Abstract

This study examined the effectiveness of the SMILE intervention on social engagement and generalization of acquired social skills to other settings. This multi-element intervention consisted of child specific lessons, adult-mediated prompting, and peer-mediated support. The intervention was implemented in an inclusive lunchroom and playground setting for three elementary age students with emotional and behavioral disorders (EBD). Results demonstrated increased social engagement and generalization of acquired social skills to a second setting for all participants. Social validity ratings by teachers and paraprofessionals indicated the social skills intervention was considered appropriate and effective. Implications, limitations, and directions for future research are discussed.

*Keywords*: emotional and behavioral disorder, social skills, inclusion, generalization, maintenance

SMILE: Social Engagement and Generalization Effects for Students with Emotional Behavioral Disorders

Social skills are defined as “socially acceptable, learned behaviors that enable a person to interact with others in ways that elicit positive responses and assist in avoiding negative responses” (Elliott, Racine, & Busse, 1995, p. 1009). Researchers have determined that students with EBD are ten times more likely to have social skills deficits as compared to students with other high-incidence disabilities (Duran, Zhou, Frew, Kwok, & Benz, 2013). Students with EBD commonly experience the following challenges:: (a) inability to engage with peers in a way that is reinforcing to both parties, (b) inability to respond appropriately to positive social initiations by typically developing peers, (c) inability to communicate their social behavior or interpret the behavior of others, and (d) physically distancing themselves from typically developing peers (Strain, 2001). Students with EBD who have poor social skills have been found to be 12.5 times more likely to be suspended from school than students with typical social skills, limiting their access to the academic curriculum (Duran et al., 2013). Social skills deficits have also been linked to disconcerting future outcomes, such as school failure and dropout (Wagner, Newman, Cameto, & Levine, 2005), academic difficulties (Meier, DiPierna, & Oster, 2006), and poor self-regulation (Daunic et al., 2013). Additionally, postsecondary outcomes for students with EBD have been linked with high rates of dropout, arrest, substance abuse, mental disorder, and suicide (Davis & Vander Stoep, 1997; Malmgren, Edgar, & Neel, 1998).

Most studies conducted with students with EBD include comprehensive, multimodal, and multicontent training procedures (Quinn, Kavale, Mathur, Rutherford, & Forness, 1999). These interventions usually involve demonstrating, explaining and modeling skills (Maag, 2006; Quinn et al., 1999). Researchers have suggested that improving social skills with generalized effects for students with EBD are most effective when the intervention is adult-mediated, child specific, or utilizes peer support (Mathur & Rutherford, 1991; Strain, 2001; Whalon, Conroy, Martinez, & Werch, 2015).

The Social Mechanics Integrated in the Learning Environment (SMILE) intervention is a multicomponent intervention that includes (a) direct instruction specific to the participant’s social deficits, (b) adult delivered prompting procedure during the lunch setting, (c) incentives for students and their peers in the study, and (d) assessment of generalization measures on the playground, (Hartzell, Gann, Liaupsin, & Clem, 2015). These authors implemented the SMILE intervention to support three students with developmental disabilities to increase their social skills in the lunch setting. All three participants demonstrated increased social engagement at lunch and generalized effects of social interaction at recess. These results maintained the following school year, after a three-month summer break. Although this intervention has only been implemented with students with developmental disabilities, the combination of individualized social skills lessons, an adult-mediated prompting procedure in the natural setting, and peer support make it a potentially effective intervention for students with EBD.

Social skills lessons and instruction have been a main component of many social skills interventions employed with students with EBD. Some interventions focus on topics specific to difficulties individuals with EBD experience such as: conflict resolution, aggression, anger control, and role playing (Coleman, Pfeiffer, & Oakland, 1992; Margalit, 1995; Miller, Midgett, & Wicks, 1992; and Wilhite & Bullock, 2012). Other lessons have focused on important universal topics essential for social interactions, such as: problem solving, cooperation, friendship skills, apologizing, and sharing (Chen & Bullock, 2004; Dubow, Huesmann, & Eron, 1987)

One important approach in social skills training is to incorporate peer mediators as a model for students with emotional behavioral disorder. In Cochran, Feng, Carlege and Hamilton (1993), cross-age tutoring was used to improve sight word identification and social behavior. Typically developing peers have assisted in implementing a social skills program designed to teach participants to express anger appropriately through direct instruction, modeling, role-playing, and performance feedback (Presley & Hughes, 2000). Two studies paired peers with guided practice and role-playing in an intervention focused on game-playing (Moore, Cartledge, & Heckaman, 1995, Samalot-Rivera & Porretta, 2013).

