

Evidence Based Practice Day
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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, 1 related to SST and LD. Interventions took place in a group community setting and used the peer/interventionist training, role play, and the social behavioral learning theory interventions. The study used a researcher survey as an outcome measurement. 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 cognitive behavioral, direct instruction, discussion, peer/interventionist training, performance feedback/reinforcement, and self management intervention. Within the sessions, art modalities were utilized, as well as play/free time activities. 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, accepting consequence, self-awareness and awareness of/respect for others, sitting attentively, listening to people's opinions, and contributing to the group, emotional skills, giving directions, and basic and advanced communication skills.
- *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 and group setting, and used the interventions of cognitive behavioral therapy, direct instruction, modeling appropriate behavior, performance feedback/reinforcement and self management. Within the sessions, clients used play/free time 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, how to deal with teasing and avoid inappropriate touching. 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 used this setting
	CP	LD	ID	MR	ASD	
Group Based (Clinical)					x	Tse, Strulovitch, Tagalakis, Meng, & Fombonne (2007)
Group Based (Community)		x	x	x	x	Bellini, Peters, Benner, & Hopf (2007); Canney, & Byrne (2006); Cetin & Avcioglu (2010); Cotugno, (2009); DeRosier, Swick, Davis, McMillen, & Matthews (2011); Epp (2008); Gooding (2011); Hopkins, Gower, Perez, Smith, Amthor, Wimsatt, & Biasini (2011); Kasari, Rotheram-Fuller, Locke, & Gulsrud (2012); 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)
Individual Based (Clinical)				x	x	Castorina & Negri (2011); Hagopian, Kuhn, & Strother (2009); Laugeson, Frankel, Mogil, & Dillon (2009); Tetreault & Lerman (2010)
Individual Based (Community)				x	x	Avcioglu (2012); Banda, Hart & Liu-Gitz (2010); Bellini, Benner, Hopf, & Peters (2007); Bock (2007); Crawford, Gray, & Woolhiser (2012); Delano & Snell (2006); Deitchman, Reeve, Reeve, & Progar (2010); Frankel, Myatt, Sugar, Whitham, Gorospe & Laugeson (2010); Harper, Symon & Frea (2008); Kasari, Rotheram-Fuller, Locke, & Gulsrud (2012); Koegel, Vernon, & Koegel (2009); Laushey, Heflin, Shippen, Alberto, & Fredrick (2009); Mitchell, Parsons, & Leonard (2007); Ratto, Turner-Brown, Rupp, Mesibov, & Penn (2011); Scattone, Tingstrom, & Wilczynski (2006); Stanton-Chapman & Snell (2011); Tekinarslan & Sucuoğlu (2007)

Table 2

TEACHING METHODS/INTERVENTIONS							
Type of SST Intervention	Description of intervention	Dxs that have benefited from this type of in-session intervention					Studies that used this intervention
		CP	LD	ID	MR	ASD	
Cognitive-Behavioral	Problem solving approach			x	x	x	Canney & Byrne (2006); Cotugno (2009); DeRosier,

