Topic : Elementary School Age Social Skills

by Cindy Ring, MSW, LSW and Michele LaMarche, BCBA

Special Learning

Executive Functioning Skills

A large component of social skills and social behavior is executive functioning skills. Knowing how to take another's perspective, recognizing and sharing emotions and emotional behavior, and joint attention are crucial components to being able to successfully interact with others. Learning how to teach these skills as part of a social skills intervention can enhance school aged children's ability to make friends and improve socialization with their peers.

A. Teaching Joint attention

Children with autism do not develop joint attention, as typically developing children do. Around 9 to 18 months of age, typical children begin engaging in joint attention with others. Joint attention allows experiences to be shared between people and can be in the form of gestures and gazes toward a common object or event. Jones and Carr (2004) recognized that joint attention could be considered a pivotal behavior. With that said, the development of joint attention has the potential to affect other behaviors as well. The authors observed joint attention in typically developing children and children with autism. They examined the impact that joint attention has on other behaviors and interventions for teaching joint attention.

Joint attention in typically developing children:

Around 9 to 18 months old, typically developing children begin to engage in acts of joint attention. They may be the initiator or the responder within the interaction. Jones and Carr (2004) referenced the timeline of joint attention behaviors that develop with age. Their discussion led to the forms and function of joint attention acts.

Joint attention in children with autism:

The authors expressed that joint attention deficits are only seen in children with autism and that lack of engagement is typically one of the first symptoms evident. There are various instruments available to assess deficits in joint attention. Jones and Carr (2004) discussed the form of deficits typically seen and the possible functions of joint attention acts that may result in deficits, specifically for initiating and responding.

The social deficits in children with autism affect the development of their joint attention (Jones & Carr, 2004). The authors provide links between joint attention, communication, and social development. It was mentioned that communication is learned in joint attention acts, which helps to build vocabulary. Social development, theory of mind and pretend play are all related to joint attention as well. The authors discussed these in detail.

Jones and Carr (2004) referenced pivotal skills and what it means to be considered a pivotal skill. They suggest that early intervention should focus on joint attention training because it is a pivotal skill. The benefits of teaching joint attention as a pivotal skill are discussed. In addition, intervention approaches are examined. Comprehensive behavioral approaches, social skills interventions, pre-linguistic milieu teaching, and building social motivation are among some of the interventions discussed.

B. Training emotion recognition

A deficit of autism spectrum disorder (ASD) includes the inability to engage in social interaction with others. Children with ASD may have difficulty initiating conversation, understanding the perspectives of others, engaging in reciprocal interaction, and recognizing the display of emotion in others. While these are only a few of the deficits that may be presented within this population, they have a negative impact on the ability to form relationships. Lacava, Golan, Baron-Cohen, and Myles (2007) investigated the use of assistive technology and its impact on training emotion recognition in children with Asperger syndrome.

Methods

IV: A 10 week computer software program called Mind Reading: The Interactive Guide to Emotions TM : The program displayed images depicting expressions of emotions, presented different instructional lessons and tests, and provided reinforcement.

DV: 3 instruments were used: the Cambridge Mindreading Face-Voice Battery for Children, Child Feature-Based Auditory task, and Reading the Mind in Films Test – Children's version. All tested the participants' ability to recognize emotions.

Participant Characteristics: 8 children diagnosed with Asperger Syndrome, ages 8 – 11

Type of Design: Nonequivalent pretest-posttest experimental group design

Results/Outcomes:

Lacava et al. (2007) showed that the children were able to recognize face and voice emotion. In addition, the authors found that children increased their abilities in recognizing complex emotions shown within the computer program, as well as emotions not included within the software.

The authors mentioned limitations to the study. The sample size was small. The study lacked a control group for comparison. Future research should examine the use of the intervention within social skills training. Also, Lacava et al. (2007) suggested

attempting to examine the intervention's effect on individuals with greater disabilities. Larger sample sizes should also be utilized, as well as control groups.