Given the combination of effective elements of social skills interventions for children with EBD (Mathur & Rutherford, 1991), the previous success of this intervention in increasing social engagement for children with disabilities (Hartzell et al., 2015), and the need for research in social skills instruction for children with EBD, the authors intended to evaluate the effectiveness of the SMILE intervention for these students. The purpose of this study was to examine the effectiveness of the SMILE intervention on social engagement in the inclusive lunchroom setting for three elementary age students with EBD. Additionally, given the lack of generalization results in previous social skills interventions for children with EBD (Mathur & Rutherford, 1996; Scott & Nelson, 1998), the authors aimed to examine the effects of the intervention on generalization of social engagement on the playground.

**General Method**

**Participants and Setting**

This study was conducted at an elementary school in the southwestern United States. There were approximately 500 students in the school, ranging from kindergarten to sixth grade. All intervention procedures took place in the cafeteria where lunch tables were set up in six rows and students were grouped with their classes. Students would pick up their lunches and choose a seat at the lunch tables. Generalization data were collected on the playground during typical recess activities. Students were allowed to play soccer in a large field, basketball on the basketball courts, or tetherball at the tetherball courts. There was a play structure, swings, monkey bars, and balance beams with pull-up bars in the sand area.

The participants selected for this study were two second-grade students and one third-grade student. All three participants were required to be (a) identified with EBD by a multidisciplinary team, (b) recognized by the teacher of the EBD program as displaying severe social interaction deficits, (c) included with typically developing peers in the school setting, and (d) rated as exhibiting a deficit in functional social skills as determined by the Teacher Form – Elementary Level of the *Social Skills Improvement System* (SSIS; Gresham & Elliott, 2008). The SSIS is an assessment that measures academic competence, social skills, and competing problem behaviors through the evaluation of three domains (Gresham & Elliott, 2008). Only the social skills domain scores were utilized in this study. The social skills domain subscales include cooperation, assertion, responsibility, self-control, communication, empathy, and engagement. Participants were selected for this study if standard scores in the social skills domain fell at or below 85, indicating that rated social behaviors were undesirable and required intervention (Gresham & Elliott, 2008).

**Phase 1: Assessment of Social Deficits**

**Procedure**

To assess individual social deficits for each participant, several methods were used to determine the skills that would need to be taught to each student. TheSocial Skills Improvement System (SSIS) was used to assess the social skills deficits of each student. Antecedent-Baseline-Consequences observations were conducted with each participant to identify antecedent conditions that set the occasion for social behavior with negative consequences from peers. Additionally, interviews with teachers and were conducted to identify which social behaviors were of most concern to the educators. Student interviews were conducted to assess their perceptions and concerns regarding social interactions.

**Social skills improvement system (SSIS).** The SSIS is an assessment that measures academic competence, social skills, and competing problem behaviors through the evaluation of three domains (Gresham & Elliott, 2008). Only the social skills domain scores were utilized in this study. The social skills domain subscales include communication, cooperation, assertion, responsibility, empathy, engagement, self-control. Statistical analysis of the internal consistency of the SSIS social skills domain has resulted in a correlation coefficient of .97 (Gresham, Elliott, Vance, & Cook, 2011). Participants were selected for this study if their percentile rank for the social skills domain fell at or below 15, indicating that rated social behaviors were undesirable and required intervention (Gresham & Elliott, 2008).

**ABC observations.** Based on the definition that social skills are “socially acceptable learned behaviors that enable a person to interact with others in ways that elicit positive responses and assist in avoiding negative responses” (Elliott, Racine, & Busse,1995, p. 1009), anteceent-baseline-consequence (ABC) data (Bijou, Peterson, & Ault, 1968) were collected for each participant on three different occasions. Each observation lasted 20 minutes and occurred in the lunchroom and at recess during unstructured activites that would most likely result in the target behaviors. Antecedent and consequence conditions were recorded for any behavior that resulted in negative responses from peers. Negative responses from peers were defined as inappropriate play or negative communication (Ross & Sabey, 2015; Walker & Severson, 1992). This included physical agression or continued, unwanted interaction with other peers. It also included inappropriate verbal behaviors such as name-calling, directive statements, threats, and rejection (Ross & Sabey, 2015; Walker & Severson, 1992).