							Swick, Davis, McMillen, & Matthews (2011); Epp, (2008); Gooding (2011); Tekinarslan & Sucuoğlu (2007)
Concept Mastery	An interactive process in which the therapist and the clients co-construct the necessary elements of a concept in order to promote clients' understanding. The necessary elements of the concept include definitions, characteristics, and examples of the concept.					x	Laushey, Heflin, Shippen, Alberto, & Fredrick (2009)
Direct instruction	The use of a therapist to teach appropriate and inappropriate social skills.			x	x	x	Avcioğlu (2012); Banda, Hart & Liu-Gitz (2010); Bellini, Peters, Benner, & Hopf (2007); Cotugno, (2009); Crawford, Gray, & Woolhiser (2012); Deitchman, Reeve, Reeve, & Progar (2010); DeRosier, Swick, Davis, McMillen & Matthews (2011); Frankel, Myatt, Sugar, Whitham, Gorospe & Laugeson (2010); Gooding (2011); Hagopian, Kuhn, & Strother (2009); Kasari, Rotheram-Fuller, Locke, & Gulsrud (2012); Kokina & Kern (2010); Kroeger, Schultz, & Newsom (2007); Laugeson, Frankel, Mogil, & Dillon (2009); Laushey, Heflin, Shippen, Alberto, & Fredrick (2009); Leaf, Dotson, Oppeneheim, Sheldon, & Sherman (2010); Lopata, Thomeer, Volker, Nida, & Lee (2008); Minihan, Kinsella, & Honan (2011); Stanton-Chapman & Snell (2011); Tekinarslan & Sucuoğlu (2007)
Discussion	Conversation about appropriate social skills in a language appropriate for the client.			x		x	Castorina & Negri (2011); Cotugno, (2009); Delano & Snell (2006); Epp (2008); MacKay, Knott, & Dunlop (2007); Minihan, Kinsella, & Honan (2011); Stanton-Chapman & Snell (2011)
Environmental Modification	Modifications made to the social and physical environment that promotes social interaction.					x	Bellini, Benner, Hopf, & Peters (2007)
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); Kokina & Kern (2010); Laugeson, Frankel, Mogil, & Dillon,(2009)
Modeling Appropriate	Clients are given a sheet outlining the steps of the skill, which are then explained and				x	x	Banda, Hart & Liu-Gitz (2010); Castorina & Negri (2011); DeRosier, Swick, Davis, McMillen, &

Behavior	modeled by the therapist.						Matthews (2011); Frankel, Myatt, Sugar, Whitham, Gorospe & Laugeson (2010); Gooding (2011); Kasari, Rotheram-Fuller, Locke, & Gulsrud (2012); Kokina & Kern (2010); Kroeger, Schultz, & Newsom (2007); Laugeson, Frankel, Mogil, & Dillon (2009); Laushey, Heflin, Shippen, Alberto, & Fredrick (2009); Lopata, Thomeer, Volker, Nida, & Lee (2008); MacKay, Knott, & Dunlop (2007); Minihan, Kinsella, & Honan (2011); Tekinarslan & Sucuoğlu (2007); Tetreault & Lerman (2010)
Peer/Interventionist Training	The use of peers (also referred to as an interventionist) to teach appropriate and inappropriate social skills.		x	x		x	Avcioğlu (2012); Banda, Hart, & Liu-Gitz (2010); Bellini, Peters, Benner, & Hopf (2007); Bock (2007); Cetin & Avcioğlu (2010); Cotugno, (2009); Crawford, Gray, & Woolhiser (2012); Delano & Snell (2006); DeRosier, Swick, Davis, McMillen, & Matthews (2011); Frankel, Myatt, Sugar, Whitham, Gorospe & Laugeson (2010); Gooding (2011); Harper, Symon, & Frea (2008); Kasari, Rotheram-Fuller, Locke, & Gulsrud (2012); Kokina & Kern (2010); Kroeger, Schultz, & Newsom (2007); Laugeson, Frankel, Mogil, & Dillon (2009); Laushey, Heflin, Shippen, Alberto, & Fredrick (2009); Leaf, Dotson, Oppeneheim, Sheldon, & Sherman (2010); Lopata, Thomeer, Volker, Nida, & Lee (2008); Licciardello, Harchik, & Luiselli (2008); MacKay, Knott, & Dunlop (2007); Minihan, Kinsella, & Honan (2011); Ratto, Turner-Brown, Rupp, Mesibov, & Penn (2011); Sheridan, MacDonald, Donlon, Kuhn, McGovern, Friedman (2011); Stanton-Chapman, & Snell (2011); Tse, Strulovitch, Tagalakis, Meng, & Fombonne (2007)
Performance Feedback/ Reinforcement	Verbally enforcing correct responses.			x	x	x	Avcioğlu (2012); Deitchman, Reeve, Reeve, & Progar (2010); Frankel, Myatt, Sugar, Whitham, Gorospe & Laugeson (2010); Gooding (2011); Gulsrud, Kasari, Locke & Rotheram-Fuller (2012); Hagopian, Kuhn, & Strother (2009); Koegel, Vernon, & Koegel (2009); Kroeger, Schultz, & Newsom (2007); Laugeson, Frankel, Mogil, & Dillon (2009); Licciardello, Harchik, & Luiselli (2008); Lopata, Thomeer, Volker, Nida, & Lee (2008); Minihan, Kinsella, & Honan (2011); Tetreault & Lerman (2010)