C. Interventions to train emotion recognition and understanding

Children with autism experience a variety of social deficits, including the inability to recognize emotion in others. Golan, et al. (2010) mentioned one theory as to why this may occur: children with autism do not engage in eye contact with others. Using a "systemizing" concept that utilizes the interests that individuals with autism have in predictable systems, Golan, et al. (2010) studied emotion recognition and contextual understanding following training consisting of The Transporters, an animated children's series.

Methods

IV: Transporters DVD was viewed by participants 3 times a day for 4 weeks. The DVD followed the concept of systemizing and incorporated vehicle characters whose motion was rule-based and predictable. The characters had faces of people showing a variety of emotions. The intervention group viewed The Transporters along with the support of the participant's parents.

DV: Emotional vocabulary was tested. Participants matched socio-emotional situations to the appropriate facial expression for 3 categories: familiar close generalization, unfamiliar close generalization, and distant generalization.

Participant Characteristics: 20 children, ages 4 to 7 years old

Type of Design: pre-test, post-test with control groups

Results/Outcomes:

Golan, et al. (2010) found the use of animated vehicles to teach emotion improved participant's ability to comprehend emotion, as well as their ability to recognize emotions. Because participants were able to demonstrate correct matching responses for each combination tested, generalization was shown to occur.

Researchers mentioned several limitations to the study. One limitation included the lack of generalization of findings to real life settings. This should be a focus for future research. Future research should examine and identify measures to test generalization as well. Generalization should also be examined targeting additional populations. In addition, the researchers mentioned that it is unclear whether the DVD increased behavior, or whether the increase in behavior was a result of parent involvement. Increasing the amount of time viewing the DVD, as well as examining the intervention with additional therapies to improve results, are points to study further.

References

Jones, E. A. & Carr, E. G. (2004).
Joint attention in children with autism: Theory and intervention. Focus on Autism and Other Developmental Disabilities, 19(1), 13-26.

Golan, O., Ashwin, E., Granader, Y., McClintock, S., Day, K., Leggett, V., Baron-Cohen, S. (2010).
Enhancing emotion recognition in children with autism spectrum conditions: an intervention using animated vehicles with real emotional faces. Journal of Autism and Developmental Disorders, 40, 269-279. doi: 10.1007/s10803-009-0862-9

Lacava, P. G., Golan, O., Baron-Cohen, S., & Myles, B. S. (2007).
Using assistive technology to teach emotion recognition to students with Asperger Syndrome. Remedial and Special Education, 28(3), 174-181.

Teaching social Skills

A. Social Interaction Skills

Individuals with Asperger's syndrome experience deficits in social interaction. Bock (2007) mentioned that social deficits may be a result of deficits in executive functions that may include one's inability to change behavior based on feedback within the environment, creating rules from one's experience, and engaging in relevant responses. A social-behavioral learning strategy called SODA was implemented in order to determine its effects on social-behavioral problem solving (Bock, 2007).

Methods

IV: SODA – social-behavioral learning strategy that consisted of the following 4 steps: stop, observe, deliberate, and act. Each participant read a SODA story specifically written for each child immediately prior to target times: social studies, recess, and lunch. Within the story, a specific social problem was addressed. Question and answer statements were included within the story. Scripts were developed in order to teach the participants the answers associated with each question. Questions were also posed to help the child think of other ways to respond to situations. The participants were also asked about the thoughts and feelings of others throughout the story.

DV: Replacement behaviors were measured and consisted of: participating in cooperative activities, playing an organized sport game, and socializing with peers during lunch.

Participant Characteristics: 4 male students, ages 9 and 10, diagnosed with Asperger's syndrome

Type of Design: multiple-baseline across settings

Results/Outcomes:

Bock (2007) showed that each participant demonstrated an increase in replacement behaviors following the SODA intervention. Also, all participants maintained replacement behaviors after intervention was discontinued. One year following the intervention, each participant was able to recall the components of the SODA intervention, as well as memory of the procedural knowledge. The study consisted of a small sample size, which was a limitation. Future research should generalize findings to additional populations. In addition, generalization must be tested frequently and pre-requisite skills must be tested prior to beginning the intervention (Bock, 2007).

