

Evidence Based Practice Day
Department of Rehabilitation Sciences, Recreation Therapy Program
April 26, 2013

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Social Skills Training Interventions for Children with Developmental Disabilities

Search Terms: Social skills training AND cerebral palsy AND children; Social skills intervention AND cerebral palsy AND children; Social skills training AND mental retardation AND children; Social skills training AND learning disabilities AND children; Social skills training AND intellectual disabilities AND children; Social skills training AND autism AND children

Years: 2006-2012

Databases: SPORTSDiscus, Academic File One, Ebscohost, PubMed, Social Science Citation Index, Science Citation Index, Google Scholar, The American Therapeutic Recreation Association Annual, American Journal of Recreation Therapy

Number of Articles: 39

Summary of Research Findings:

According to Avcioglu (2012), social skills are a vital part of being able to initiate and maintain positive interactions with others; skills that can be challenging for individuals with developmental disabilities. Social skills training (SST) is an intervention to help improve social skills. A review of the SST literature related to youth with developmental disabilities, yielded 39 articles that fell into 5 major disability groupings:

- *Cerebral Palsy (CP):* Out of 39 articles, 1 related to SST and CP. No research has been conducted on SST for children with CP, however, research shows that social functioning is restricted in children with CP and they could benefit from interventions that teach those skills.
- *Learning Disabilities (LD):* Out of 39 articles, 3 related to SST and LD. Interventions took place in a group community setting and used the social behavioral learning theory intervention with role play as the activity. The studies used both observation of task and researcher survey as outcome measurements. The results found the interventions were able to increase the targeted skills of listening, following directions, problem solving, presenting anger without harming others and solving problems.

- *Intellectual Disabilities (ID)*: Out of 39 articles, 3 related to SST and ID. SST interventions took place in a group community setting and used self management intervention and peer/interventionist training/direct instruction. Within the sessions, art modalities were utilized, as well as teaching targeted skills. Outcome measures used were observation of target skills, the Social Skills Assessment Scale and researcher surveys. Outcomes of the interventions showed effectiveness in presenting anger without harming others, solving dissimilarities by talking, solving conflicts without fighting, initiating and maintaining interactions, self control, dealing with aggressive behaviors, and accepting consequence.
- *Mental Retardation (MR)*: Out of 39 articles, 2 related to SST and MR. SST interventions took place in a group community setting and/or individual clinical setting, and used the interventions of cognitive behavioral therapy and self management. Within the sessions, clients were taught target skills or utilized activities that targeted particular social skills. The outcome measures that were used within the studies included observation of ability to perform target skills and researcher surveys. Outcome from the interventions showed that children learned to improve their attention, how to interact with others in an appropriate manner, when to apologize, and how to deal with teasing. Some of the children were able to generalize what they learned in different settings.
- *Autism Spectrum Disorders (ASD)*: Out of 39 articles, 31 related to SST and ASD. SST interventions took place in both group (clinical/community) settings and individual (clinical/community) settings. Interventions used within the studies included cognitive behavioral, social behavioral learning theory, concept mastery, self management, modeling appropriate behavior, performance feedback/ reinforcement, pivotal response treatment, peer/interventionist training/direct instruction, and social stories, as well as family based and technology based interventions. Within the sessions, activities included play/free time activities, teaching of skills/activities that target skills, role play, art, and computer/technology. The outcome measures used within the studies included observation of ability to perform target skills, researcher surveys, Vineland Adaptive Behavior Scales (VABS), Social Skills Questionnaire- Parents (SSQ-P), Social Competence with Peers Questionnaire–Parents (SCPQ-P), Walker-McConnell Scale (WMS), Benton Facial Recognition Test (Short Form), MGH YouthCare Social Competence Development Scale, Social Interaction Observation Code, Social Skills Rating Scale (SSRS), Aberrant Behavior Checklist (ABC), Nisonger Child Behavior Rating Form (N-CBRF), The Awareness of Social Inference Test (TASIT), Conversation Rating Scale (CRS), Behavior Assessment System for Children Parent/Teacher Rating Scales (BASC-PRS, BASC TRS), Skillstreaming Survey (SS), Home and Community Social Behavior Scales (HCSBS), Diagnostic Analysis of Nonverbal Accuracy2 (DANVA2), Social Network Salience, Child and Adolescent Social Perception measure (CASP), The Quality of Play Questionnaire (QPQ), Social Self-efficacy Scale, Test of Adolescent Social Skills Knowledge (TASSK) and the Friendship Qualities Scale (FQS). Overall, the results of the studies showed that SST was effective in enhancing the social skills in children who have ASD, such as appropriately initiating interactions with a peer, tone of voice and facial expression, and understanding nonverbal cues (see Table 5 for a comprehensive list of the findings). Additionally, some studies showed the children were able to maintain those skills and generalize them outside of the intervention setting.

