with no children present. The staff supervisor and program director served as instructors. The staff member was given a handout describing how to identify and create opportunities to teach. The handout included definitions and examples of correct and incorrect prompting, error correction, and reinforcement. The handout was read by the staff member and summarized by the instructors. It was also explained to the trainees that using the teaching strategies during naturally occurring classroom activities would provide multiple learning opportunities for the children.

Following an explanation of the handout, the instructors described a variety of examples of how to identify and create five types of teaching situations within the context of routine classroom activities. The first type was child-initiated activities. An example of

a child-initiated activity was when a staff member observed a target child to enter the kitchen area during free play but not engage in play. To begin a teaching opportunity, the staff member might instruct the child to engage in an activity by saying, "Joe, please put the toy pizza on my plate." If the child responded by putting the pizza on the plate, the trainee was instructed to provide the child with descriptive verbal praise. If the child did not comply with the initial instruction, the staff member was instructed to employ the least-to-most prompt to assist the child to complete the response. If the child made an error (e.g., picked up another item) the staff member was instructed to immediately provide more assistance to ensure that the child correctly completed the request, and then to provide the child with descriptive praise upon the child's completion of the requested behavior.

The second type of teaching situation targeted activities related to naturally occurring staff-initiated routines. For example, children were often asked by staff to put their cups and napkins in the trash can after they finished their snack. If a target child did not respond to the instruction, the trainee could take this opportunity to provide the least assistive prompt and reinforcement to, for example, have the child put her cup and napkin in the trash.

The third type of teaching situation focused on curriculum-based activities. A holiday art activity was an example of a curriculum-based activity, typically scheduled as part of the daily lesson plan. To illustrate, during a Valentines' Day art activity, a staff member might use the teaching skills of prompting, error correction, and reinforcement to teach a child each successive task related to cutting out a heart to paste on a greeting card.

The fourth type of teaching situation was peer-related activities. For example, a staff person might observe a child with a disabil-

ity watching two typically developing children playing together to build a road with wooden blocks. The staff member might take this opportunity to prompt the target child to pick up a block to add to the road or hand a block to a peer.

The final type of teaching situation was related to a child's individual education plan (IEP) objectives. In this case, a staff person might ask the child to perform a particular response during the course of a naturally occurring routine that was related to an IEP objective (e.g., pointing to a specific color of a toy as requested by the staff person while a child was playing with the toy as part of a color-identification objective).

Although the use of a task analysis was not applicable during moment-to-moment classroom teaching opportunities, the staff member was instructed to provide the children with one-step requests whenever possible. For example, if a staff member wanted a child to sit in the circle, she might begin by requesting that the child "stand up." She would then employ the teaching strategies to assist the child in completing the terminal response of standing up. Next, she might move closer to the circle and instruct the child to "come here." Finally, she might instruct the child to "sit in the circle." Each specific request (stand up, come here, sit in the circle) represented a teaching opportunity. The staff member was instructed to use each component as needed for each teaching opportunity. She was further instructed to consider the type of response (e.g., physical or verbal) that the child was being asked to perform prior to making a request or giving an instruction. For instance, if a child needed a specific type of communication system to respond to a question (e.g., a VOCA), the trainee was instructed to be sure that the system was available before posing the question. She was reminded to always attempt to gain the child's attention and to be in close

proximity to the child before delivering a question or instruction.

The instructors and the trainee also participated in role-play activities during the classroom-based training, following the initial examples described by the instructors. One instructor first role-played a staff member and one role-played a child to demonstrate use of the teaching strategies during one type of teaching situation. Next, the staff trainee played the role of the staff member while one instructor observed and provided feedback regarding her teaching proficiency. The role-play practice continued until the trainee had practiced and received feedback on using the teaching procedures correctly in at least three different types of teaching situations as described above.

Following the classroom-based training session, an instructor accompanied the staff member to the regular work area for on-the-job training. The trainee was asked to demonstrate correct teaching during the ongoing routine as she had practiced during the classroom-based role playing. Following the demonstration, the instructor provided feedback regarding her teaching proficiency. This type of scheduled on-the-job training continued until she demonstrated correct use of each teaching strategy. Each scheduled on-the-job training session required approximately 20 min. Across the 4 staff members, the number of these training sessions following the classroom-based training ranged from 2 to 4 ( $M = 3.5$  sessions per staff member).

