Increasing Social Engagement in an Inclusive Environment

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Abstract: This study examined the effectiveness, generalization, and maintenance of a multi-element intervention consisting of brief direct instruction social skill lessons, a prompting procedure, and a fading procedure to promote social engagement in an integrated lunchroom and playground setting for three elementary age students with developmental disabilities. Results demonstrate that the level of social engagement improved for all three participants with high levels of generalization and maintenance. Social validity ratings by teachers revealed the social skills intervention was considered appropriate and effective. Implications, limitations, and directions for future research are presented.

The inclusive school setting has been cited as a benefit for children with social deficits because it allows them to cultivate a higher level of play and social interaction. Bauminger et al. (2008) and Sigman and Ruskin (1999) found that children with autism who had exposure to play activities with their typically developing peers tended to engage in more complex interactions than children who lacked social exposure to their typically developing peers. Bauminger, Shulman, and Galit (2003) stressed the importance of spontaneous peer interaction in natural settings; children with autism may be able to decipher social situations under laboratory settings, but they struggle to generalize that knowledge in unstructured settings. Their conclusion was that it would be best for students with autism to receive some mediation in the natural setting to assist in the day-to-day interactions with their typically developing peers (Bauminger et al., 2003).

However, Kaufman and Hallahan (1995) have warned that inclusion itself does not guarantee students with developmental disabilities a completely inclusive experience. Girli (2013) noted that while inclusive education may appear to help the social acceptance of students with intellectual disabilities, these students are often shunned by their peers. Typically developing peers may see students with developmental disabilities as outsiders (Schnorr, 1990). To deal with this issue, Girli (2013) advocates the need for social skills instruction to take place in the natural environment to assist the social interactions of children with developmental disabilities with their typically developing peers.

Social Skills Instruction Models

Researchers have evaluated the effectiveness of some models of social skills intervention that do combine the elements of naturalistic settings, peer integration, and adult mediation or prompting. Kohler, Anthony, Steighner, and Hoyson (2001) described a form of “naturalistic teaching” in which the teacher followed the lead of the student in a specific activity by helping the child to augment his social interaction during free-play. The study resulted in improved social interactions and high levels of maintenance in two of the four students included in the study. Bass and Mullick (2007) used an “integrated peer group” model in which children with disabilities interacted with typically developing peers under the guidance of an adult. This model was found to double the amount of interaction of...
its subjects, but failed to maintain following the withdrawal of the intervention. Weiss and Harris (2001) also evaluated peer-mediated social interventions in the natural setting with minimal adult guidance. While positive effects were achieved, the authors recommended adding more specific adult direction, such as prompting, to improve maintenance and generalization.

Prompting

Prompting is a common form of adult guidance used in teaching new skills in natural settings to children with disabilities. Prompting has been used to increase desired behaviors such as life skills (e.g., Ault & Griffen, 2013), communication skills (e.g., Humphreys, Polick, Howk, Thaxton, & Ivancic, 2013), and general hygiene skills in participants with moderate to profound disabilities (e.g., Demchak, 1990). Prompting has also been used to increase social interactions among children with disabilities (e.g., Craig-Unkefer & Kaiser, 2002; Goldstein & Wickstrom, 1986; Sarokhoff, Taylor, & Poulsdon, 2001; Strain, Kerr, & Ragland, 1979; Thomas, Lafasakis, & Sturmey, 2010). Goldstein and Wickstrom (1986) effectively used prompting to facilitate peer interaction of preschool students with developmental disabilities, specifically social elements such as eye contact, joint attention, initiating requests, responding, imitation, and redirection. Craig-Unkefer and Kaiser (2002) used a peer-mediated approach with six preschool children at risk for language delays or behavior problems. In their study, a plan was developed with typically developing peers to facilitate a scripted interaction with at-risk students. During the play session, a type of prompting called “redirection” was used to refocus, instruct, and help facilitate the scripted interaction. For five of the six children, there was an increase in descriptive and request utterance. Studies such as these have demonstrated the effectiveness of interventions that employ a prompting component to increase positive social interaction skills.