Table 1

SETTING						
Type of SST Setting	Dxs that have benefits from this type of setting-based intervention					Studies that support this intervention
	CP	LD	ID	MR	Autism	
Group Based (Clinical)		x	x		x	Cetin & Avcioglu (2010); DeRosier, Swick, Davis, McMillen, & Matthews (2011); Hopkins, Gower, Perez, Smith, Amthor, Wimsatt, & Biasini (2011); Laushey, Heflin, Shippen, Alberto, & Fredrick (2009)
Group Based (Community)		x	x	x	x	Avcioglu (2012); Bellini, Peters, Benner, & Hopf (2007); Canney, & Byrne (2006); Cotugno, (2009); Delano & Snell (2006); Epp (2008); Gooding (2011); Kokina & Kern (2010); Kroeger, Schultz, & Newsom (2007); Leaf, Dotson, Oppeneheim, Sheldon, & Sherman (2010); Lopata, Thomeer, Volker, Nida, & Lee (2008); Licciardello, Harchik, & Luiselli (2008); MacKay, Knott, & Dunlop (2007); Mazurik-Charles & Stefanou (2010); Minihan, Kinsella, & Honan (2011); Sheridan, MacDonald, Donlon, Kuhn, McGovern, Friedman (2011); Tse, Strulovitch, Tagalakis, Meng, & Fombonne (2007)
Individual Based (Clinical)				x	x	Bellini, Benner, Hopf, & Peters (2007); Kasari, Rotheram-Fuller, Locke, & Gulsrud (2012); Koegel, Vernon, & Koegel (2009); Laugeson, Frankel, Mogil, & Dillon (2009); Tekinarslan & Sucuoglu (2007)
Individual Based (Community)					x	Banda, Hart & Liu-Gitz (2010); Bock (2007); Castorina & Negri (2011); Deitchman, Reeve, Reeve, & Progar (2010); Crawford, Gray, & Woolhiser (2012); Frankel, Myatt, Sugar, Whitham, Gorospe & Laugeson (2010); Hagopian, Kuhn, & Strother (2009); Harper, Symon & Frea (2008); Mitchell, Parsons, & Leonard (2007); Ratto, Turner-Brown, Rupp, Mesibov, & Penn (2011); Scattone, Tingstrom, & Wilczynski (2006); Stanton-Chapman & Snell (2011); Tetreault & Lerman (2010)

Table 2

INTERVENTIONS							
Type of SST Intervention	Description of intervention	Dxs that have benefits from this type of in-session intervention					Studies that support this intervention
		CP	LD	ID	MR	Autism	
Cognitive-Behavioral	Problem solving approach				x	x	Canney & Byrne (2006); Cotugno (2009); DeRosier, Swick, Davis, McMillen, & Matthews (2011); Epp, (2008); Gooding (2011); Tekinarslan & Sucuoglu (2007)
Concept Mastery	An interactive process in which the instructor and the students co-construct the necessary elements of a concept in order to promote students understanding. The necessary elements of the concept include definitions, characteristics, and examples of the concept					x	Bellini, Peters, Benner, & Hopf (2007); Cotugno (2009); Kasari, Rotheram-Fuller, Locke, & Gulsrud (2012); Laushey, Heflin, Shippen, Alberto, & Fredrick (2009)
Family Based	Inclusion of family members to help reinforce skills outside of training setting					x	Castorina & Negri (2011); DeRosier, Swick, Davis, McMillen, & Matthews (2011); Frankel, Myatt, Sugar, Whitham, Gorospe, & Laugeson (2010); Laugeson, Frankel, Mogil, & Dillon,(2009); Lopata, Thomeer, Volker, Nida, & Lee (2008); Tse, Strulovitch, Tagalakis, Meng, & Fombonne (2007)
Modeling Appropriate Behavior	Students are given a sheet outlining the steps of the skill, which are then explained by the teacher. After this, the teacher modeled the skill					x	Honan, Kinsella, & Minihan (2011); Kasari, Rotheram-Fuller, Locke, & Gulsrud (2012); Lopata, Thomeer, Volker, Nida, & Lee (2008)
Peer/interventionist Training/direct instruction	The use of peers or interventionist to teach appropriate and inappropriate social skills		x	x		x	Banda, Hart, & Liu-Gitz (2010); Bellini, Peters, Benner, & Hopf (2007); Castorina & Negri, (2011); Cetin & Avcioglu (2010); Crawford, Gray, & Woolhiser (2012); Gooding (2011); Harper, Symon, & Frea (2008); Kasari, Rotheram-Fuller, Locke, & Gulsrud (2012); Kroeger, Schultz, & Newsom (2007); Leaf, Dotson, Oppeneheim,