B. Explicit Teaching

Because children with autism do not typically learn social interaction skills by observation and exposure, it may be necessary for skills to be explicitly taught. There are a variety of teaching strategies that have been utilized to teach social skills to individuals with autism, including peer and adult-mediated approaches, visual cues, and modeling. Laushey, et al. (2009) examined the impact of the concept mastery routine on social skill development in children with high functioning autism.

Methods

IV: Concept mastery routine (CMR)– visual diagram of social skills. The visual diagram consisted of the concept/skill name, definition of the skill, the skill's characteristics, and examples and non-examples of the skill/concept. CMR was utilized as an environmental and instructional prompt. The instructor assisted the children in making a diagram following the introduction of a social skill. The diagram consisted of all components of the concept mastery routine. The instructor required active engagement of each participant. Once the diagram was created, the participants were required to review and practice the concept until criterion was reached. Generalization sessions were completed as well.

DV: Deficits of participants – appropriately responding to peers, appropriately initiating interactions, and understanding and responding to facial expressions

Participant Characteristics: 4 males in first through fourth grades with high functioning autism. Intervention consisted of a 3:1 ratio, typical peers to participant with high functioning autism, respectively.

Type of Design: Multiple baseline design across behaviors.

Results/Outcomes:

The authors found that the CMR intervention was shown to produce an increase in each social skill examined for each of the four participants. Generalization of skills was also found. As expressed by surveyed peers, it was found that the participants increased their social status, that their peers favored them more following the intervention. A limitation to the study included the small sample size. Future research should replicate findings with additional participants. Other limitations included the lack of comparison of findings from other instructional interventions and the possibility of bias, both by data collectors and surveyed peers.

C. Teaching Social Interaction Skills

Individuals with autism tend to not initiate and engage in interaction with others. Because of this, they are provided with fewer opportunities to practice social interaction skills. There is a need to teach social skills to individuals with autism, as they are unlikely to naturally learn skills that are necessary to engage in appropriate social interaction with others. Owens, et al. (2008) compared LEGO therapy (LeGoff, 2004) to the Social Use of Language Programme (SULP) in order to determine which was more effective at teaching social skills.

Methods

IV: LEGO therapy and the Social Use of Language Programme (SULP). Within the LEGO therapy group, children worked in groups of three. Each participant had a different responsibility to fulfill within the group: "engineer," "supplier," and "builder." Participants switched roles during therapy. Rules were also presented that participants were required to follow during LEGO therapy. In addition, there were several skill levels that a participant could achieve: "LEGO Helpers," "LEGO Builders," and "LEGO Creators."

The SULP group utilized stories, activities, and games. Comprehension is assessed after reading the story. Following, participants were required to critique the social skills of adults during role play, and then practice social skills. Each session focused on a specific social skill. Participants were required to master one skill before moving to a different one.

DV: Vineland Adaptive Behavior Scale, Gilliam Autism Rating Scale Social Interaction Subscale, Parent Satisfaction and child enjoyment, and Social behaviors: the frequency of initiation of interaction and the duration of social interactions with peers were measured.

Type of Design: pre-test, post-test with control group

Participant Characteristics: 31 children between the ages of 6 and 11 years old with High Functioning Autism and Asperger's Syndrome

Results/Outcomes:

It was found that LEGO therapy group showed a greater decrease in social difficulty than the SULP group. Also, the LEGO group increased the duration of time engaged in social interactions. The SULP group showed an increase in communication and socialization skills. In addition, both interventions resulted in a decrease in maladaptive behavior.

Limitations include: possibility of biased results by experimenters and surveyed parents, limited amount of observation time, lack of random assignment for control group, no observational data taken for control group, lack of treatment fidelity measurements, and small sample size. Future research should incorporate longer studies, using experimenters who are blind to experimental conditions. Another direction may focus on parsing out the intervention components to determine which element was most effective. A comparison to additional teaching approaches may be examined as well. Finally, findings should be generalized to additional populations.