After the classroom-based training and on-the-job training, observations of the staff member's teaching were conducted as in baseline (i.e., the observer entered the classroom on an unannounced basis and observed the ongoing routine). However, immediately following the observation, the supervisor or program director provided feedback regarding the trainee's teaching accuracy. The feedback followed a five-step

protocol (cf. Parsons & Reid, 1995) consisting of (a) a positive or empathetic general statement about the teaching session, (b) praise for identifying and creating opportunities to teach and performing teaching skills correctly, (c) identification of any teaching skills that may have been performed incorrectly and a description of how to correctly perform those respective teaching skills, (d) an opportunity to ask questions regarding the feedback, and (e) a final positive or encouraging statement. On-the-job feedback typically required 5 to 15 min to provide. Observations during the intervention occurred 2.5 times per week on average per staff member and child, encompassing 2 weeks for Joan, 2 weeks for Mary, 4 weeks for Lee, and 1 week for Sue.

## RESULTS

Figure 1 presents the percentage of teaching opportunities with correct teaching for support staff in Year 1 and Year 2. Data to the right of the intervention line represent the period of on-the-job feedback (i.e., following completion of the classroom-based training and scheduled on-the-job training components). Correct teaching increased for each of the 4 trainees each time the training program was implemented. During baseline, correct teaching for Joan averaged 8% (range, 0% to 22%) of all teaching opportunities, whereas after implementation, her correct teaching increased to an average of 75% (range, 56% to 100%). Mary had an average of 30% correct teaching (range, 17% to 36%) during baseline, whereas following implementation, her correct teaching was 100%. Lee's correct teaching averaged 7% (range, 0% to 25%) during baseline and increased to an average of 89% (range, 75% to 100%) following implementation. Sue's correct teaching increased from an average of 7% (range, 0% to 21%) during baseline to 84% (range, 80% to 87%) during the