							Sheldon, & Sherman (2010); Licciardello, Harchik, & Luiselli (2008); MacKay, Knott, & Dunlop (2007); Mazurik-Charles & Stefanou (2010); Ratto, Turner-Brown, Rupp, Mesibov, & Penn (2011); Stanton-Chapman, & Snell (2011); Tse, Strulovitch, Tagalakakis, Meng, & Fombonne (2007)
Performance Feedback/ reinforcement	Verbally enforcing correct responses					x	Gulsrud, Kasari, Locke & Rotheram-Fuller (2012); Hagopian, Kuhn, & Strother (2009); Koegel, Vernon, & Koegel (2009); Licciardello, Harchik, & Luiselli (2008); Mazurik-Charles & Stefanou (2010)
Pivotal Response Treatment	Based in Applied Behavior Analysis and incorporates motivational procedures to improve responding					x	Bellini, Benner, Hopf, & Peters (2007); Frea, Harper, & Symon (2008)
Self-Management	Alternative strategies (presenting anger without harming others, solving dissimilarities by talking and solving conflicts without fighting skills), based on self control, to improve academic performance, reduce inappropriate behaviors at school, increase appropriate behaviors and provide generalization of these learned behaviors of students			x	x	x	Avcioglu (2012); Deitchman, Reeve, Reeve, & Progar (2010); Gooding (2011)
Social-Behavioral Learning Theory	People learn behavior through observing others		x			x	Bock (2007); DeRosier, Swick, Davis, McMillen & Matthews (2011); Sheridan, MacDonald, Donlon, Kuhn, McGovern, & Friedman (2011)
Social Stories	A method of teaching children with autism how to "read" social situations, a short story that describes the salient aspects of a specific social situation that a child may find challenging, and they explain the likely reactions of others in a situation and provide information about appropriate social responses.					x	Bellini, Benner, Hopf & Peters (2007); Delano & Snell, (2006); Kokina & Kern (2010); Minihan, Kinsella, & Honan (2011); Tingstrom, Scattone & Wilczynski (2006)

Technology Based	Use of computers (avatars, virtual environments) or video cameras (watching social skills)						x	Bellini, Peters, Benner, & Hopf (2007); Deitchman, Progar, Reeve & Reeve (2010); Hopkins, Gower, Perez, Smith, Amthor, Wimsatt, & Biasini (2011); Tetreault, & Lerman (2010); Mitchell, Parsons, & Leonard (2007)
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Table 3: Activities Utilized within Interventions

ACTIVITIES UTILIZED WITHIN INTERVENTIONS								
Type of SST Activities	Specific activities	Dxs that have benefited from this type of activity					Autism	Studies that support this intervention
		CP	LD	ID	MR			
Arts (music, drama, art therapy, ect)	Music therapy, art therapy, painting, drama		x	x				Cetin & Avcioglu (2010); Epp (2008); Gooding (2011)
Computer/technology	Computer avatars, virtual environments					x		Deitchman, Progar, Reeve & Reeve (2010); Hopkins, Gower, Mitchell, Parsons, & Leonard (2007); Perez, Smith, Amthor, Wimsatt, & Biasini (2011)
Play/free time activities	Games, board games, blocks, books age appropriate toys, playground, preferred play activity, unstructured free play					x		Banda, Hart, & Liu-Gitz (2010); Bellini, Peters, Benner, & Hopf (2007); Bock (2007); Crawford, Gray, & Woolhiser (2012); Delano & Snell (2006); Deitchman, Reeve, Reeve, & Progar (2010); Hagopian, Kuhn, & Strother (2009); Licciardello, Harchik, & Luiselli (2008); Harper, Symon, & Frea (2008); Kasari, Rotheram-Fuller, Locke, & Gulsrud (2012); Kroeger, Schultz, Newsom (2007); Laushey, Heflin, Shippen, Alberto, & Fredrick (2009); Leaf, Dotson, Oppeneheim, Sheldon, & Sherman (2010); Mitchell, Parsons, & Leonard (2007); Scattone, Tingstrom, & Wilczynski (2006); Stanton-Chapman & Snell (2011)
Role Play	Acting out scenes where certain social skill would be useful		x			x		Lopata, Thomeer, Volker, Nida, & Lee (2008); Minihan, Kinsella, & Honan (2011); Kokina & Kern (2010); Ratto, Turner-Brown, Rupp, Mesibov, & Penn (2011); Sheridan, MacDonald, Donlon, Kuhn, McGovern, & Friedman (2011); Tse, Strulovitch, Tagalakis, Meng, & Fombonne (2007)