Generalization and Maintenance

One limitation of these prompting studies is the overall lack of generalization and maintenance of learned social skills. For example, prompting was used by Strain et al. (1979) to increase the social interactions of four children with autism through a prompting and reinforcement strategy but the social behaviors did not generalize. Specifically within single subject research, initial responses to interventions are well documented; however, maintenance of these effects is rarely documented. This may be due to the necessary investment of time and resources required to collect maintenance data (Sturmey, 1997). For instance, neither generalization nor maintenance data were collected in the study conducted by Craig-Unkefer et al. (2002). With this being said, generalization and maintenance effects were documented in studies conducted by Thomas et al. (2010) and Sarokhoff et al. (2001). Generalization effects were apparent in the study conducted by Sarkoff et al. (2001) when effects from a prompting treatment implemented to increase communication generalized to a novel peer in a treatment center for children with autism. Thomas et al. (2010) implemented an intervention that combined prompting, fading, and differential reinforcement to increase the vocal mands and appropriate responses and decrease the immature mands of three children with autism. In this study, generalization was reported and effects were maintained two-months after the intervention phase.

The main purpose of this study was to examine the effectiveness of a social skills intervention that employed brief social lessons with a prompting and fading procedure for social engagement in the natural integrated lunchroom setting for three elementary age students with developmental disabilities. A second purpose of this study was to extend the literature by providing more robust measures of generalization and maintenance.

Method

Participants

Three first grade students with developmental disorders and social deficits were chosen for this
study. To be included in the study, participants were required to be: (a) recognized by a classroom teacher as displaying chronic social interaction deficits; (b) officially referred by a teacher for additional social support; (c) diagnosed with a developmental disorder (i.e., autism or Down syndrome); (d) included with typically developing peers in the school setting; and (e) rated as exhibiting a deficit in functional social skills (i.e., a score below 85 on the Teacher Form – Elementary Level of the Social Skills Rating System (SSRS; Gresham & Elliott, 1990).

Mary. Mary was an eight-year-old female diagnosed with Down syndrome. She was referred to this study by her teachers due to unsuccessful attempts at social interaction with peers. Her teachers reported that Mary would often avoid social interactions with her peers. When Mary did attempt to interact with her peers, she would often display aggressive behaviors toward her peers such as scratching, hitting, and pushing. Her teachers also reported that non-familiar listeners found it difficult to understand Mary due to speech and language deficits. In observations during outdoor recess periods, she would climb on the equipment or wander in the grass. On the rare occasion she was seen interacting with others, it was with the adult playground staff. During observations in the lunchroom, Mary chose to sit with the special education staff and two non-verbal students rather than with her typically developing peers. During her time at that table, she was never observed interacting with the students and rarely interacted with the staff. Mary’s standard score of 79 on the SSRS Social Skills subscale was below average as compared to same-age peers.

Chantelle. Chantelle was a seven-year-old female student educated in a mainstream first grade classroom. During the course of this study, she was being evaluated for Autism Spectrum Disorder by a multidisciplinary team. Chantelle often avoided social interaction with her peers by separating herself physically from her cohort group. When peers attempted to communicate with her, she would typically respond as quickly and concisely as possible, ending the interaction directly following her response. When she did speak, she would put her head down and speak in a tone so soft that listeners had difficulty understand-
passed the rows of tables, and into the kitchen to receive their lunch trays. Once they were seated, permission was needed to leave their assigned area to get any additional food or condiments.

Playground. Generalization data was collected on the playground during typical recess activities such as: playing on the equipment, playing with balls and jump ropes, or digging in a sand pit. The playground was a large area with a soccer field, jungle gym with connected slide, swings in a separate area, paved pavilion for jumping rope, and shaded sand pit.

Inclusion. Chantelle spent 100% of her day with typically developing peers in the regular classroom, while Mary and Beatrice spent less than half of their day with typically developing peers. Mary and Beatrice received core academic instruction in the special education setting while attending classes such as music, art, PE, recess and lunch alongside typically developing peers.

Dependent Variable

The target behavior in this study was social engagement. Social engagement was defined as verbal interaction or active listening with peers utilizing eye contact, body language, and audibility. Furthermore, verbal interactions were required to be on topic and within a conversational turn. The qualifiers of eye contact, body language, and audibility were added to the behavioral definition to ensure that social engagement was appropriate for the situation. For example, verbal interactions that occurred in quiet tones to no one in particular while looking in a random direction would not constitute social engagement. In order to be socially engaged, the student needed to be looking at a peer while verbally interacting, her voice audible enough for the typically developing peer to hear the verbalization, and the participant needed to be facing the peer, leaning into the peer, or moving her body to indicate interaction with a peer (i.e., looking at a sticker together, pointing at a poster, or showing an object in her lunch).

