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Use of Feedback from Sighted Peers in Promoting Social Interaction Skills

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Abstract: A boy who was visually impaired was trained to self-evaluate his social interaction, and a sighted peer was trained to provide relevant feedback to the boy through verbal reinforcement by the researcher. This feedback enhanced the boy's social interaction with his sighted peers, improved certain aspects of his social behavior, and increased the accuracy of his self-evaluation for behaviors that require visual cues.

Feedback is the provision of evaluative information to an individual with the aim of either maintaining present behavior or improving future behavior (Schloss & Smith, 1994). Couch and Magrega (1992) defined feedback as a procedure that provides information about an individual's behavior shortly after that behavior has been performed. Therefore, feedback is the procedure that provides information about the emitted behavior, leading to the modification or maintenance of that behavior. Furthermore, feedback can be both internal (such as self-evaluation) and external (provided by others in the environment). Almost everything that people do involves feedback, both internal and external. According to Cartledge and Milburn (1986), feedback is critical to social development because after a child receives information about his or her performance, he or she can make the necessary modifications to improve his or her social skills.

It has been observed that self-evaluation is effective in promoting the generalization and maintenance of social skills of children who are visually impaired (that is, those who are blind or have low vision). However, to evaluate themselves accurately and to modify social skills that require visual cues, it is essential for these children to be given feedback (Jindal-Snape, 2004; Jindal-Snape, Kato, & Maekawa, 1998), since without clear feedback, the children are unable to identify how their social behavior differs from those of other children or is perceived by others in the environment (Raver & Drash, 1988). Schloss and Smith (1994) have also noted that many responses are difficult to self-monitor and that an individual who is visually impaired may not detect any variance in behavior between themselves and others. According to Browder and Shapiro (1985), self-management is related to all the processes that are involved in changing or maintaining one's behavior, especially in the absence of any immediate environmental support or feedback. Thus, although self-management helps a person to maintain his or her behavior without any feedback from the environment, initial feedback may be necessary.

It seems, then, that to modify some social skills, children who are visually impaired need feedback from the external environment, along with self-evaluation. However, once the behavior is modified, they can maintain the behavior through self-evaluation even in the absence of feedback. The necessity of feedback brings to light the responsibility of the significant others in the environment to provide it in a way that is appropriate and meaningful to the children.

It has been observed that significant others in the environment often fail to give feedback, and even when they do, it is not meaningful or understandable to an individual who is visually impaired—for example, nodding one's head in reply to a question or gesturing (Jindal-Snape, 2004). Meaningful feedback is

important, not only for social interaction, but for accurate self-evaluation by individuals who are visually impaired. Because of the lack of meaningful feedback, visually impaired persons may find it difficult to comprehend a conversation (D'Allura, 2002; McGaha & Farran, 2001) and, at times, may stop conversing. Hence, the inadequate conversational skills of others may indirectly influence the conversation skills and, what is more important, the social interaction of individuals who are visually impaired. According to MacCuspie (1996), the nature of the social environment and the behavior of its participants (including peers, teachers, and parents) play an important role in the social interaction and integration of children with visual impairments.

Therefore, it is necessary to increase the feedback from the environment, and for the purpose of facilitating generalization and maintenance, it may be better if the feedback regarding behavior is provided by someone in the natural environment (Jindal-Snape, 2004). One possible way of doing so is to train significant others in the environment to provide feedback.

The main purpose of this study was to train peers in the immediate environment of a child who is visually impaired to provide feedback to him about his social behavior through reinforcement by me (the researcher) and to determine whether this feedback had an effect on the accuracy of the child's self-evaluation. Another purpose was to investigate whether a peer could generalize the provision of feedback to another child with a visual impairment.

I obtained informed consent to conduct the study from all the children who participated and their parents, as well as from the teacher and the head teacher of the school that the children attended. The names of the children were changed to protect their identity.

Method

Settings

The study was conducted in a class of 30 children in an integrated school in New Delhi, India. There were 6 children with visual impairments in this class. The teacher had no formal qualifications for teaching children who are visually impaired, but she had the support of the school's resource person, who is qualified in the field of visual impairment. The seats were arranged in rows with 3 children at each table, so that 1 visually impaired child sat with 2 sighted children. According to the class teacher, this arrangement was made so that the sighted children could read from the blackboard or read books to the children with visual impairments. However, there seemed to be hardly any interaction between the sighted and visually impaired children, with the visually impaired children never asking for someone to read to them, and their peers never volunteering to read to them. The only time that there was any interaction was when the children were prompted by the teacher, but this interaction was not sustained.