**Teacher interviews.** Semi-structured interviews were conducted with special educators and general educators of each participant. Each teacher was asked: (a) What concerns do you have for this student with regards to their social interactions with others? (b) Under what circumstances do you most often see social difficulty with your student? and (c) What behaviors does your student engage in socially that causes them the most difficulty with their peers?

**Student interviews.** After obtaining assent from each participant, the first author conducted semi-structured interviews with each participant. The researcher explained to the participants that they would be working on “making friends” during lunch. The researcher asked the participants: (a) What do you like to do with your friends at lunch? (b) Do you feel like you make friends easily? Why or why not? (c) What is the hardest thing about lunch and recess for you? (d) Would you like some help making friends during lunch?

**Identification of Target Social Behaviors.** A list of social behaviors qualified as skills deficits (Scott & Nelson, 1998) were determined by analyzing each student’s SSIS results, ABC observations, and interviews. Social behavior concerns that came up in the interviews with teachers were listed on the Table 1. Social behaviors assessed in the SSIS under the 25th percentile were also listed. Social behaviors that resulted in consequences of negative peer responses during observations were also listed in the table. Behaviors that occurred in all three columns of the table were listed as behaviors that would be taught to the students during intervention phase.

**Assessment Results**

Results of the SSIS results, direct ABC observations, and interview results are outlined in Table 1 and described here for each student.

**Dayton.**  The SSIS was completed by the paraprofessional who worked with Dayton. Results indicated that Dayton scored in the 5th percentile with a standard score of 74. In the subscale of social skills, the three areas of greatest need for Dayton was self-control, engagement, and empathy. In the area of self-control, Dayton scored “never” on items such as, “Makes a compromise during a conflict” and “Stays calm when disagreeing with others.” In the area of engagement, he scored “never” on items such as, “Invites others to join in activities” and “Introduces himself to others.” In the area of empathy, Dayton scored “sometimes” on every item in the subscale. For this reason, empathy was the third area of need based on the SSIS. Items such as “tries to comfort others” and “feels bad when others are sad” were areas of concern.

The first author conducted five direct ABC observations for 40 minutes each. The author observed the student during both lunch and recess for each observation. During most of the observations, Dayton was alone. During lunch, he would arrive at the lunch table first, and all of the peers would sit at the other tables. Peers rarely sat at his table, and if a peer sat at his table, he sat far enough away that it made it difficult to communicate with Dayton. During one observation, Dayton put his head down on the table and cried. When the paraprofessional asked him what was wrong, he explained, “No one likes me, it makes me want to die.” There were two instances of social initiation during recess, and in both instances, the social interaction was unsuccessful, because the peers did not respond, and continued playing with other peers. During recess observations, he Dayton would swing the majority of the time. On two occasions, he ran over to the play structure and played near the peers, but never initiated peer interaction. There were two instances of conflict at the beginning of recess when he demanded that a peer get off the swing, and they refused. In both instances, an adult intervened to resolve the conflict.

Interviews with the teacher indicated that she felt that Dayton had a lot of conflict with his peers, particularly during less structured activities, like a class game, physical education, and recess. She said that when he has difficulty with his peers, she will try to help him resolve the conflict, but he will insist that the other peer was at fault and that he did not contribute to the social difficulty. The teacher also explained that if the students interact with Dayton, he will often start talking and will not let the peer have a chance to talk or contribute to the interaction. The teacher was concerned about Dayton’s social skills, because he often complains that “no one wants to play with him” and that he doesn’t have any friends at school. During the interview with Dayton, he explained that he has “28 friends because I have 28 people in my class.” When the intervention was explained to him, he responded, “It won’t work, because no one likes to play with me.”

Results from the SSIS assessment tool, interviews, and ABC direct observations indicated that Dayton needed specific, direct instruction on initiating contact with peers, expressing empathy for peers, and conflict resolution. Social skills lessons and prompting procedures targeted skills in these three areas to augment social interaction with typically developing peers at lunch and recess.

**Nathan.**  The SSIS was completed by the paraprofessional who worked with Nathan. Results indicated that Dayton scored in the 2nd percentile with a standard score of 67. In the subscale of social skills, the three areas of greatest need for Nathan were self-control, communication, and empathy. In the area of self-control, Nathan scored never on items such as “Stays calm when teased,” and “Takes criticism without getting upset.” In the area of communication, Nathan scored never on items such as, “Responds well when others start a conversation or activity” and “Takes turns in conversations.” In the area of empathy, Nathan scored never on “Tries to comfort others” and “Shows kindness to others when they are upset.”