Independent Variable

The independent variable in this study was a multi-element intervention consisting of a limited number of brief direct instruction social skill lessons, a prompting procedure, and a fading procedure.

Social skills lessons. The social skills lessons followed a direct instruction format. The social skills lessons were conducted during transition to lunch in a one-to-one format with the first author. There were five specific social skills lessons, each focused on an element of the social skill (“talking with friends”). Each social skills lesson took approximately five minutes. During subsequent transitions, the researcher and participant briefly reviewed the elements of the social skill. The content of each lesson is described in detail in the following paragraphs.

Session one. As a participant began the intervention phase, the first author would meet the participant a few minutes before transition to lunch. The researcher began by explaining to the participant the expectation that lunch is “a time to talk with our friends”. The researcher asked the participant the following questions:

- How do you feel about talking with friends at recess or lunch?
- Is it hard to talk with your friends?
- What stops you from talking with your friends?
- Why do you think it might be important to talk to friends?
- Why is it important to listen to friends?
- Would you like to learn how to talk better with your friends?

Next, the researcher explained that several important elements comprise effective “talking” with peers, such as “looking at our friends,” “facing our friends when we talk,” “speaking loudly enough for our friends to hear us,” and “talking to our friends about things they like to talk about.” During the first session of the intervention, the researcher only gave an overview of the expectations; specificity regarding each skill was added during successive sessions. In the first session, the researcher also presented the participant with a piece of paper called a “friend paper,” explaining that each time the participant talked with her peers, she would receive a sticker on her “friend paper” to show how many times she had talked with a friend that day.
Session two. On the second day of the intervention, the researcher met with the participant during the transition to lunch and led a brief lesson on eye contact. The researcher explained eye contact by using visible examples. The researcher gave examples and non-examples of eye contact, and asked the student to identify examples of correct or incorrect eye contact. The researcher then asked the participant to show correct and incorrect examples of eye contact. Once the researcher could see that the student was confident in her understanding of eye contact, the researcher reminded the student to use eye contact while talking with her friends at lunch that day. The researcher presented the student with the sticker paper and challenged the student to talk with her peer as much as she could that day.

Session three. On the third day of the intervention, the researcher met the student before the lunch transition and led a brief lesson on body language. Body language was defined as facing a peer when talking. The researcher explained what body language was by using visible examples. The researcher provided examples and non-examples of audibility and encouraged practice of the skill. Once the researcher could see that the student was confident in her understanding of body language, the researcher challenged the student to face her peers when talking at lunch with them that day. The researcher presented the student with the sticker paper and challenged the student to talk with her peer as much as she could that day.

Session four. On the fourth day of the intervention, the researcher met the participant before the lunch transition period and led the student through a brief lesson on audibility. Audibility was defined as talking loudly enough for peers to hear, but without yelling or screaming. The researcher explained what audibility was by using audible examples. Again, the researcher provided examples and non-examples of audibility and encouraged practice of the skill. Once the researcher could see that the student was confident in her understanding of audibility, the researcher challenged the student to speak loud enough when talking at lunch with peers that day. The researcher presented the student with the sticker paper and challenged the student to talk with her peer as much as she could that day.

Session five. On the fifth day of the intervention, the researcher met the student before the transition to lunch and led the student through a brief lesson on subject topics. “Subject topics” were defined as conversation starters that would help start a conversation or how to sustain a conversation by remaining on the topic of the peers’ choosing. The researcher described conversation starters by using audible examples. The researcher provided examples and non-examples and led the participants in practice of the skill. Once the researcher could see that the student was confident in her understanding of remaining on topic or starting a conversation, the researcher challenged the student to utilize this element when talking at lunch with peers that day. The researcher presented the student with the sticker paper and challenged the student to talk with her peer as much as she could that day.

Subsequent sessions. After the fifth day of social skills training, the researcher focused on all elements of engaging with peers: eye contact, body language, audibility, and topic choice. During the transition period before lunch, the researcher quizzed the participant by asking about each topic to make sure that the participant still understood the important elements of successful engagement with peers.

Prompting procedure. During the lunch period, the researcher prompted the participant at the end of each minute to give the friend eye contact, face her peer, use an audible voice, or prompt the peer to discuss a topic with a friend by using a generic conversation starter, or by prompting the participant to say something germane to the subject already in discussion. If the participant was not talking with a peer, the researcher instructed participant to look peer in the eyes and prompt using a generic prompt. Generic prompts were:

- Ask your friend what they will do tonight when they get home
- Ask your friend what they did over the weekend, or what they did last weekend
- Ask your friend what they have for lunch today
• Ask your friend what they are going to do in class today

When the participants engaged in conversation with a peer, either prompted or un-prompted, a typically developing peer placed a sticker on the participants “friend paper.”