Pivotal Response Treatment	Based in Applied Behavior Analysis and incorporates motivational procedures to improve responding.					x	Harper, Symon & Frea (2008); Koegel, Vernon, & Koegel (2009)
Role Play	Acting out social situations.		x		x	x	Castorina & Negri (2011); DeRosier, Swick, Davis, McMillen & Matthews (2011); Gooding (2011);Laugeson, Frankel, Mogil, & Dillon (2009); Laushey, Heflin, Shippen, Alberto, & Fredrick (2009); Leaf, Dotson, Oppeneheim, Sheldon, & Sherman (2010); Lopata, Thomeer, Volker, Nida, & Lee (2008); MacKay, Knott, & Dunlop (2007); Mazurik-Charles & Stefanou (2010); Minihan, Kinsella, & Honan (2011); Ratto, Turner-Brown, Rupp, Mesibov, & Penn (2011); Sheridan, MacDonald, Donlon, Kuhn, McGovern, & Friedman (2011); Stanton-Chapman & Snell (2011); Tekinarslan & Sucuoğlu (2007); Tse, Strulovitch, Tagalakis, Meng, & Fombonne (2007)
Self-Management	Alternative strategies (e.g., presenting anger without harming others) based on self-control.			x	x	x	Avcioğlu (2012); Cotugno, (2009); Deitchman, Reeve, Reeve, & Progar (2010);
Social-Behavioral Learning Theory	Learning behavior through observation of others.		x			x	Bock (2007); Cotugno, (2009); 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. Uses a short story that describes the salient aspects of a specific social situation that a child may find challenging, explains the likely reactions of others in the situation, and provides information about appropriate social responses.					x	Delano & Snell, (2006); Kokina & Kern (2010); Kroeger, Schultz, & Newsom (2007); Scattone, Tingstrom, & Wilczynski (2006)
Technology Based	Use of computers (avatars, virtual environments) or video cameras (watching social skills).					x	Deitchman, Progar, Reeve & Reeve (2010); Hopkins, Gower, Perez, Smith, Amthor, Wimsatt, & Biasini (2011); Mitchell, Parsons, & Leonard (2007); Tetreault, & Lerman (2010)

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					Studies that used these activities
		CP	LD	ID	MR	ASD	
Creative Arts	Music, art, painting, drama			x		x	Cetin & Avcioglu (2010); Epp (2008); Gooding (2011)
Play/Free Time Activities	Games, board games, books, age appropriate toys, playground games/play, preferred play activity, unstructured free play			x	x	x	Banda, Hart, & Liu-Gitz (2010); Bock (2007); Castorina & Negri (2011); Cetin & Avcioglu (2010); Crawford, Gray, & Woolhiser (2012); Deitchman, Reeve, Reeve, & Progar (2010); Delano & Snell (2006); DeRosier, Swick, Davis, McMillen & Matthews (2011); Epp (2008); Frankel, Myatt, Sugar, Whitham, Gorospe & Laugeson (2010); Hagopian, Kuhn, & Strother (2009); Harper, Symon, & Frea (2008); Kasari, Rotheram-Fuller, Locke, & Gulrud (2012); Kroeger, Schultz, Newsom (2007); Laushey, Heflin, Shippen, Alberto, & Fredrick (2009); Leaf, Dotson, Oppeneheim, Sheldon, & Sherman (2010); Licciardello, Harchik, & Luiselli (2008); MacKay, Knott, & Dunlop (2007); Minihan, Kinsella, & Honan (2011); Mitchell, Parsons, & Leonard (2007); Scattone, Tingstrom, & Wilczynski (2006); Stanton-Chapman & Snell (2011); Tetreault & Lerman (2010)