Teaching skills /activities that target skills	Direct instruction, discussion, role plays, games, and modeling by the group leaders			x	x	x	Avcioglu (2012); Bellini, Peters, Benner, & Hopf (2007); Canney, & Byrne (2006); Castorina & Negri (2011); Cotugno (2009); Deitchman, Reeve, Reeve, & Progar (2010); Dillon, Frankel, Laugeson & Mogil (2009); DeRosier, Swick, Davis, McMillen, & Matthews (2011); Frankel, Myatt, Sugar, Whitham, Gorospe & Laugeson (2010); Hagopian, Kuhn, & Strother (2009); Koegel, Vernon, & Koegel (2009); Kroeger, Newsom & Schultz (2007); Laugeson, Frankel, Mogil, & Dillon (2009); Tetreault & Lerman (2010); Lopata, Thomeer, Volker, Nida, & Lee (2008); MacKay, Knott, & Dunlop (2007); Mazurik-Charles & Stefanou (2010); Tekinarslan & Sucuoglu (2007)
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Table 4: Outcome Measurement

OUTCOME MEASUREMENT							
Type of SST Measurement Tools	Measures	Tool used with specific dxs					Studies that utilized this tool
		CP	LD	ID	MR	Autism	
Aberrant Behavior Checklist (ABC)	Measures problem behaviors of people with developmental disabilities					x	Tse, Strulovitch, Tagalakis, Meng, & Fombonne (2007)
Behavior Assessment System for Children Parent/Teacher Rating Scales (BASC-PRS, BASC TRS)	A rating scale that quantifies parent and teacher perceptions of children's behavior and skills					x	Lopata, Thomeer, Volker, Nida, & Lee (2008);
Benton Facial Recognition Test (Short Form)	Measures the children's facial recognition skills					x	Hopkins, Gower, Perez, Smith, Amthor, Wimsatt, & Biasini (2011)
Child and Adolescent Social Perception measure (CASP)	Measures social perception using non-verbal and situational cues					x	Castorina & Negri (2011)
Child Behavior Checklist (CBCL)	Designed to obtain data on behavioral/ emotional problems and competencies					x	Stanton-Chapman & Snell (2011)
Conversation Rating Scale (CRS)	A questionnaire developed for this study that rates the participants interest in the conversation					x	Ratto, Turner-Brown, Rupp, Mesibov, & Penn (2011)

Diagnostic Analysis of Nonverbal Accuracy2 (DANVA2)	A computer-based research instrument that assesses the ability to accurately identify four basic emotions (i.e., happy, sad, angry, and fearful) through facial expressions or spoken language cues					x	Lopata, Thomeer, Volker, Nida, & Lee (2008)
Friendship Qualities Scale (FQS)	An adolescent self-report measure that assesses the quality of best friendships					x	Frankel, Myatt, Sugar, Whitham, Gorospe, & Laugeson (2010); Laugeson, Frankel, Mogil, & Dillon (2009)
Home and Community Social Behavior Scales (HCSBS)	Measures student's social behavior in the school and home settings					x	Gooding (2011)
MGH YouthCare Social Competence Development Scale.	Social competency and social skill development for children with ASD, including cognitive aspects (e.g. stress/anxiety and attention flexibility/transitions), social interpersonal skills (e.g., converses with peers), and self-awareness (e.g., controls self)					x	Cotugno (2009)
Nisonger Child Behavior Rating Form (N-CBRF)	Measures emotional and behavioral problems of children and adolescents with developmental disabilities					x	Fombonne, Meng, Strulovitch, Tagalakis, & Tse (2007)
Observation of ability to perform target skills	Data collection of on-task, on-task prompted and off-task behaviors			x	x	x	Avcioglu (2012); Banda, Hart, & Liu-Gitz (2010); Bock (2007); Deitchman, Reeve, Reeve, & Progar (2010); Delano & Martha (2006); Crawford, Gray, & Woolhiser (2012); Harper, Symon, & Frea (2008); Hopkins, Gower, Perez, Smith, Amthor, Wimsatt, & Biasini (2011); Laushey, Heflin, Shippen, Alberto, & Fredrick (2009); Licciardello, Harchik, & Luiselli (2008); Mitchell, Parsons, & Leonard (2007); Tetreault & Lerman (2010); Scattone, Tingstrom, & Wilczynski (2006); Stanton-Chapman & Snell (2011)
The Quality of Play Questionnaire (QPQ)	Measures frequency of get-togethers with peers over the previous month and the level of conflict during these get-togethers					x	Dillon, Frankel, Laugeson, & Mogil (2009)
Researcher Survey	Likert scale type questions to measure teacher, parent or student evaluations of program success		x	x	x	x	Canney, & Byrne (2006); Crawford, Gray, & Woolhiser (2012); Hagopian, Kuhn, & Strother (2009); Koegel, Vernon, & Koegel, (2009); Minihan, Kinsella, & Honan (2011); Sheridan,