Fading procedure. When the participant was able to maintain social engagement at or above 50% of session intervals over four sessions, the prompts were faded to one prompt every two minutes. Once the prompts were changed to every two minutes, the participant receiving the intervention no longer received stickers for interacting with peers. Instead, the participant receiving intervention was able to give stickers to a peer that was “being a good friend” during lunch. When the student was able to maintain a level of engagement at or above 50% over four sessions with prompts delivered every two minutes, the researcher reduced prompting to every four minutes. Finally, prompting ceased after the participant maintained social engagement at or above 50% for four consecutive sessions with prompts received every four minutes. After prompting ceased, the researcher simply patted the participant on the back after successful engagements with peers during lunch.

Research Design

This study employed a multiple baseline design across participants. This design was chosen because the intervention involved teaching social engagement skills that were not functionally reversible. The study consisted of three phases: baseline, intervention, and maintenance. Baseline data were taken continuously across all three students. The first participant (Mary) moved from baseline to intervention session once a minimum of five consecutive data points demonstrated a stable and level or non-therapeutic trend. Intervention was implemented with the next participant once the previous participant demonstrated a therapeutic trend and/or increase in level across at least three data points. The authors determined the order of implementation across participants. Beatrice had frequent absences during baseline; to ensure sufficient baseline data, she was the last participant to enter the intervention phase. Data were collected four days per week and a minimum of 15 data points were collected during intervention for each participant.

Measurement

Social engagement was measured using 15-second momentary time sampling for 20-minute sessions in the lunchroom setting. At the end of each interval, a plus was scored if the participant was engaged in the target behavior. A minus was scored if the participant was not engaged in the target behavior at the end of the 15-second interval. Generalization data was collected on the playground during recess using the same 15-second momentary time sampling method during 20-minute sessions. Inter-observer reliability is described under the Reliability section of this study.

Procedure

Baseline sessions. During baseline sessions, the participants transitioned as usual to lunch. The researchers maintained a distance from the student and collected data on participant social engagement. Researchers did not interact with the participants or peers during baseline sessions.

Intervention sessions. During intervention sessions, the first author implemented the multi-element intervention (social skills lesson during transitions, prompting and fading during lunch) as described in the Independent Variable section of this manuscript. The researchers collected data on participant social engagement using the same methodology as during the baseline session.

Maintenance sessions. Follow-up sessions were conducted after the summer break. As conducted during the original baseline sessions, researchers sat apart from the participants in the cafeteria and on the playground to collect data on social engagement.

Treatment Integrity

Treatment integrity data were collected to verify the presence or absence of intervention elements. Treatment integrity data were collected on the social skill lesson intervention using event recording; during 100% of sessions, the researcher self-documented the oc-
currence or non-occurrence of a social skills lesson. A second observer documented the occurrence or non-occurrence of the social skills lessons during 33% of intervention sessions. Treatment integrity data were collected on the prompting procedure using one-minute partial-interval recording during 100% of intervention sessions. A second observer also documented the treatment integrity of the prompting procedure during 33% of intervention sessions.

Reliability

Inter-observer agreement. A second observer independently collected social engagement and treatment integrity data to assess interobserver agreement (IOA). Prior to baseline data collection, the two observers conducted two complete data collection sessions to ensure IOA across social engagement, verbalizations, and treatment integrity met or exceeded 85% agreement. For the interval data (social engagement and treatment integrity data), IOA was determined by dividing the number of agreements (i.e., intervals scored identically) by the total number of intervals and then multiplying the results by 100 (Kazdin, 1982).

For social engagement and treatment integrity, IOA data were collected across 33% of all sessions with average agreements of 95.6% (range = 91 to 100%) and 97% (range = 96 to 98%), respectively. For generalization, IOA data was collected across 27% of all sessions with average agreements of 98.6% (range = 95 to 100%).