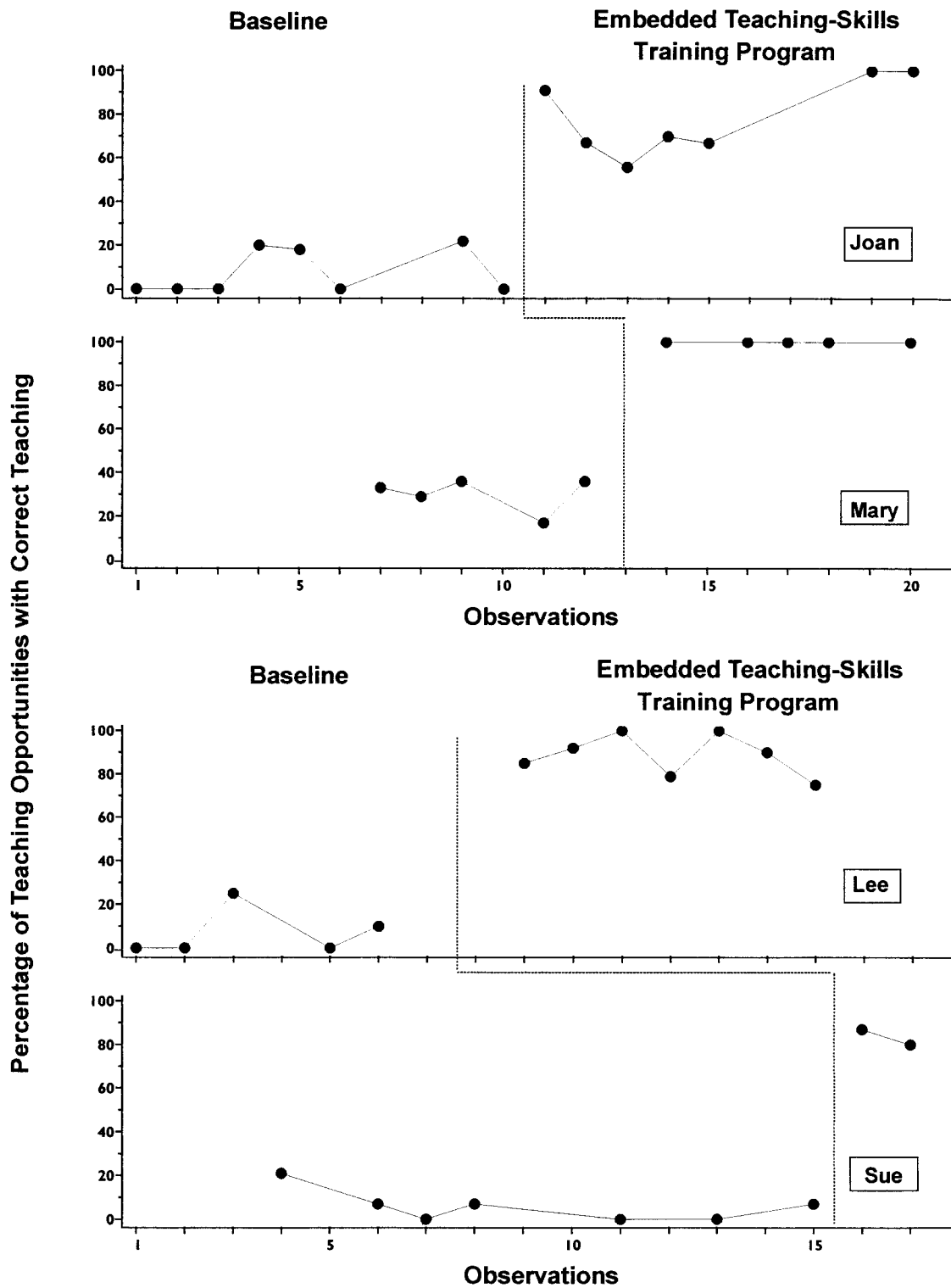


Figure 1. Percentage of teaching opportunities with correct teaching during each observation for each staff member during both experimental conditions.

program. Due to absences related to the illness of Sue's target child, only two observations were possible after the program was implemented.

Across all staff members, as the percentage of teaching opportunities with correct teaching increased, the number of teaching opportunities remained highly consistent. The number of teaching opportunities observed per observation session per staff member averaged 11 during baseline and 11 following implementation of the training program (baseline averages of 8, 13, 9, and 15 teaching opportunities provided by Joan, Mary, Lee, and Sue, respectively, and respective intervention averages of 8, 11, 11, and 13).

Figure 2 presents the percentage of teaching opportunities that were accompanied by independent child responses and no child response (all other child responses were prompted by staff). Each time the teaching proficiency of a staff member improved in conjunction with the training program, there were variable but apparent increases in independent responses among the children with disabilities. During baseline, independent responses for Sam and Jan (who were taught by Joan) averaged 5% (range, 0% to 33%) and then increased to an average of 23% (range, 0% to 50%) following implementation of the program. Independent responses for Sherry (taught by Mary) averaged less than 5% (range, 0% to 17%) during baseline, compared to 31% (range, 17% to 50%) when training was implemented. For Joe (taught by Lee), percentage of teaching opportunities with independent responses during baseline averaged 24% (range, 0% to 50%) and then increased to 51% (range, 36% to 70%) when training was implemented. Max (taught by Sue) averaged 8% (range, 0% to 29%) during baseline for independent responses and 55% (range, 50% to 60%) during training.

In contrast to the increase in independent child responses, there was a noticeable de-

crease in no responses (Figure 2) by each child in conjunction with the staff training program. For each child, averages for no responses were over 50% of teaching opportunities during baseline, whereas after staff training, the averages for no responses for each child decreased to 7% or fewer of teaching opportunities.

Finally, in regard to child behavior, there were increases in prompted responses following the staff training program. For Sam and Jan, prompted responses increased from a baseline average of 36% of teaching opportunities to 73% following the training program. For Sherry, Joe, and Max, averages increased from 40%, 17%, and 33%, respectively, during baseline to respective averages of 69%, 48%, and 38% following the staff training program.

## DISCUSSION

Our results suggest that the embedded teaching-skills training program was an effective means of training support staff to embed teaching within ongoing routines of an inclusive preschool. After 4 staff members received the classroom and on-the-job training and were receiving on-the-job feedback regarding teaching proficiency, each staff person improved her teaching performance within the ongoing preschool activities. Support for the validity of the improvements in the teaching performances is suggested by the improvements in child responses that accompanied the changes in teaching. As noted earlier, an important criterion for judging the value of staff training programs related to instructional procedures is the degree to which the training is accompanied by improvements in child or student functioning (Ingham & Greer, 1992). In the current investigation, each time the training program was implemented (including on-the-job feedback as the final training component), improvements occurred in the degree to