							MacDonald, Donlon, Kuhn, McGovern, & Friedman (2011); Gooding (2011)
Social Competence with Peers Questionnaire–Parents (SCPQ-P)	Measures whether particular social skills and competencies are fully, partly, or not at all established					x	MacKay, Knott, & Dunlop (2007)
Social Interaction Observation Code	Measures the frequency, duration, and nature (positive or negative) of the videotaped social interactions					x	Kroeger, Schultz, & Newsom (2007)
Social Network Salience	A ratio score indicating the prominence of a child within his classroom social network					x	Kasari, Rotheram-Fuller, Locke, & Gulrud (2012)
Social Network Survey (SNS)	A ratio score indicating the prominence of a child within his classroom social network.					x	Kasari, Rotheram-Fuller, Locke, & Gulrud (2012)
Social Responsiveness Scale (SRS)	Measures severity and type of social impairments that are characteristic of autistic spectrum conditions in children and adolescents					x	DeRosier, Swick, Davis, McMillen, & Matthews (2011); Mazurik-Charles & Stefanou (2010); Minihan, Kinsella, & Honan (2011); Ratto, Turner-Brown, Rupp, Mesibov, & Penn, (2011), Tse, Strulovitch, Tagalakis, Meng, & Fombonne (2007)
Social Self-Efficacy Scale	Measures children’s perceived self-efficacy for social tasks					x	DeRosier, Swick, Davis, McMillen, & Matthews (2011)
Skillstreaming Survey (SS)	Measures social skills and social behaviors					x	Lopata, Thomeer, Volker, Nida, & Lee (2008)
Social Skills Assessment Scale	Used teachers to assess students' social skills		x	x			Cetin & Avcioglu (2010)
Social Skills Questionnaire-Parents (SSQ-P)	Measures a parent's perception of their child's social skills					x	MacKay, Knott, & Dunlop (2007)
Social Skills Rating Scale (SSRS)	Measures a wide range of social skills including the broad domains of cooperation, assertion, responsibility, and self-control					x	Castorina & Negri (2011); Epp (2008); Frankel, Gorospe, Laugeson, Myatt, Sugar, & Whitham (2010); Hopkins, Gower, Perez, Smith, Amthor, Wimsatt, & Biasini (2011); Laugeson, Frankel, Mogil, & Dillon (2009); Leaf, Dotson, Oppeneheim, Sheldon, & Sherman, (2010); Stanton-Chapman & Snell (2011)
The Awareness of Social Inference Test (TASIT)	Measures emotion recognition, the ability to understand when conversational inference such as when sarcasm is being made, and the ability to differentiate between different kinds of counterfactual comments (lies and sarcasm)					x	Mesibov, Penn, Turner-Brown, Ratto, & Rupp (2011)

Test of Adolescent Social Skills Knowledge (TASSK)	Measures adolescents' knowledge about the specific social skills taught during the intervention					x	Laugeson, Frankel, Mogil, & Dillon (2009); Frankel, Gorospe, Laugeson, Myatt, Sugar, & Whitham (2010)
Vineland Adaptive Behavior Scales (VABS)	Objectively measures adaptive functioning and social skills in autism and other developmental disabilities					x	Frankel, Myatt, Sugar, Whitham, Gorospe, & Laugeson (2010); Laugeson, Frankel, Mogil, & Dillon (2009); Laushey, Heflin, Shippen, Alberto, & Fredrick (2009); MacKay (2007)
Walker-McConnell Scale (WMS)	Measures constructs related to social functioning: social competence and school adjustment					x	Cotugno (2009)

Table 5: Outcomes from Interventions

OUTCOMES FROM SST INTERVENTIONS		
Population	Outcomes	Studies that support this intervention
CP	This study shows that social functioning, and communication is considerably restricted in children with CP, and that social functioning and communication develops more slowly in children with CP than in children in the general population. To help reduce these restrictions, clinicians should focus on medical, communication, and social functioning interventions with to help children with CP gain those skills.	Voorman, Dallmeijer, Van Eck, Schuengel, & Becher (2010)
ID	This study showed that self-management skills training program was effective on presenting anger without harming others, solving dissimilarities by talking and solving conflicts without fighting on students with intellectual disabilities. These skills were maintained after the intervention and generalized to different environments and people by the students.	Avcioglu (2012)
	This study showed that there were mixed perceptions about Circle Time. Those who had implemented Circle Time most frequently were those who had the most positive views about it. Despite the variation in reported experience, teachers were unanimous in their belief that Circle Time offers an effective means of promoting social skills development and all expressed the intention to continue to use it in the future.	Canney & Byrne (2006).
	The results of this study showed that this intervention was effective in contributing the development of basic social skills, basic and advanced communication skills, initiating and maintaining interaction, working as a group, emotional skills, self-control skills, dealing with aggressive behaviors, accepting consequences, giving directions and cognitive skills.	Cetin & Avcioglu (2010)
LD	The results of this study showed that the drama method was effective in the development of basic social skills, basic and advanced communication skills, initiating and maintaining interaction, working as a group, emotional	Cetin & Avcioglu (2010)