Social Validity

Social validity was measured using the Intervention Rating Profile-15 (IRP-15; Martens, Witt, Elliott, & Darveaux, 1985). The IRP-15 was completed by each participant’s teacher prior to baseline and following intervention to assess whether the intervention elements in place at the time were perceived to be warranted, acceptable, appropriate, and effective for each participant. This measure consists of fifteen items to evaluate the teachers’ perception on the success or lack of success of the intervention. Teachers rate each item on a Likert scale ranging from one (strongly disagree) to six (strongly agree) for such items as “most teachers would find this intervention suitable for the behavior problem described,” and “I like the procedure used in this intervention.” Scores higher than 52 indicate that the teacher finds the intervention to be acceptable (Scattone, Tingstrom, & Wilczynski, 2006).

Results

Social Engagement

Mary. Mary’s social engagement averaged 1% (range = 0 to 2%) of intervals during the baseline condition. When intervention began with Mary on Day 6, social engagement increased to an average of 62% (range = 20 to 93%) of intervals. When the intervention fading was implemented and prompts were delivered every two minutes instead of every four minutes, social engagement averaged 70% of intervals (see Figure 1). There were no overlapping data points between baseline and intervention conditions. Treatment integrity remained high with levels averaging 98%.

Chantelle. During baseline, Chantelle’s social engagement averaged 2% (range = 0 to 7%) of intervals and increased to an average of 73% (range = 50 to 97%) of intervals following implementation of intervention on Day 11. When intervention fading was implemented and prompts were delivered every two minutes, social engagement averaged 81% of intervals. When prompts were delivered at four-minute intervals, social engagement averages dropped to 66% of intervals. Finally, when the intervention was withdrawn and no prompts were delivered to Chantelle, social engagement averaged 69% of intervals. There were no overlapping data points between baseline and intervention conditions and treatment integrity remained high with levels averaging 98%.

Beatrice. Beatrice’s social engagement averaged 1% (range = 0 to 3%) of intervals and increased to an average of 36% (range = 17 to 72%) of intervals following the implementation of intervention on Day 17. Because Beatrice’s social engagement levels did not reach a level of 50% of intervals for four consecutive days, intervention elements were not faded and prompts continued to be delivered at one-minute intervals during the course of the entire study. There were no overlapping data
points between baseline and intervention conditions. Like the other participants in this study, treatment integrity remained high with levels averaging 98%.

**Generalization**

Generalization data was collected during both the baseline and intervention conditions of the study. Concurrent with baseline, Mary’s social engagement generalization data averaged 1% (range = 0 to 3%) of intervals during typical playground activities. After intervention was implemented, generalization data increased to an average of 26% (range = 0 to 58%) of intervals socially engaged (see Figure 2). Chantelle was socially engaged on the playground during 1% (range 0 to 3%) of inter-
vals concurrent with the baseline condition. Social engagement increased to an average of 51% (range = 3 to 100%) of intervals following intervention implementation. For Beatrice, generalization levels increased, though the increase was smaller than that of Mary and Chantelle. Concurrent with the baseline condition, Beatrice’s social engagement levels averaged 3% (range = 0 to 8%) and increased to 15% (range = 0 to 38%) following implementation of intervention elements.

Maintenance

Maintenance data were collected after summer break to evaluate the lasting effects of the intervention. Chantelle’s family planned on moving prior to the beginning of the new
school year, so maintenance data were collected during the morning mealtime during summer school (Day 85 to 89). Data was collected for Mary and Beatrice several weeks into the new school year (Day 123 to 127). Mary’s social engagement maintenance data averaged 47% (range = 30 to 68%) of intervals during the maintenance phase. For Chantelle, social engagement data averaged 50% (range = 40 to 62%) of intervals during mealtime in summer school. Finally, Beatrice maintained an average of 25% (range = 16 to 37%) of intervals the following school year. For Mary and Beatrice, maintenance data were also collected on the playground to evaluate how generalization effects were maintained the following school year. Mary’s level of generalization maintained at an average of 55% (range = 30 to 75%) of intervals while Beatrice averaged 44% (range = 33 to 58%) of intervals socially engaged during recess three months after the conclusion of the intervention phase.

Social Validity

The teachers’ social validity rating measured with the IRP-15 averaged 38 (range = 30 to 53) prior to the intervention condition and 75 (range = 75 to 76) following implementation. Teachers rated the practices prior to intervention with a score of 30 and rated the intervention practices with a score of 75 following implementation. Chantelle’s teacher rated the practices pre-intervention with a score of 53, one point above acceptable; her teacher indicated willingness to use the pre-intervention practices in her classroom and felt these practices were consistent with those she had used in the past. Further, she felt the practices were appropriate for a variety of children. Following implementation, Chantelle’s teacher rated intervention practices with a score of 76. Finally, Mary and Bailey’s teacher rated the practices pre-intervention with a score of 30 and following intervention rated the practices with a score of 75.