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)
Achieved Learning Questionnaire (ALQ)	A parent report measure used to assess children's attainment of social skills learned					x	DeRosier, Swick, Davis, McMillen & Matthews, (2011)
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)
The Contextual Assessment of Social Skills (CASS)	A role play measure of social skill for individuals with high-functioning autism					x	Ratto, Turner-Brown, Rupp, Mesibov, & Penn, (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); Scatone, Tingstrom & Wilczynski, (2006); Stanton-Chapman, & Snell, (2011)
Peer Language and Behavior Code (PLBC)	Measures verbal and nonverbal interactions between children.					x	Stanton-Chapman, & Snell, (2011)
Piers-Harris Self-Concept Scale (PHS)	Self report measure of self-concept					x	Frankel, Myatt, Sugar, Whitham, Gorospe & Laugeson (2010);
Pupil Evaluation Inventory—Teacher (PEI):	Assess peer ratings of the behavior of male and female children in grades one through nine.					x	Frankel, Myatt, Sugar, Whitham, Gorospe & Laugeson (2010);
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	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 Competence with Peers Questionnaire—Pupils (SSQ-PU)	Assesses whether particular 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 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			Avcioglu & Cetin, (2010)
Social Skills Assessment-Elementary Age	Measures how children typically think, behave or handle situations					x	Gooding, (2011)
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)
Teacher Perception of Social Skills (TPSS)	Measures teacher's perception of student' social skills					x	Kasari, Rotheram-Fuller, Locke & Gulsrud, (2012)
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	Presenting anger without harming others, solving dissimilarities by talking and solving conflicts without fighting on students with intellectual disabilities	Avcioglu, (2012)
	Self-awareness and awareness of/respect for others, sitting attentively, listening to people's opinions, and contributing to the group	Canney, & Byrne, (2006).
	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	Listening, following directions, problem-solving, and knowing when to tell, as well as in ratings of overall socialness	Sheridan, MacDonald, Donlon, Kuhn, McGovern, Friedman, (2011)
MR	Recruiting attention and interacting with others in an appropriate manner	Hagopian, Kuhn & Strother, (2009)
	Skills on how to apologize, cope with teasing and avoid inappropriate touching	Tekinarslan, & Sucuoglu, (2007)
Autism	Social initiations and responses	Banda, Hart, & Liu-Gitz, (2010)
	Play skills, joint attention, language skills, social interactions, social responses, and duration of interaction	Bellini, Peters, Benner, & Hopf, (2007)
	Increase in the percentage of time spent participating in cooperative learning activities during social studies, playing organized sport games during noon recess, and visiting with peers during lunch	Bock, (2007)
	Identification of discrete skills and non-verbal social cues such as eye contact, body language, tone of voice and facial expression	Castorina & Negri, (2011)
	Teacher-preferred social behavior, peer-preferred social behavior, social adjustment behavior	Cotugno, (2009)
	Conversation skills, non-verbal skills, leisure education, friendship skills boundaries/personal space, bullying & assertiveness	Crawford, Gray, & Woolhiser, (2012)
	Frequency of social initiation	Deitchman, Reeve, Reeve & Progar, (2010)
	Duration and appropriateness of social engagement during play sessions, seeking attention, initiating comments, initiating requests, and making contingent responses	Delano & Snell, (2006)