Participants

One boy who was totally blind and had no other disabilities (Raj) and three sighted peers, two boys (Arun and Ravi) and a girl (Kiran), participated in the study. Raj, Kiran, Arun, and Ravi were 9 years, 8 months; 9 years, 2 months; 9 years, 6 months; and 9 years, 8 months, respectively.

Raj

Raj's social age was 5 on the Vineland Social Maturity Scale (the Indian adaptation by Malin & Raj, 1992). Raj scored low on items that were related to games and independent movement.

The teacher reported that Raj did not pay attention in class, that his attention span was short, and that he did not participate in class activities or complete assignments; rather, he usually put his head on the desk and was off-task or got up from his seat and moved around the class, disturbing others. The teacher also reported that Raj did not turn toward others when he was addressed or respond in any other way. She said that as a result of this lack of response, Raj's peers had stopped initiating any interaction with him. Even after she provided prompts to Raj and his classmates, she did not observe any long-term interaction between them.

Raj lived in a hostel (known as a "residential preparatory school") and went home once a week. He had been living at the hostel for five years and had attended the integrated education setting for three years before the study began. This hostel provided accommodations to children with visual impairments whose families did not live in New Delhi but wanted their children to study there (see Jindal-Snape, 2004). Each day after school, Raj went back to the hostel. He was seen to interact with just one peer who lived in the same hostel and was also visually impaired.

At the time of the study, Raj's brother was 12 and his sister was 6. No other family member had any disability. According to his father, Raj was close to his siblings, but when they went out to play, he preferred to stay inside despite their best efforts. Raj's father reported that Raj did not participate in group activities and was sometimes disruptive at home. Even when Raj played games, his attention span was short. His father received reports from the teacher at his school and the director of the hostel that Raj was not completing his school assignments.

When he was observed in the classroom and on the playground, Raj never faced or turned toward the other children, even when they spoke to him. His lack of response seemed to have an

adverse effect on his peers, who, even when prompted to approach him, soon gave up. Therefore, it was considered essential for Raj to show that he was paying attention—that he not only oriented his gaze in their direction, but responded to the peers' initiations.

Kiran, Arun, and Ravi

Kiran lived at home with her parents and siblings. She was observed to be cheerful and ready to help others and interacted freely with all her peers. She was attentive in class, and participated in cocurricular activities. When Kiran was observed with Raj in the classroom and on the playground, she did not provide feedback to him when he was not looking toward her; she did not look at him when she talked or ignored him in a conversation and turned toward another child while she was talking even though Raj was present. Both Arun and Ravi lived with their families. Arun was cheerful and active, attentive in class, and good at sports. Ravi was an attentive child, who was observed to help other children.

Kiran and Arun were selected for the study because they were recommended by their teacher as being socially active. Ravi was selected because of his high motivation to play and converse with Raj.

Target behaviors

On the basis of the interviews with the father and teacher and observations of Raj in school, two target behaviors were selected for Raj: direction of gaze (orienting the face and body toward a person with whom one is speaking) and on-task behavior (see Box 1). Kiran, Arun, and Ravi were specifically involved with Raj in the sessions for direction of gaze. Since the nonverbal feedback provided by Kiran (such as nodding or pointing) was

assumed to be difficult for Raj to understand, the target behavior for Kiran was to give verbal feedback regarding Raj's direction of gaze (see Box 2). Target behavior was explained to both Kiran and Raj after the baseline phase and before the intervention phase.

Design and experimental procedures

The study covered a period of nearly 5 weeks (including prior observation and interviews with the teacher and Raj's father). Two 10-minute sessions were conducted every day from Monday to Friday, one for direction of gaze and one for on-task behavior. The settings for both sessions were different, and there was a gap of a couple of hours between the two sessions.

Raj's direction of gaze

The target behavior, appropriate direction of gaze, was observed in a room that was different from the classroom. The participants, Raj, Kiran, and Arun, were asked to chat or play freely with each other. Kiran's role was to provide feedback to Raj, whereas Arun was involved when the three of them worked together in a small group setting.

For Raj, after one baseline session, there were 13 sessions of self-evaluation for direction of gaze and 5 sessions of the generalization probe phase. After every three-minute interval during the self-evaluation sessions, I cued Raj to self-evaluate verbally whether he thought he was facing the person with whom he was speaking by tapping my foot twice, a cue that Raj had agreed to before the intervention started. I tapped my foot so that I did not stop the conversation or play; Raj was able to make his self-evaluations after the completion of that particular conversation or activity. During the generalization probe, which was conducted in a different setting with different peers, I did not cue Raj to self-evaluate. The length of time that Raj maintained

an appropriate direction of gaze in each session was ascertained by viewing videotapes of the sessions, as described later.