The first author conducted five direct ABC observations for 40 minutes each. The author observed the student during both lunch and recess for each observation. For the first three observations, Nathan was required to sit by himself at lunch, and was not allowed to go out to recess. According to his teacher, he was violent with peers, and was not able to control his behavior enough to be around others. For the final two observations, he was allowed to be at the lunch table and recess as long as an adult was in close proximity to him. He did not talk at all during lunch, and during recess he played alone on the playground equipment. At one point, a peer said he needed to stand on the beam the right way, Nathan responded angrily that he didn’t need to tell him what to do, and the adult needed to intervene to deescalate the situation. In the last observation, he complained to the adult that the students were not letting him play, but in actuality, he had never made any efforts to interact with the peers.

Interviews with the teacher indicated that they felt it was unwise to let Nathan play with his peers. Nathan’s teacher said that at the beginning of the year, they had allowed Nathan to go out with his peers, but every day there was conflict with his peers, and on several occasions Nathan was aggressive and violent with his peers. The staff felt that it was not safe for Nathan to be around his peers, and that he did not have the skills necessary to effectively interact with his peers. They stated that Nathan had been eating separately from his peers for over four months, and had been unable to interact during recess for over six months. To compensate, the staff allowed a typically developing peer to come in during recess to play a game with Nathan two times per week, but they suspected that the peer did not actually enjoy coming into the classroom to interact with him, and so they stopped arranging the interaction. During the student interview, Nathan explained that the he was unable to sit with his peers during lunch and recess because his peers “were not nice to him” and because sometimes “I get upset.”

Results from the SSIS assessment tool, interviews, and ABC direct observations indicated that Nathan needed specific, direct instruction on talking calmly with peers, conflict resolution, and learning to communicate effectively with peers. Social skills lessons and prompting procedures would target skills in these three areas to augment social interaction with typically developing peers at lunch and recess.

**Lucas.**  The SSIS was completed by the teacher who worked with Lucas. Results indicated that Lucas scored in the 2nd percentile with a standard score of 67. In the subscale of social skills, the three areas of highest need for Lucas was empathy, assertion, and self-control. In the area of empathy, Lucas scored “never” on items such as “Tries to comfort others,” and “Is nice to others when they are feeling bad.” In the area of assertion, he scored “never” on items such as “Stands up for himself when treated unfairly” and “Expresses feelings when wronged.” In the area of self-control, he scored “never” on “Responds appropriately when pushed or hit” and “Makes a compromise during a conflict.”

The first author conducted five direct ABC observations for 40 minutes each. The author observed Lucas during both lunch and recess for each observation. During lunch, Lucas was only observed talking with peers three times, and each time he quickly answered the question of the peer, and then returned to eating his lunch. During recess, he was much more interactive, and ran around playing a chasing game with his peers. He appeared to be the chaser throughout the observations, and during the chasing game, the peers did not interact with him; they continually ran ahead of him and appeared to be laughing with each other.

Interviews with the teacher indicated that they thought Lucas played with his peers, but that it often became overly physical and inappropriate. The teacher felt that Lucas tended to follow his peers, and not advocate for himself. She explained that at lunch, he often got in trouble for chewing with his mouth open, spitting out food, or eating too much at one time. She indicated that he engaged in this type of behavior to gain peer attention at lunch. Results from the student interview revealed that the chasing game he played at recess was “spider in the web,” and that he was always required to be the spider catching his peers in “the web.” When asked if he enjoyed playing spider in the web, he responed, “No, I don’t like that game. But, my friends will only play with me if I play spider in the web.”

Results from the SSIS assessment tool, interviews, and ABC direct observations indicated that Lucas needed specific, direct instruction on advocating for himself in peer interactions, assertion in social situations in which he is not comfortable, and appropriate social engagement. Social skills lessons and prompting procedures would target skills in these three areas to address social difficulties with typically developing peers at lunch and recess.

**Phase 2: Social Skills Intervention**

In Phase 2, the results of the assessment phase of social deficits for each student were used to design social skills lessons that would address specific deficits in each participant. A prompting/fading procedure was conducted by the first author during the lunch period to reinforce social skills being taught in the individual lessons. As part of the prompting/fading procedure, peer mentors were utilized to provide natural social reinforcement to the social attempts made by the participants.