D. Teaching Individuals to Initiate Social Interactions

There has been a great deal of research done on a variety of social groups in order to promote social interaction in individuals with autism. Training social skills has previously focused on the responses of individuals with autism. Licciardello, Harchik, and Luiselli (2008) pointed out that learning to initiate social interactions is a crucial component in the ability to fully engage in a social interaction. The authors examined a social skills intervention that aimed to target responses and initiations of students with autism.

Methods

IV: 3 teaching procedures were implemented: pre-teaching, prompting, and praise/reward. Each teaching procedure utilized: instructions, demonstration, and role play. Participants were taught prior to the study and a short review session was implemented prior to scheduled play time.

DV: social initiation and social response within a scheduled play period

Type of participants in study: 1 girl and 3 boys, ages 6-8, diagnosed autism who attended elementary school

Type of Design: multiple baseline design across participants

Results/Outcomes:

Licciardello, Harchik, and Luiselli (2008) found that the intervention resulted in an increase in social skills, including responses and initiations, for each participant. The authors mentioned that future research should focus on targeting each intervention component in order to determine which was most effective in increasing social skills. Also, several limitations were noted. Mainte-

nance was not examined following intervention, generalization of skills was not tested, there were limited intervention data points collected for one participant, and the interobserver agreement was minimally assessed. The authors also mentioned that the quality of peer interactions should be a point of interest for future research.

E. Teaching Social Thinking

Because individuals with autism present difficulty in social situations, interventions have been created, examining the impact that they have on increasing social interaction. Past research has attempted to identify the most effective interventions for individuals who lack the social skills necessary to engage in their environment. The idea of "social thinking" was created that teaches the reasons for socializing with others, and provides training in executive functioning skills. Crooke, Hendrix, and Rachman (2008) examined the impact of the social thinking paradigm in children with Asperger's Syndrome and high functioning autism.

Methods

IV: Lessons were provided to participants to increase social thinking. The lessons included: gathering, group lesson, and practice/unstructured time. The gathering component of the lesson resulted in group members talking with each other for a brief period of time. The group lesson consisted of social skills training on social cognitive strategies. Practice and unstructured time was when feedback was provided to participants and group members had the opportunity to talk with each other.

DV: Expected verbal behaviors – verbal, initiations, expected nonverbal behaviors – listening with eyes, unexpected-verbal behaviors, and unexpected-nonverbal behaviors were measured during both semi-structured and unstructured environments.

Participant Characteristics: 6 boys, ages 9 to 11 years old, either with high functioning autism or Asperger's syndrome

Type of Design: Pre and post-treatment results were reported. The research presented was a brief report of a multiple baseline study.

Results/Outcomes:

Post-test results showed that all subjects demonstrated an increase in the expected behaviors. Unexpected behaviors decreased as well. Crooke, Hendrix, and Rachman (2008) mentioned several limitations within the study. The small sample was mentioned as a limitation to the study. The amount of time dedicated to treatment may have produced limited treatment effects. Also, the brief report did not compare the treatment group to a control group. Crooke, et al. (2008) stated that future research should focus on appropriate interventions necessary for varying levels of functioning in autism. In addition, they expressed the possibility of adding a waitlist control group to serve as a comparison group.

References

Bock, M. A. (2007). (2011).
The impact of social-behavioral learning strategy training on the social interaction skills of four students with Asperger syndrome. Focus on Autism and Other Developmental Disabilities, 22(2), 88-95.

Crooke, P. J., Hendrix, R. E., & Rachman, J. Y. (2008).
Brief report: Measuring the effectiveness of teaching social thinking to children with Asperger syndrome (AS) and high functioning autism (HFA). Journal of Autism andDevelopmental Disorders, 38, 581-591. doi: 10.1007/s10803-007-0466-1

LeGoff, D. B. (2004). Use of LEGO
as a therapeutic medium for improving social competence. Journal of Autism and Developmental Disorders, 34(5), 557-571. Licciardello, C. C., Harchik, A. E., Luiselli, J. K. (2008). Social skills intervention for children with autism during interactive play at a public elementary school. Education and Treatment of Children, 31(1), 27-37.