Discussion

This study evaluated the use of a multi-element social skills intervention that employed brief social lessons with a prompting and fading procedure for social engagement in an integrated lunchroom setting for three elementary age students with developmental disabilities. Prior to the intervention, each of the participants exhibited deficits in functional social skills as compared to their same-age peers as measured by the SSRS (Gresham & Elliott, 1990). The social skills intervention incorporated brief social skills instruction, inclusive practices, prompting procedures, and positive reinforcement. As a result, each of the participants’ social engagement improved in both the intervention and generalization setting. Further, the effects of the program maintained following a break in the school year for summer vacation. Overall, the teachers perceived this intervention as acceptable for the participants involved in the study.

Extending the Literature

These findings extended previous research on social skills training in a few important respects. First, the authors were unable to locate previous studies that combined the elements utilized in this intervention within an integrated, non-academic setting like the lunchroom. The multi-element intervention procedure used in this study could provide a viable option for school districts that struggle to meet social skills minutes on students’ IEPs. Second, this intervention addresses the need for social skills instruction to be taught in social settings (Hauck, Fein, Waterhouse, & Feinstein, 1995). Bauminger et al. (2008) determined that children with high functioning autism were able to develop friendships similar to their typically developing peers when they were exposed to the model of typically developing peers. This intervention confirms those findings. It may be that participants were able to increase their social engagement and generalize and maintain the results because the intervention was conducted in a setting where they were able to model their behavior after their typically developing peers. Third, this intervention demonstrates the effectiveness of prompting in a setting where the participants are at different levels of proficiency. All of the participants in this intervention were at different levels of social communication. Prompting was an important element that allowed the intervention to be tailored to the social needs of each partici-
pant. “Naturalistic teaching” (Kohler et al., 2001) was used to follow the lead of the students in the intervention, and the researcher was able to prompt the student in a real situation as to possible ways to augment her social interactions with her typically developing peers.

Finally, this study demonstrated generalization and maintenance effects that are not commonly seen in social skills studies. Many social skills interventions have poor generalization and maintenance (McIntosh & MacKay, 2008). This may be because the intervention is conducted in a setting that does not resemble an actual social setting at school (Gresham, Sugai, & Horner, 2001). This study was conducted in the actual environment in which social interaction would be expected in the school setting. The degree to which peers were involved in this intervention may also have assisted in the continued support for social engagement in non-trained settings and during the following school year. In other words, rather than putting social behaviors on extinction due to the type of social exclusion by peers described by Girli (2013), the continued involvement of peers allows for the natural reinforcement of social skills and thus the maintenance and generalization of those skills.

Additional Improvements

The authors and teachers anecdotally noted other improvements in related student behaviors throughout the duration of this study. For Chantelle, the social skills improvements in the lunchroom setting also generalized to the academic setting. Her improved social interactions generalized in the classroom as noted by her teacher in an email sent to the principal: “[Chantelle] has made wonderful improvement in her behavior. I see a happy and laughing child with zero temper tantrums. [Chantelle] is now participating in cooperative groups and laughs with her peers.” Classroom teachers also noted that Mary demonstrated improved behavior in the classroom by increases in the duration and frequency of her interactions with peers during group projects and field trips. Her social interactions were also seen as more appropriate with her typically developing peers. Beatrice’s teachers and paraprofessionals reported that she stopped having daily tantrums, became more productive in class, and was more appropriate with her peers. Prior to the intervention, Beatrice needed to be given an incentive to go to recess. After the intervention, her paraprofessionals would say, “Let’s go play with our friends” and Beatrice would promptly leave her activity to go to recess. In addition, both Mary and Beatrice were more integrated in the general education setting for the following school year.

The intervention was also successful in developing a peer group of friends for one of the students in the study. Chantelle was able to develop a group of friends that allowed her to improve her social interaction without the need for additional incentives after the initial fading of prompts to every two minutes. Chantelle was significantly higher functioning than the other two participants, which may support the findings of Bauminger et al. (2003) who found that children with low-functioning autism were much less likely to interact with their peers than the children with higher functioning autism. This study found that Chantelle required less prompting, and peers did not require incentives to maintain interaction with Chantelle. However, peers did require incentives to remain invested in the social attempts of Mary and Beatrice. It should be noted that Chantelle spent the entire day with her typically developing peers, while Mary and Beatrice spent less than half the day with their typically developing peers. This may have made it easier for Chantelle to integrate socially with her peers.