**Procedure**

**Social skills lessons.** The first author implementedsocial skills lessons for the student participants with EBD, and followed an explicit direct instruction format (Archer & Hughes, 2011). The lessons addressed the deficits identified for each individual student. For convenience, the first author gathered each participant 1-2 times per week before lunch, and introduced the objective for the day (e.g. eye contact). Each lesson consisted of review, presentation, and guided practice. The other elements of explicit direct instruction format (ie. independent practice, correction, and feedback) took place during the lunch prompting/fading part of the intervention.

Each lesson began with a review of the previous recess and lunch session to discuss events from the previous recess or lunch sessions. This was an opportunity to address any specific interactions that went particularly well (e.g., the participant made a goal and everyone cheered for him), did not go well (e.g., the students did not want to share the basketball), or needed improvement (e.g., interrupting a peer when he was answering the participant’s question). The researcher utilized what was discussed during the review process to transition into presenting the learning objective for the current session. For example, if the participant was observed interrupting his friends multiple times during the previous intervention session, the researcher would explain that the new “goal” was to take turns when talking to his friends, and give them time to answer questions he asks before talking about his experiences. The researcher would model the skill with the participant. The researcher and the participant would practice the skill for several conversational turns. As the participant practiced the objective for the current session, the researcher would provide additional prompts and modeling to correct the behavior if the demonstration of the skill was incorrect, or positive feedback if the participant performed the skill well.

**Prompting Procedure*.*** The researcher would perfom the independent practice and correction part of the lessons through prompting during lunch. During the lunch period, the researcher would prompt the participant at the end of each minute for a total of 20 minutes. The prompts were verbal, and they were given to the students to support them to engage with their peers using the skills learned during the social skills lesson. If the participant was having difficulty with a previously taught skill, the researcher would provide verbal prompts to correct the social behavior and elicit appropriate engagement. If the participant was engaged in appropriate peer interaction for the entire minute, the researcher would pat the student on the back or shoulder to indicate that he was doing well. The researcher did not interrupt social interaction to provide feedback or correction.

If the participant was not interacting with a peer, then the researcher would prompt him with a generic prompt to initiate conversation. The following list includes examples of generic prompts given during the intervention

* Ask your friend what they will do tonight when they get home.
* Ask your friend what they did over the weekend, or what they will do in the upcoming weekend.
* Ask your friend what they have done in class today.
* Ask your friend what they plan to do after lunch period.

**Peer Mediators.** For the intervention to be successful, the participants’ peers needed to be invested in the success of the participant’s social interactions. Particularly with students with EBD, the history of the learner with his peers plays a very important part in the success or failure of the social skills intervention. Often, the peers of the student need to be incentivized to give the student a “clean slate” by which he can begin to build appropriate friendships with his peers (Scott & Nelson, 1998). During baseline observations, paraprofessionals would occasionally encourage the participants to talk with their peers. This effort to encourage social interactions would result in (a) the student ignoring the encouragement to interact with others, (b) the student would attempt to interact and peers would not reciprocate the interaction, or (c) the student would attempt to interact, the peer would respond, and the interaction would end at that point. Therefore, the researchers conducted an activity that would support the participants and the peers to invest in sustained social interaction.

The researchers utilized a “friend paper” to involve the typically developing peers. On the first day of the intervention, the researcher would find a same-age peer, and ask if the peer would be willing to put stickers on the participant’s “friend paper” every time the peer observed the participant engaging with his peers. The friend paper was not meant to take data or gauge the efficacy of the intervention, but rather to create a condition by which the peer would be able to provide positive reinforcement to the participant every time he engaged with his peers appropriately. A different peer was chosen each day of the intervention to ensure that the participant was given chances to engage with different peers. At the end of the lunch period, the peer in charge of the positive reinforcement portion of the intervention was able to keep one sheet of stickers.

**Fading Procedure.** In a previous study utilizing the SMILE intervention (Hartzell et al., 2015), researchers collected social engagement data on 30 randomly selected peers during lunch. Researchers found that the typically developing peers were socially engaged 44% of the intervals observed. To accommodate for any inflated results based on the novelty of the SMILE intervention, the researchers in this study aimed for 60% of social engagement for each session of the intervention before implementing the fade procedure.