Feedback by Kiran

For Kiran, there were two intervention phases: verbal reinforcement by me for giving feedback to Raj about the accuracy of his self-evaluation regarding direction of gaze and no reinforcement for giving feedback to Raj. These phases were followed by a generalization probe for Kiran with another child who was visually impaired in a different setting (to probe for the occurrence of trained behavior in an untrained setting with an untrained peer who was visually impaired). There were five baseline sessions, five sessions of verbal reinforcement (praise) for feedback, and four sessions of no reinforcement for feedback. The generalization probe was conducted for four sessions.

Immediately after Raj's self-evaluation, Kiran provided feedback to him on his direction of gaze. After the first five sessions (the baseline and part of the self-evaluation phase), Kiran was trained to provide feedback in a nonjudgmental manner. Although it was anticipated that there might be some feedback from Kiran, Arun, or both during the baseline sessions, before Kiran was reinforced for providing feedback to Raj, no such feedback was observed. Hence, it can be said that for the first four sessions of self-evaluation of the direction of gaze, there was no feedback at all. Although initially Raj made his self-evaluations without any feedback from Kiran or Arun, it can be assumed that there was a difference in conditions for him for direction of gaze with the commencement of intervention for Kiran (verbal reinforcement for providing feedback to him) and again when there was no reinforcement for it. That is, the feedback supporting his self-evaluation varied in different sessions.

Arun was present in all the sessions, except when Kiran was

being reinforced and during the probe phase. During the sessions in which Kiran was being reinforced, Ravi took Arun's place to see if Arun would start giving feedback to Raj without observing Kiran being reinforced for it.

Raj's on-task behavior

Raj's on-task behavior was observed in the classroom. For on-task behavior, after 3 sessions of baseline, there were 11 sessions of self-evaluation and 4 sessions of the generalization probe phase. The probe phase could not be conducted on the second-to-last day because no task was assigned. Although Raj was cued to self-evaluate his on-task behavior, he received no feedback from me or a peer. During the 4 sessions of the generalization probe, I did not cue Raj to self-evaluate, and Raj moved to a different table and worked with different peers.

Interobserver reliability

All the sessions were videotaped so that the behaviors could be independently coded by the observers. I and two special education final-year undergraduate students later viewed the videotapes. All the observers used the same definition of the target behaviors. Five minutes of each 10-minute session were observed, from the 3rd to the 8th minute. Interobserver reliability was calculated using the number of agreements divided by the number of agreements plus the number of disagreements, multiplied by 100. For direction of gaze, interobserver reliability for Raj was 86% during the baseline, 90% during the self-evaluation phase, and 88% during the probe phases. For on-task behavior, interobserver reliability was 98%, 99%, and 99% for the baseline, self-evaluation, and probe phases, respectively.

Results

Raj

Direction of gaze

As can be seen in Figure 1, at the baseline, Raj had an appropriate direction of gaze for 62 seconds out of a maximum possible of 300 seconds. After he started self-evaluating, but before feedback was given by Kiran, his direction of gaze increased to an average of 133 seconds. After the introduction of verbal reinforcement of Kiran for providing feedback, Kiran started giving feedback, Raj's direction of gaze increased to an average of 221 seconds. Although there were fluctuations in the frequency of Kiran's feedback, the duration of Raj's appropriate direction of gaze seemed to stabilize after feedback was introduced. During the generalization probe with new peers, Raj's direction of gaze lasted an average of 216 seconds. Social interaction between Raj and his peers increased as well.

On-task behavior

Raj's on-task behavior was an average of 66 seconds out of a possible 300 at the baseline. After Raj started to self-evaluate, it reached an average of 283 seconds and was mostly at 300 seconds (that is, his behavior was on task for the entire observation period). During the probe phase, his on-task behavior was maintained at an average of 281 seconds. After the introduction of the self-evaluation phase, Raj was observed to turn toward the peer sitting next to him in the classroom to ask the peer to dictate the material written on the blackboard to him.

Accuracy of self-evaluation

To ascertain the accuracy of Raj's self-evaluations, all the self-evaluation sessions were observed. During the sessions on direction of gaze, Raj's self-evaluations were correct at an average

of 41% during the self-evaluation-only phase. With the introduction of feedback from Kiran, however, he was correct an average of 72% of the time. Raj's self-evaluations were accurate 100% of the time during the on-task sessions, even though no verbal feedback was provided.