	skills, self-control skills, dealing with aggressive behaviors, accepting consequences, giving directions and cognitive skills.	
	The results of this study indicated significant post program improvements in all skills (listening, following directions, problem-solving, and knowing when to tell) as well as in ratings of overall socialness obtained from both classroom teachers and mental health staff.	Sheridan, MacDonald, Donlon, Kuhn, McGovern, & Friedman (2011)
MR	The results of this study showed that the young man was able to both recruit attention and interact with others in an appropriate manner, increasing the probability that his future attempts to interact would be reinforced by others.	Hagopian, Kuhn, & Strother (2009)
	The results of this study showed that the subjects could use the stages of cognitive process when faced with new stories and pictures other than those used in the training sessions; they learned the skills to apologize, cope with teasing and avoid inappropriate touching and they could generalize what they learned.	Tekinarslan & Sucuoglu (2007)
Autism	The results of this study showed that the social skills intervention provided immediate and robust improvements of social initiations and responses in both participants; involving peers in center time activities was effective in improving social skills in the participants with ASD.	Banda, Hart, & Liu-Gitz (2010)
	This results of this meta-analysis only included school-based social skills interventions. The results indicate that social skills interventions are only minimally effective for children with ASD and other social skills deficits. It is unclear how the results of these school-based interventions compare to those of interventions implemented in other settings.	Bellini, Peters, Benner, & Hopf (2007)
	The results of this study showed that students presented an increase in the percentage of time they spent participating in cooperative learning activities during social studies, playing organized sport games during noon recess, and visiting with peers during lunch after training began. When training discontinued, they maintained the performance levels.	Bock (2007)
	The results of this study showed that participants displayed significant improvements in the identification of discrete skills and non-verbal social cues such as eye contact, body language, tone of voice and facial expression. Treatment effects in the short-term, suggest that these improvements in social perception can be maintained over at least 3 months.	Castorina & Negri (2011)
	The results of this study showed that for both age groups, ratings on the WMS were significantly improved across the four scales, teacher-preferred social behavior, peer-preferred social behavior, school adjustment behavior, and total score. The younger group (ages 7–8) showed greatest improvement on teacher preferred and peer-preferred behavior while the older group (ages 10–11) showed greatest improvement in school adjustment behavior	Cotugno (2009)
	The results of this study indicated that participants showed they were able to maintain focus and attention inside an activity and improved communications with others, learned to communicate feelings.	Crawford, Gray, & Woolhiser (2012)
	The results of this study showed that Video feedback (VFB) sessions increased the frequency of social initiating for participants with autism in general education setting.	Deitchman, Reeve, Reeve, & Progar (2010)