When the participant was able to maintain social engagement at or above 60% of session intervals for more than four consecutive sessions, the prompts were faded to one prompt every 2 min. Once the prompts were changed to every 2 min, the participant receiving the intervention no longer received stickers for interacting with his peers. This decision was to assist the researchers in determining if the participant was able to continue social interaction with natural reinforcements in place, such as the attention of peers during lunch. During the second and third fade of the intervention, the participant was able to give stickers to a peer that was engaged with him during lunch. This allowed the researchers to determine if the participant was naturally reinforced to interact with his peers, and still give time for the peers to invest in the social success of the participant. When the participant was able to maintain a level of social engagement at or above 60% of intervals over four sessions with prompts delivered every 2 min, the researcher reduced prompting to every 4 min. At this time, all tangible incentives were discontinued for the participant and peers. Prompting ceased after the participant maintained social engagement levels at or above 60% of intervals for four consecutive sessions with prompts delivered every four minutes.

**Behavioral Definitions and Measurement**

The dependent variable, or target behavior, in this study was *social engagement*. Social engagement was defined as verbal interaction or active listening in conjunction with appropriate body language, vocal tone, and volume. Verbal interactions were required to be on topic, within a conversational turn, and socially and behaviorally appropriate (i.e. using kind words). If the participant was looking down, whispering, or talking about something that was irrelevant to the topic at the lunch table, he was not considered socially engaged. Active listening was defined as facing the peer and either nodding or leaning in to hear his peer. To be considered socially engaged, the participant needed to be interacting with peers verbally or actively listening. The verbal interactions needed to be combined with appropriate body language, vocal tone, and volume to be considered social engaged. Active listening needed to be combined with appropriate body language to be considered socially engaged.

Social engagement was measured using 15 second partial-interval recording for 20 min sessions in the lunchroom setting. At the end of each interval, a plus was scored if the participant appropriately engaged in social interactions with same-age peers at any time during the interval session. A minus was scored if the participant did not engage with a peer during the entire 15 second interval during 20 minute sessions of lunch. Generalization data was collected on the playground during recess using the same 15 second partial-interval recording method during 10 minute sessions.

**Research Design**

This study employed a multiple baseline design across participants. The 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. The first participant (Dayton) moved from baseline to intervention session when a minimum of five consecutive data points demonstrated a stable and level, or non-therapeutic, trend. Intervention was implemented with the next participant (Nathan) once the previous participant demonstrated a therapeutic and/or increase in level across at least four data points. The author determined the order of implementation across participants. Lucas was added to the study when another participant moved at the beginning of the study. Therefore, Lucas 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.

**Reliability**

A second observer independently collected social engagement and implementation fidelity data to assess interobserver agreement (IOA). Prior to baseline data collection, the two observers engaged in two complete trial data collection sessions to ensure that IOA across social engagement and implementation met or exceeded 85% agreement. IOA was determined by dividing the number of agreements by the total number of intervals or events and then multiplying the results by 100 (Kazdin, 1982). For social engagement and fidelity of implementation, IOA data were collected across 36% of all sessions with average agreements of 98% with a range of 94-100% and 100% respectively. For generalization, IOA data was collected across 36% of all sessions with average agreements of 97% with a range of 83-100%.

**Social Validity**

The *Treatment Acceptability Rating Form – Revised* (TARF-R; Reimers & Wacker, 1988) was completed by the school staff members who worked most closely with each of the participants upon completion of intervention implementation. The TARF-R is a social validity instrument that includes a total of 17 items, with multiple items addressing each of the following areas: reasonableness, effectiveness, side effects, disruptiveness/time required, cost, and willingness. Each item is rated on a 7-point Likert scale. Scores can range from 17 to 119, with higher scores representing greater acceptability (Reimers & Wacker, 1988). Statistical analyses of the internal consistency of the TARF-R items have consistently resulted in correlation coefficients above .90 (Reimers, Wacker, Cooper & DeRaad, 1992). In addition, positive ratings have been connected with higher probability of implementing and sustaining an intervention (Petersen & Ellison, 2005). In addition to the TARF-R, the teachers completed the *SSIS* (Gresham & Elliott, 2008) pre- and post-intervention to compare the participants’ scores in the social skills domain. Due to staff changes, the SSIS was completed by different people pre- and post-intervention for both Dayton and Lucas.

**Results**

**Social Engagement**

**Dayton.** As shown in Figure 1, Dayton’s social engagement averaged 7% of intervals with a range of 0-13% during the baseline condition. Upon implementation of intervention, his level of social engagement increased to an average of 78% of intervals with a range of 68-92% with prompts delivered once per minute for a total of seven intervention sessions. When prompts were faded to delivery at 2 minute intervals, his average level of social engagement increased to 87% of intervals with a range of 74–100% for five intervention sessions. Social engagement levels maintained at 87% of intervals with a range of 78-96% when prompts were delivered at 4 minute intervals for an additional five intervention sessions.