Influence of Unexpected Issues

While all of the participants made gains in social engagement, there were unexpected issues that likely influenced the results of the study. Some of these variables were within control of the researchers, while others were not. During baseline observations, Beatrice would wander the lunchroom and often would leave fifteen minutes early. Therefore, during the initial phase of the intervention, most of the prompting was focused on directing Beatrice to sit with her peers the entire lunch period. More immediate improvement of Beatrice’s social behavior may have oc-
curred if this wandering behavior had been dealt with prior to initiating the intervention. However, it could also be argued that the Beatrice’s new social engagement skills provided a reason for her to stay seated with peers at lunch.

In addition, school attendance interfered with Chantelle’s intervention. This unexpectedly may have resulted in the lower levels of interaction during playground generalization. During the 20–25 days of the intervention, Chantelle often did not arrive at school on time. The result of her tardiness was that Chantelle was placed in lunch detention. After conferring with the administration, the first author was permitted to retrieve Chantelle from lunch detention and escort her to the playground. However, by the time Chantelle arrived at recess, her peers were already playing and Chantelle had difficulty interjecting with her group of friends and chose, instead, to return to her baseline behavior of sitting on the wall.

Finally, during the new school year, changes were implemented in the lunchroom that limited social interaction among all students. These changes were made to focus on a “quiet time” and involved spreading out the lunchroom tables and admonishing talking students. This may account for the lower levels of maintenance data for Beatrice and Mary in the lunchroom in comparison to the playground.

Taken together, these challenges suggest that researchers and practitioners may encounter both predictable and unforeseen impediments to realizing the benefits of social skills intervention. Researchers and practitioners should carefully consider the possible impact of associated behavior problems on the development of social skills and determine whether to deal with these behaviors in advance or as part of the intervention. They should also be aware that current administrative rules and changes in administrative policy may impede the benefits of social skills intervention.

Limitations

Certain factors limit the interpretation and generalization of the results of this study. Complete fading of the prompts could not be achieved with the final two subjects due to the ending of the school year. To compound the concerns, each time a fade was implemented, there was a drop in social interactions by the participants. Generally, studies have not substantiated that children will continue to socially engage without adult prompting (Stanton-Chapman, Kaiser, & Wolery, 2006). It would be important to evaluate whether social interactions could be maintained once prompts have been completely faded in various settings.

Future Research

This study was implemented with one participant who was fully integrated with peers during the day and two participants who were not fully integrated. It is very possible that the degree to which students are integrated with peers could affect the outcomes of the multi-element intervention used in this study. Future research should consider examining the use of this intervention across both limited and full inclusion settings, possibly to determine whether the setting type has a significant effect on the development of social skills. Additionally, this study had findings that concur with previous research showing that high functioning students benefitted more from social skills intervention than low functioning students. Future research should be directed at discovering how to improve outcomes for low functioning students.

In developing the prompting procedure, it was difficult to determine the appropriate level of interaction before moving the participant to the next fade in the prompting procedure. Therefore, we collected comparison data to assist in determining typical levels of social engagement at lunch. In order to effectively compare the participants in this study to their same-age peers, 30 comparison group participants were randomly selected from among typically developing students who attended the same lunch period as the participants. Social engagement data was collected using 15-second momentary time sampling procedures for 20-minute sessions. Control group participants’ social engagement data averaged 44% of intervals (range = 7 – 70%). This information assisted in developing appropriate levels of engagement required to
begin the fading of the prompting of the procedure. Future studies should consider the importance of collecting comparison data to develop appropriate expectations and goals for participants in the study.

Conclusion

This study demonstrates the efficacy of a multi-element intervention employing brief social skills lessons and prompting procedures in the lunchroom setting. Additionally, the study demonstrated that the skills learned by students were generalizable to other settings and maintained over long periods of time. Teaching social skills in the inclusive setting can provide children with disabilities the opportunity to engage with typically developing peers and help students navigate the labyrinth of social interactions. By employing social skills interventions within naturally social situations, both children and educators are able to embrace the promise of inclusive education.

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Received: 27 March 2014
Initial Acceptance: 20 May 2014
Final Acceptance: 20 July 2014