Kiran, Arun, and Ravi

As can be seen in Figure 1, during the first five sessions there was no feedback from Kiran. However, with the introduction of reinforcement for feedback, Kiran started to give feedback at an average rate of about 3 times per session. After reinforcement stopped, she still gave feedback, but at a lower frequency of about 1.5 times per session, which suggests that feedback became irregular. Kiran was observed with another child who was visually impaired to ascertain the generalization of providing feedback. During the four sessions of the generalization probe, she provided feedback about once per session.

Arun was present during the sessions when Kiran was not being reinforced for giving feedback. With the introduction of reinforcement for feedback, he was removed, and another peer replaced him. He was brought in again after the sessions in which Kiran was reinforced. It was interesting to see that Arun also started to give feedback at a rate of about once per session. It is possible that he was modeling Kiran.

During the five sessions, in which Ravi was present while Kiran received reinforcement, Ravi started giving unprompted feedback at an average of once per session. He was seen to hold Raj's hand while conversing with him and at times turned Raj's face toward him during a conversation.

Discussion

Although self-evaluation was effective for modifying Raj's direction of gaze from the beginning, it became even more effective with the introduction of feedback. Later, even though there were fluctuations in feedback, Raj's use of appropriate direction of gaze seemed to stabilize. This finding may suggest that once Raj learned to evaluate himself accurately, he could do it even without feedback from the environment.

For on-task behavior, Raj did not need any external feedback, and he could evaluate himself accurately without it. This finding further supports the assumption that verbal feedback from the environment is particularly necessary when consequences are not evident, especially in the case of the social skills of visually impaired individuals that require vision. The self-evaluation for on-task behavior not only increased its duration, but it helped to improve Raj's social interaction with his peers in that he was observed to ask his classmates to read to him from the blackboard or a book.

After the training, Kiran started to give feedback even without reinforcement. Furthermore, she was able to generalize feedback, since she was observed to give feedback to the other child with visual impairment as well. However, this feedback was inconsistent. It may suggest the necessity of using somebody in the natural environment to prompt or reinforce peers for giving feedback.

Ravi was present when Kiran was being reinforced. Even though he was not reinforced, he started to give feedback as well. In fact, his feedback came naturally in the middle of the session. The reinforcement of Kiran may have worked as vicarious reinforcement for him. However, it is also possible that Ravi had already developed the skill of giving feedback before he joined the sessions and may have been influenced by his motivation to converse and play with Raj.

Arun was seen to model Kiran in giving feedback. Although he was not present when Kiran was being trained to give feedback, he started to give feedback. This finding seems to be in line with MacCuspie's (1996, p. 189) finding that the formal involvement of peers in enhancing the social integration of their visually impaired peers provides good opportunities "to broaden their understanding of visual impairment and develop a meaningful relationship with [a student who is visually impaired]."

In addition, this finding may suggest that peers model the teacher as well. Therefore, the role of the teacher in providing feedback is important, and it would be interesting to study its influence on students' behavior. However, it was observed that feedback from the peers might generalize more if the prompts and/or reinforcement were provided by somebody in their natural environment.

Asking Raj to evaluate himself every three minutes was essential because a longer time frame might have affected the accuracy of his self-evaluation. However, such a short interval between self-evaluations can sometimes hinder the flow of conversation. Thus, it is worth trying to increase the intervals in the latter sessions. Similarly, the number of sessions for measuring the baseline for Raj's direction of gaze ideally should have been greater; intervention was started after one session on the basis of observations in other settings and interviews before the study began. However, it is recommended that data for the baseline should be recorded for three to four sessions prior to the commencement of an intervention. It also would have been useful to conduct another interview with Raj's parents to gain insights into whether Raj's behavior had changed at home. However, it was not possible to do so because the parents were not available.

Conclusion

Verbal feedback was effective in enabling Raj to self-evaluate social skills that required visual cues. It was found that the accuracy of Raj's self-evaluation and the target behaviors improved considerably after feedback was provided by the peers. However, once Raj learned to perform the target behavior and to self-evaluate accurately, he could continue to do so in the absence of feedback. This finding suggests that after significant others in the environment provide initial feedback, children who are visually impaired can generalize and maintain their behavior even in the absence of these significant others.

Hence, it can be concluded that feedback from significant people in the environment is essential for enhancing social skills that require visual cues and that these people should make an effort to provide it accurately and appropriately. However, it is necessary to discuss the most effective way of extracting this feedback from the environment. Furthermore, self-evaluation procedures could also be applied to train significant others in the environment to provide feedback.

Another interesting observation was that untrained peers also learned to give feedback. It is possible that they did so through modeling. This finding suggests that if such feedback and information are provided by the teacher in everyday situations, students may model it, which could lead visually impaired students to more rapid and natural development of social skills and an increase in social interaction.

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