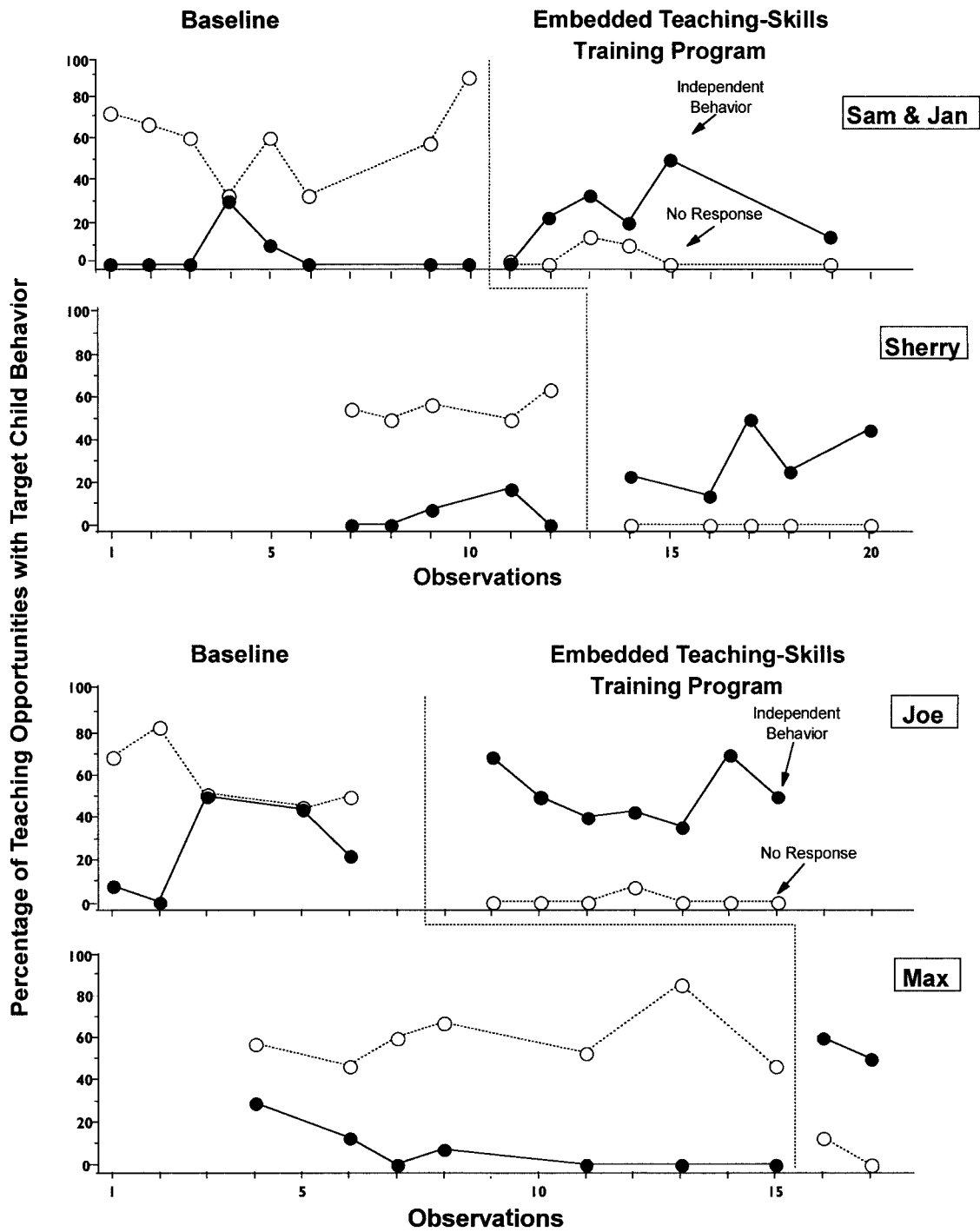


Figure 2. Percentage of teaching opportunities with independent child responses (filled points) and no responses (open circles) during each observation of both experimental conditions.

which the children responded to requests and instructions without any additional prompting or assistance (i.e., independent child responses).

Another noteworthy change in child behavior following implementation of the staff training program was a decrease in no responses to staff questions and instructions by the children. It also warrants noting that during baseline, over half of all questions and instructions presented by staff were not responded to by the children. Staff members thus were not providing effective support following the initial question or instruction to occasion a child response. The process of frequently requesting or directing a behavior from a child followed by no apparent response from the child could establish or strengthen poor instruction-following behavior. Given that no response by the child occurred frequently with each of the 4 staff members during baseline, additional research is warranted to evaluate the potential pervasiveness of such a situation in other community preschools that include young children with disabilities. In those settings in which child nonresponsiveness is frequent, the embedded teaching-skills program described here could represent a means of training staff members to occasion more child responses to questions and instructions to promote instruction following among young children with disabilities.