**Nathan.** Prior to intervention implementation, Nathan engaged in social interactions with peers for an average of 5% of intervals with a range of 0-26% for a total of nine data collection sessions. On Day 13, intervention elements were implemented for Nathan following five days of successful implementation for Dayton. Nathan received social skills instruction and prompting in the lunchroom environment at 1 min intervals for a period of five days with social engagement levels averaging 77% of intervals with a range of 68-87%. Prompts for social engagement were delivered at 2 min intervals for a period of five days, with social engagement levels increasing to 88% of intervals with a range of 78-97%. Nathan’s social engagement maintained it’s previous level at an average of 87% following the decrease in the prompting schedule to prompts delivered at 4 min intervals with a range of 77-94%.

**Lucas.** Lucas’s social engagement averaged 7% of intervals with a range of 5-35% during the baseline condition. On Day 23, intervention elements were implemented for Lucas and he received social skills instruction and prompting in the lunchroom environment at 1 min intervals for a period of five days with social engagement levels averaging 90% of intervals with a range of 81-97%. When prompts were faded to delivery at 2 min intervals, his level of social engagement dropped slightly to 87% of intervals with a range of 77-92% for five intervention sessions. Lucas’s social engagement levels again dropped to an average of 84% with a range of 77-90% of intervals following the decrease in prompts to 4 min intervals.

**Generalization**

Generalization data (Figure 1) were collected on the playground during regularly scheduled recess periods during baseline and intervention for Dayton and Lucas. Generalization data were collected during the intervention phase for Nathan due to a ban from recess for previous inappropriate behaviors. Similar to social engagement levels in the lunchroom, Dayton’s playground social engagement levels averaged 11% of intervals with a range of 0-33%. Upon implementation of intervention, his average social engagement increased to 37% of intervals with a range of 7-70%. Nathan’s level of social engagement averaged 63% of intervals during recess with a range of 8-100% during the intervention phase of this study. Of the three participants, Lucas’s level of social engagement on the playground was the highest. During baseline, his level of social engagement averaged 34% of intervals with a range of 13-51%. Upon implementation of intervention elements, he was engaged in social interactions with his peers for an average of 69% of intervals with a range of 49-92%.

**Maintenance**

Maintenance data (Figure 1) were collected after summer break, several weeks into the new school year, to evaluate the lasting effects of the intervention. Dayton and Nathan moved to different schools due to boundary changes within the district the following year; therefore, limited data were available. The students did not have a special education teacher for the first two months of school, and at the time the researcher came to collect maintenance data, the new teacher was not allowing the students to attend lunch or recess with their typically developing peers. They were eating their lunch together in the room for the students with EBD. Lucas remained in the same school setting the following school year and social engagement averaged 69% (range = 60-78%) of intervals during lunch and 75% (range = 69-83%) of intervals during recess.

**Social Validity**

The social validity ratings measured with the TARF-R averaged 102 (range = 95-113) following implementation with all three participants; indicating that school staff found the intervention was effective, easy to implement, and appropriate for each participant. According to the results of this survey, school staff felt the intervention was reasonable and effective, with few negative side effects affecting participants. However, school staff indicated the intervention was somewhat disruptive.

All three participants made improvements in the area of social skills, based on the SSIS scores (Gresham & Elliott, 2008), Dayton’s SSIS score was 74 prior to receiving the SMILE intervention, indicating his social skills were significantly below those of his peers. After receiving intervention, his domain score increased to 84. According to the subscale, he made gains specifically in the areas of assertion, responsibility, empathy, and self-control. Nathan’s score on the SSIS was 67 prior to intervention, and increased to 72 when school staff reevaluated his social skills using this assessment. He improved in the areas of communication, empathy, and engagement. According to the SSIS, Lucas made the greatest gains in the area of social skills as demonstrated by his score increasing from 67 to 90, a score commensurate with same-age peers. He improved across all social skill subscale areas of the SSIS.

**Discussion**

This study evaluated the use of a multi-element social skills intervention (i.e., adult directed, child specific, and peer mediated) to improve social engagement in an integrated lunchroom setting for three elementary students with EBD. Prior to intervention, each participant exhibited deficits in social engagement compared to same-age peers, as measured by the SSIS (Gresham & Elliott, 2008). The social skills intervention incorporated personalized social skills lessons, prompting for social engagement, fading of the intervention, peer involvement, and positive reinforcement. The results demonstrated a functional relationship between the implementation of the intervention and markedly improved social engagement by all participants in the intervention with some generalization results on the playground.