Laushey, K. M., Heflin, L. J., Shippen, M., Alberto, P. A., & Fredrick, L. (2009).
Concept mastery routines to teach social skills to elementary children with high functioning autism. Journal of Autism and Developmental Disorders, 39, 1435-1448. doi: 10.1007/s10803-009-0757-9

Owens, G., Granader, Y., Humphrey, A., & Baron-Cohen, S. (2008).
Lego® therapy and the social use of language programme: an evaluation of two social skills interventions for children with high functioning autism and asperger syndrome. Journal of Autism and Developmental Disorders, 38, 1944-1957. doi: 10.1007/s10803-008-0590-6

A. Training theory of mind and executive function

The authors examined research previously conducted to increase understanding of theory of mind. Gevers, Clifford, Mager, and Boer (2006) referred to various issues that may arise due to the lack of understanding theory of mind, including an inability to engage in social interaction and conversation. Gevers, el al. (2006) examined the impact of a social cognition training to teach theory of mind and social skills to children diagnosed with PDD.

Methods

IV: Social cognition training given to participants and socialization training given to parents. Social cognition training included training participants in theory of mind. Groups of up to six participants participated in training sessions that were available for 21 weeks for one hour each. Socialization training given to parents consisted of five monthly sessions covering the development of theory of mind and ways to increase social cognition in children.

DV: The TOM test, developed by Muris, et al. (1999) and the Vineland Adaptive Behavior Scales (VABS) were used (Sparrow et al., 1984). The TOM test consisted of an interview of the child that tested ability to engage in theory of mind and included measurement in emotion recognition, perception/imitation, irony/humor, pretense, first order belief, and second order belief. Parents were assessed with the VABS in order to measure the adaptive behavior of their child and included measurement in play/leisure, interpersonal relationships, and social skills.

Type of participants in study: 18 boys and girls, ages 8-11 years old, all diagnosed with Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS)

Type of Design: Pre-test, post-test research design

Results/Outcomes:

Following training, Gevers, et al. (2006) found that TOM scores increased in all but one subtest, emotion recognition. The authors mentioned that lack of progress may have been the result of high scores on pre-tests. Statistical analysis of the VABS pre- and post-treatment found that parents reported an increase in functioning level for a variety of social skills.

The authors pointed out several limitations to the study as well as ideas for future research. Without a control group, comparison was not possible. The sample population was small. Additional assessments targeting a broader range of social skills may be necessary. Another type of measurement, other than parent report, is necessary to test for generalization of skills. With the use of two different interventions used simultaneously, it was difficult to determine which had the greatest effect on behavior change. It was unknown whether the participants maintained their results following the intervention (Gevers, et al, 2006).

B. Training Theory of Mind and Executive Functioning (2)

Children with autism may lack the ability to engage in theory of mind and executive functioning thought processes. Theory of mind is the understanding that other people experience mental states that may be different from oneself. Executive functioning is the ability to perform higher level cognitive action. Fisher and Happe (2005) examined the differences of children with autism in their ability to perform theory of mind and executive function thought processes. The authors examined a training that enabled children to practice theory of mind when taught the skill of executive functioning, as well as engage in executive functioning when taught how to practice theory of mind (Fisher & Happe, 2005).

Methodology:

IV: 2 conditions – theory of mind training and the executive functioning training. Both interventions included 5 stages. The theory of mind training compared "thoughts as pictures" (Fisher & Happe, 2005). The executive functioning training compared "brain as machine" (Fisher & Happe, 2005). A control group was also used.

DV: A variety of measures were included. General ability was measured using assessments for non-verbal ability and receptive language.

To assess theory of mind: 2 screening tests, 4 non-screening tests, and a non-theory of mind control task were used

To assess executive function: A card sort task that examined the number of categories achieved, the percentage of conceptual level responses, percentage of perseverative errors, the number of trials to complete the first category, and failure to maintain set. Also, trails task was used.

A questionnaire was also given to teachers prior to training and at follow-up to assess theory of mind and executive functioning in students.