<p>The results of this study showed that the duration of social engagement increased during play sessions, and students demonstrated a higher rate of target social skills (seeking attention, initiating comments, initiating requests, and making contingent responses). This study suggest that the use of social stories without additional social skill interventions may be effective in increasing the duration and frequency of specific social skills.</p>	<p>Delano & Snell (2006)</p>
<p>The results of this study showed that children in the intervention group exhibited significantly greater mastery of social skills as compared to children in the control condition group.</p>	<p>DeRosier, Swick, Davis, McMillen, & Matthews (2011)</p>
<p>The results of this study demonstrated that participants improved knowledge of rules of social etiquette and demonstrated improved knowledge of rules of social etiquette relevant to making and keeping friends. They reported a significant increase in the frequency of hosted get-togethers and significantly better quality of friendships at the end of treatment relevant to making and keeping friends.</p>	<p>Dillon, Frankel, Laugeson & Mogil (2009)</p>
<p>The results of this study showed that social behaviors (compromise, graciously winning or losing a game, conversation skills, eye contact, voice modulation, friendship skills, understanding nonverbal cues, awareness of the environment, learning to identify and express feelings, awareness of others' feelings, and modulating intense emotions) showed improvement between pre and posttest; however, the measurements were not statistically significant.</p>	<p>Epp (2008)</p>
<p>The results of this study indicated that music therapy intervention was effective in improving social competence, significant improvements in social functioning were found in school participants.</p>	<p>Gooding (2011)</p>
<p>The results of this study show that peer implemented naturalistic strategies were effective at increasing social interactions for children with autism during recess play activities. Both participants improved their social contact with typical peers and in particular, increased their social initiations to play from baseline levels to intervention.</p>	<p>Harper, Symon, & Frea (2008)</p>
<p>The results of this study support the promise of using computer-based interactive games for enhancing specific social skills. Providing children with Autism Spectrum Disorder (ASD) opportunities to practice eye gaze, expression matching and face recognition in FaceSay's controlled, structured, and interactive environment with realistic avatar assistants improved their social skills.</p>	<p>Hopkins, Gower, Perez, Smith, Amthor, Wimsatt, & Biasini (2011)</p>
<p>This study showed that peer mediated interventions produce greater social involvement and improvement in socialization was maintained for up to 3 months after treatment sessions ended.</p>	<p>Kasari, Rotheram-Fuller, Locke, & Gulsrud (2012)</p>
<p>The results of this study showed that sessions with embedded social interactions resulted in increased levels of child initiated social engagement during communication, improved nonverbal dyadic orienting, and higher ratings of overall child affect compared to the non embedded conditions.</p>	<p>Koegel, Vernon, & Koegel (2009)</p>
<p>The results of this investigation confirmed previous findings that the interventions had higher effectiveness in describing simple singular behaviors than complex social or nonsocial routines.</p>	<p>Kokina & Kern (2010)</p>
<p>The results from this study show that both groups improved in their pro-social behaviors from the pre and post measured time. Increases in both groups across time were statistically significant for the initiating behaviors, the responding behaviors, and the interacting behaviors.</p>	<p>Kroeger, Schultz, & Newsom (2007)</p>

<p>The results from this study showed that teens in the treatment group demonstrated improved knowledge of rules of social etiquette relevant to making and keeping friends. They reported a significant increase in the frequency of hosted get-togethers and significantly better quality of friendships at the end of treatment.</p>	<p>Laugeson, Frankel, Mogil, & Dillon (2009)</p>
<p>The results from this study showed that the targeted social skills (responding appropriately to a peer's question, appropriately initiating interactions with a peer, and reading a peer's facial expression and responding according to the expression) improved with the implementation of instruction via concept mastery.</p>	<p>Laushey, Heflin, Shippen, Alberto, & Fredrick (2009)</p>
<p>The results from this study indicated that all five children acquired social skills when the teaching interaction procedure was implemented. In addition, most participants maintained their skills up to 8 weeks after intervention had been terminated, and generally, high levels of generalization occurred following the teaching.</p>	<p>Leaf, Dotson, Oppeneheim, Sheldon, & Sherman (2010)</p>
<p>The results of this study showed significant social improvements were reported by both parents and staff. Findings also support the argument that social skills interventions should deconstruct complex social behaviors into their component parts, directly and explicitly teach skills in a part-to-whole sequence, and provide specific performance feedback.</p>	<p>Lopata, Thomeer, Volker, Nida, & Lee (2008)</p>
<p>The results of this study showed that the intervention of combining pre-teaching, prompting, praise, and rewards increased social initiations and social responses of four children with autism.</p>	<p>Licciardello, Harchik, & Luiselli (2008)</p>
<p>The results of this study demonstrated significant gains on all measures used following the intervention program. Parents and participants both reported enhanced levels of functioning for social skills and social competence.</p>	<p>MacKay, Knott, & Dunlop (2007)</p>
<p>Results of this study showed that several areas of social responsiveness noticeably improved as a result of the intervention in the short run; however, sustained improvement was difficult to detect.</p>	<p>Mazurik-Charles & Stefanou (2010)</p>
<p>Results of this study showed there were improvements in eye contact and understanding humor in students at the end of the program.</p>	<p>Minihan, Kinsella, & Honan (2011)</p>
<p>Results of this study showed that participants made advances in using the virtual environment (VEs), as demonstrated by their more speedy completion of levels on successive sessions. Their experience with the VEs led to improvements in judgments and reasoning about where to sit in some of the videos of real cafés and real buses, at least in some cases. These improvements coincided with the timing of the VE intervention; there was little sign of gain during testing that did not directly follow VE and hence there was little sign of improvement merely from practice and repeated testing.</p>	<p>Mitchell, Parsons, & Leonard (2007)</p>
<p>Results of this study indicated that paraprofessionals who are appropriately trained can help children with ASD learn more appropriate social skills; that they can intervene to help them make progress while the child is in the general education classroom; and that the children's teachers perceive more acceptable social skills on the part of the children. However, teachers rated the children more highly at the mid-point of the intervention than at the end of the intervention, indicating perhaps that the gains were not sustainable to the same degree over time.</p>	<p>Ratto, Turner-Brown, Rupp, Mesibov, & Penn (2011)</p>
<p>Results suggested that Social Stories, when used as a sole intervention to increase appropriate social interactions, are limited in their effectiveness.</p>	<p>Scattone, Tingstrom, & Wilczynski (2006)</p>