The participants began the intervention at different levels of social competency. The lesson addressed specific issues that occurred during social situations with typically developing peers. The prompting procedure allowed the researcher to tailor the intervention to address the needs of each individual student. Prompting was the researcher’s tool to teach the skill at the moment it was needed. Overall, the teachers perceived this intervention as acceptable for the participants involved in the study. The paraprofessional for Nathan wrote, “Nathan just didn’t want to miss out on his play time with his friends; so it caused him to try his best to make good choices.” The teacher for the students wrote, “Both Lucas and Dayton had significant improvements in their social behaviors with their peers. Dayton seemed happier and more confident with his peers, and Lucas was able to make improvements with the appropriateness of his interactions with his peers.”

This study demonstrates the importance of peer involvement in social skills intervention. Peer mediated interventions have been found to be effective in increasing social engagement for students with ASD (Strain & Odom, 1986; Sperry, Neitzel, & Engelhardt-Wells, 2010; Whalon, Conroy, Martinez, & Werch, 2015). Peers act as a natural reinforcer, as well as a model, for appropriate engagement in a social context (DiSalvo & Oswald, 2002; Koegel, Dyer, & Bell, 1987; Schmidt & Stichter, 2012) and peer-mediated social interventions are often implemented in a natural setting. The combination of explicit instruction, peer involvement, and prompting in the natural setting all contribute to improved results, particularly with generalization and maintenance where the conditions are similar to intervention settings.

Finally, this intervention demonstrated generalization effects that are not typically seen in social skills interventions. Generalization is particularly challenging for students with EBD (Mathur & Rutherford, 1991; Gresham, 1997; Gresham et al., 2001), and must be carefully planned into the intervention (Baer, Wolf, & Risley, 1968). The intervention was conducted with typically developing peers in a setting where social interaction takes place each day in schools. This may have facilitated the transfer of new social skills to other integrated social settings. The peers involved in the study were also present in the generalization settings, which allowed for interactions that occurred at lunch to continue and strengthen on the playground. The SMILE intervention planned for generalization results with the involvement of peers and execution in the natural setting (Mathur & Rutherford, 1996; Scott & Nelson, 1998).

**Limitations**

Prior to this study, Nathan was not allowed to socialize with his peers during lunch or recess because of his history of engagement in maladaptive and aggressive social behaviors. The baseline conditions for Nathan are problematic in the research design because it is impossible to ascertain how Nathan might have behaved socially given more opportunity to socialize. Although Nathan’s results demonstrate an increase in social engagement, it is difficult to determine how much of the increase was due to the SMILE intervention.

The researchers attempted to demonstrate maintenance of social engagement at the completion of the intervention phase. However, frequent absences by the participants at the end of the school year made it impossible to collect data on social interactions during the maintenance phase. The researchers arranged to gather maintenance data when the next school year began, but Lucas was the only participant who remained in the same school with the same cohort of peers. Dayton and Nathan moved to another school in the district and the teacher in the new school did not allow them to go to recess or lunch with their typically developing peers. The difficulty in obtaining social engagement results after the intervention ended is a limitation in determining the long-term effects of this intervention.

Teachers in this study and the previous study (Hartzell et al., 2015) expressed a belief that the SMILE intervention also resulted in a reduction in problem behaviors in the classroom. It may be that the students used their new social skills to access consequences previously produced by problem behaviors. The study was not designed to collect data on classroom behavior. Future research on the SMILE intervention and other social skills interventions should include the collection of these data to explore the effects of improvements in social engagement on the classroom problem behaviors of students with EBD.

For the SMILE intervention to be considered a viable intervention for students requiring explicit interventions in peer interaction, future research is needed on the ability of school staff to implement the intervention. This research needs to explore the ability of teachers and paraprofessionals to implement the intervention with similar results to ensure the feasibility and acceptability of the SMILE intervention as a social skills intervention to increase social engagement for students with deficits in social skills.

This study demonstrates the efficacy of a multi-element intervention employing brief social skills lessons, prompting procedures, and peer incentives in the lunchroom setting. Additionally, results indicate that the skills acquired during the intervention phase generalized to other settings. Peer involvement is essential to any successful social skills intervention. By employing social skills interventions within natural social settings, teaching social skills specific to the child’s social deficits, incorporating peer support, and providing immediate guidance in social situations, students are able to acquire social skills that will help them navigate the variable nature of social situations and contexts.

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