Type of participants in study: 27 children with autism spectrum disorder

Type of Design: True experiment group research design with a control group

Results/Outcomes:

The authors found that the participants were taught theory of mind skills and that the skills were maintained over time. Executive function training, however, did not produce an increase in executive functioning skills. Even though the executive function training did not increase responding, the ability to engage in theory of mind increased in the executive functioning group. The authors suggested that this may be a result of indirect teaching. In addition, the questionnaires given to teachers reflected a slight increase in the ability of children to engage in theory of mind (Fisher & Happe, 2005).

Fisher and Happe (2005) mentioned several limitations to the study. One limitation was the lack of treatment delivered to the control group. Another limitation involved the lack of ability to demonstrate effects of the executive functioning intervention. Also, the authors could not determine what effects of the executive function intervention increased the participant's ability to engage in theory of mind. In addition, the sample sized used was small and easier tests of executive function should have been included (Fisher & Happe, 2005)

C. Theory of Mind

Begeer, et al. (2011) discussed the difficulty that individuals with autism have with theory of mind. The authors mentioned that not much research has been done to determine the impact of theory of mind training on social interaction. This research study examined the effects of a theory of mind training and the impact it had on a variety of different outcome measures (Begeer, et al., 2011)

Methods

IV: Theory of mind training that consisted of 53 sessions. The sessions began with identification of the precursors to understanding theory of mind. Next, the focus of the intervention changed to focus on fantasy, reality, other's intentions, and emotions. Elementary theory of mind skills was followed by first and second order mental state reasoning.

DV: Theory of Mind Test, an interview for children to test their understanding of the concept. The Levels of Emotional Awareness Scale for Children, used to test emotional awareness of self and others. Self Reported Empathy was measured by the Index of Empathy for Children and Adolescents and The Children's Social Behaviour questionnaire.

Type of participants in study: 40 children, ages 8-13 years old, with high-functioning Autism Spectrum Disorder

Type of Design: Randomized controlled design

Results/Outcomes:

IV: Theory of mind training that consisted of 53 sessions. The sessions began with identification of the precursors to understanding theory of mind. Next, the focus of the intervention changed to focus on fantasy, reality, other's intentions, and emotions. Elementary theory of mind skills was followed by first and second order mental state reasoning.

DV: Theory of Mind Test, an interview for children to test their understanding of the concept. The Levels of Emotional Awareness Scale for Children, used to test emotional awareness of self and others. Self Reported Empathy was measured by the Index of Empathy for Children and Adolescents and The Children's Social Behaviour questionnaire.

Type of participants in study: 40 children, ages 8-13 years old, with high-functioning Autism Spectrum Disorder

Type of Design: Randomized controlled design

References

Begeer, S., Gevers, C., Clifford, P., Verhoeve, M., Kat, K., Hoddenbach, E., & Boer, F. (2011).
Theory of mind training in children with autism: a randomized controlled trial. Journal of Autism and Developmental Disorders, 41, 997-1006. doi: 10.1007/s10803-010-1121-9 Fisher, N. & Happe, F. (2005). A training study of theory of mind and executive e function in children with autistic spectrum disorders. Journal of Autism and Developmental Disorders, 35(6), 757-771. doi: 10.1007/s10803-005-0022-9

Gevers, C., Clifford, P., Mager, M., & Frits, B. (2006).
Brief report: a theory-of-mind-based social-cognition training program for school-aged children with pervasive developmental disorders: an open study of its effectiveness. Journal of Autism and Developmental Disorders, 36(4), 567-571. doi: 10.1007/s10803-006-0095-0

Muris, P., Steerneman, P., Meesters, C., Merckelbach, H., Herselenberg, R., van den Hogen, T., & van Dongen, L. (1999).
The TOM test: a new instrument for assessing theory of mind in normal children and children with pervasive developmental disorders. Journal of Autism and Developmental Disorders, 25, 415-433.

Sparrow, S. S., Balla, D. A., & Cicchetti, D. V. (1984).
Vineland adaptive behavior scales. Circle Pines, MN: American Guidance Services.

Special Learning