Although providing instruction within ongoing routines rather than in structured, circumscribed periods has become the recommended practice in inclusive preschools for young children with disabilities, to date behavioral staff-training research has focused on the latter teaching format (see Phillips, 1998, for a review). Baseline observations with the 2 staff members during the 1st year of this investigation support the need for staff training directly related to embedded teaching procedures. These 2 staff members had previously received systematic training,

and had demonstrated competence, in the teaching procedures targeted in this investigation during more formal instructional applications (Schepis *et al.*, 2000). However, baseline observations indicated that they did not extend their newly acquired teaching skills to the naturally occurring routines in the preschool until they received training that included on-the-job feedback related to embedded teaching. Results with the 2 staff members during the 2nd year of this investigation suggest that training in teaching procedures in scheduled, formal instructional sessions is not necessarily a prerequisite for acquiring and applying embedded teaching procedures. Neither of these participants had received any training in instructional procedures prior to participation in the embedded teaching-skills training program.

A long-standing issue in research on staff performance is staff reactivity to having their work performance observed (Reid, Parsons, & Green, 1989, chap. 3). That is, controls are usually needed to ensure that staff performance does not change simply due to awareness that their work is being observed. In this investigation, reactivity warranted attention because two of the observers were in positions of supervisory authority, which may heighten reactive effects. However, several features of the current investigation tend to argue against this possibility. For example, staff were accustomed to having observers in the classroom (including the personnel who conducted observations in this investigation), which can reduce reactivity (Reid *et al.*). Also, staff were aware that their teaching performances were being observed during baseline, yet no improvements in teaching performance were apparent during baseline. Most important, however, the changes in child behavior suggest that staff members were using their newly acquired teaching skills at times other than when their performance was being observed as part of the investigation proper. In light of the generally

severe nature of the children's disabilities, it seems unlikely that the observed increases in independent responses would have occurred if staff members were using effective teaching procedures only during formal observation times.

Several qualifications of the results warrant mention. First, the observation system employed with Joan, who was responsible for 2 children with disabilities in her classroom, did not allow an analysis of independent responses and no responses for each child (the data in Figure 2 for Joan represent independent responses and no responses by both children). Hence, the possibility that the observed increases in independent responding and decreases in nonresponding were due to changes with only 1 of the 2 children cannot be discounted. However, for the other 3 staff members, increases in independent responding and decreases in nonresponding do reflect the performance of individual children. A second qualification is that because only two postintervention observations were obtained with Sue and the child she taught (Max), conclusions are tentative regarding the effectiveness of the training in her case.

It should also be noted that because the embedded teaching-skills training program involved a combination of training procedures (e.g., instructions, role playing, feedback), it is not clear what role each of the procedures played in the observed improvements in teaching performance. Future research could evaluate each training component in an attempt to make the training more efficient by potentially eliminating those procedures that may be less important. Additional research also is needed regarding methods of maintaining the teaching performances, especially when considering the low baseline performances of the 2 staff members who had received training in teaching procedures in the year prior to this study (although training did not specifically involve

embedded teaching strategies). Previous staff-training research suggests that maintenance of improved performance should not be expected without some form of ongoing feedback (Reid & Parsons, 2000), although precisely how much feedback is necessary is not known.

In light of the qualifications just noted, additional research on the embedded teaching-skills training program in inclusive preschools seems warranted to further examine the utility of the program. Future research on training staff members to apply teaching skills to other performance areas of children with disabilities in inclusive preschools would also be desirable. For example, training staff members in specific methods of enhancing social interactions among children with and without disabilities warrants continued research attention. If research continues on methods of training recommended practices to staff in inclusive early childhood settings, then perhaps the gap between best practices recommendations and existing practices in typical preschools (Garland, 1995) may be reduced.

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### STUDY QUESTIONS

1. What is embedded teaching, and what are some of its potential advantages?
2. Briefly describe the three components of a correct teaching opportunity.
3. How were child independent responses, prompted responses, and nonresponses defined? What feature of the staff prompting strategy necessitated a decrease in nonresponses?
4. Summarize the key features of the observation system.
5. List the major components of the staff training procedures and the five types of teaching situations that were targeted in the classroom routine.
6. Summarize the effects of the intervention on staff and child behavior.

7. What behavioral processes may have accounted for changes in behavior as a function of improved prompting, error correction, or reinforcement?
  
8. What feature of the methodology minimized the likelihood that behavior change was simply a result of the presence of observers in the classroom?

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