	Results of this study showed that the social communication intervention was highly to moderately effective in increasing the rate of initiations with an immediate peer response and in improving turn-taking skills.	Stanton-Chapman & Snell, (2011)
	Results of this study are inconclusive regarding the overall effectiveness of point of view modeling (POVM) using video cameras to teach social exchanges to children with autism.	Tetreault & Lerman (2010)
	Results of this study showed that social skills groups can be an effective way of helping verbal adolescents with autism spectrum disorders to develop comfort and confidence in social interactions. Significant pre to post treatment gains were found on measures of both social competence and problem behaviors associated with Asperser's Syndrome/High functioning Autism (AS/HFA).	Tse, Strulovitch, Tagalakis, Meng, & Fombonne (2007)

Knowledge Translation Plan:

According to the literature review, the use of community-based real life environments were chosen most often for SST (e.g., classroom, play group) because they have shown to produce higher maintenance effects and higher generalization effects across participants, settings, and play stimuli (Bellini, Peters, Benner, & Hopf, 2007; Canney, & Byrne, 2006). Consequently, RTs should utilize such environments whenever possible. The graphics below summarizes interventions utilized, activities utilized within interventions, and resultant outcomes by diagnosis. It is hoped this will serve as a guide to assist RTs who work with a particular population to key in on common interventions & activities, and develop a plan to measure common outcomes. Measuring outcomes is essential to increase documented efficacy of particular SST interventions. When measuring outcomes, RTs should consider using a standardized assessment tool (see Table 4). Given the range of interventions and activities, RTs should refer to the above tables for further description of those that are recommended for the particular population. In general however, the following items were found to be common across all diagnoses reviewed: 1) utilization of self-management techniques and activities (such as role playing and teaching skills/activities that targets skills and other activities -see Table 3) have been found effective in the development of basic and advanced social skills (Cetin & Avcioglu, 2010; Deitchman, Reeve, Reeve, & Progar, 2010; Gooding, 2011), 2) during those activities, it has been found useful to select tasks and materials that require participants to use frequent social exchanges (RT chooses materials for the group opposed to the individual creating opportunities to use and develop social skills) (Cetin & Avcioglu, 2010; Hagopian, Kuhn, & Strother, 2009), and 3) incorporating peers with and without disabilities while providing direct social skills instruction builds the participant's strengths and their social skills increase (Avcioglu, 2012; Cetin & Avcioglu, 2010; Banda, Hart, & Liu-Gitz, 2010; Bock, 2007) . It is hoped that by using these techniques, RTs can achieve the desired outcomes of improving social skills (see Table 5).

Social Skills Training

Community-Based Setting

CP

LD

ID

Outcomes: Reduce restrictions in communication & social functioning

Interventions: Social learning behavioral theory

Interventions: Peer/interventionist training, direct instruction, self management

Activities: Role play

Activities: Art, music, drama, teaching skills/activities that target skills

Outcomes: Initiating/maintaining interactions, listening & following directions, problem solving, self control, working in groups, emotional skills, less aggressive behaviors, knowing when to tell, higher overall socialness, accepting consequences, & giving directions

Outcomes: Presenting anger without harm, initiating/maintaining interactions, self control strategies, solving conflicts/dissimilarities without fighting, initiating and maintaining interactions, giving directions, cognitive skills, dealing with aggressive behavior, accepting consequences, emotional skills

Social Skills Training

Community-Based Setting

MR

Interventions: Concept mastery, self management

Activities: Teaching skills/ activities that target skills

Outcomes: Recruiting attention, interacting appropriately with others, knowing when to apologize, coping with teasing, & avoiding inappropriate touching

ASD

Interventions: Concept mastery, family based, modeling appropriate behavior, peer/interventionist training & direct instruction, performance feedback/ reinforcement, pivotal response treatment, social stories, & technology

Activities: Computer/technology, play/free time, role play, teaching skills/ activities that target skills

Outcomes: Responding appropriately to peer's questions; reading/responding to peer's facial expression; improvements of social interactions (initiating, rate, appropriateness), responses, eye contact, body language, tone of voice, facial expression, turn taking & attention seeking, conversation skills, friendship skills, awareness of the environment, ability to identify and express feelings, awareness of others' feelings, modulating intense emotions, understanding humor, initiating comments & requests, making contingent responses, comfort & confidence in social interactions, compromise, graciously winning or losing a game, judgment and reasoning, responding behaviors, interacting behaviors, expression matching, & higher overall affect

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