Self-efficacy, social awareness, motivation for social interaction, social communication skills, and improvement in unusual mannerisms	DeRosier, Swick, Davis, McMillen & Matthews, (2011)
Knowledge of rules of social etiquette relevant to making and keeping friends, frequency of hosted get-togethers, and better quality of friendships	Dillon, Frankel, Laugeson & Mogil, (2009)
Assertion, cooperation, responsibility, self-control, internalizing behavior, external behavior, and hyperactivity	Epp, (2008)
Hosted play dates and social skill and play date behavior	Frankel, Myatt, Sugar, Whitham, Gorospe & Laugeson, (2010)
Social competence and increased self initiated on task behavior	Gooding, (2011)
Social contact with typical peers and social initiations	Harper, Symon, & Frea, (2008)
Eye gaze, expression matching, face recognition, emotion recognition, and social interactions	Hopkins, Gower, Perez, Smith, Amthor, Wimsatt, & Biasini, (2011)
Friendship nominations, classroom social skills and playground isolation	Kasari, Rotheram-Fuller, Locke & Gulsrud, (2012)
Initiations of social engagement during communication, nonverbal dyadic orienting, and overall affect	Koegel, Vernon, & Koegel, (2009)
Appropriate behavior, academic/functional skills, transitions and reduced anxiety	Kokina & Kern, (2010)
Initiation behaviors, responding behaviors, and interacting behaviors	Kroeger, Schultz, Newsom, (2007)
Frequency of hosted get-togethers, better quality of friendships, overall level of social skills	Laugeson, Frankel, Mogil, & Dillon, (2009)
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	Laushey, Heflin, Shippen, Alberto, & Fredrick, (2009)
Social interactions	Leaf, Dotson, Oppeneheim, Sheldon, & Sherman, (2010)
Social skills and problem behaviors	Lopata, Thomeer, Volker, Nida, & Lee, (2008)
Social initiations and social responses	Licciardello, Harchik, & Luiselli, (2008)
Social and emotional perspective-taking, conversation skills, and friendship skills	MacKay, Knott, & Dunlop, (2007)

Social awareness, social cognition, and social responsiveness	Mazurik-Charles & Stefanou, (2010)
Non-verbal communication and relationship skills	Minihan, Kinsella, & Honan, (2011)
Judgments and reasoning about where to sit in videos of real cafe' s and buses	Mitchell, Parsons, & Leonard, (2007)
Asking questions, topic change, quality of rapport	Ratto, Turner-Brown, Rupp, Mesibov, & Penn, (2011)
Social interactions	Scatone, Tingstrom & Wilczynski, (2006)
Rate of initiations with an immediate peer response and turn-taking skills	Stanton-Chapman, & Snell, (2011)
Getting attention, requesting attention, and sharing a toy	Tetreault, & Lerman, (2010)
Irritability, lethargy/withdrawal, stereotypic behavior, hyperactivity, inappropriate speech, conduct problems, overly sensitive, self-isolated/ritualistic, self-injure/stereotypic, and insecure/anxious	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

Interventions: Peer/interventionist training, role play, social behavioral learning theory

Interventions: Cognitive behavioral, direct instruction, discussion, peer/interventionist training, performance feedback/reinforcement, self-management,

Outcomes: Reduce restrictions in communication & social functioning

Activities: Creative arts

Activities: Creative arts

Outcomes: Listening, following directions, problem-solving, and knowing when to tell, as well as in ratings of overall socialness

Outcomes: Presenting anger without harming others, solving dissimilarities by talking and solving conflicts without fighting on students with intellectual disabilities, self-awareness and awareness of/respect for others, sitting attentively, listening to people's opinions, and contributing to the group, 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

Social Skills Training

Community-Based Setting

MR

Interventions: cognitive behavioral, direct instruction, performance feedback/reinforcement, role play, self management

Activities: play/free time activities

Outcomes: Recruiting attention and interacting with others in an appropriate manner, skills on how to apologize, cope with teasing and avoid inappropriate touching

ASD

Interventions: Cognitive behavioral, concept mastery, direct instruction, discussion, environmental modification, family based, modeling appropriate behavior, peer/interventionist training, performance feedback/reinforcement, pivotal response treatment, role play, self-management, social behavioral learning theory, Social stories, technology based

Activities: Creative arts, play/free time activities

Outcomes: Responding appropriately to peer's questions; reading/responding to peer's facial expression; improvements of social interactions (initiating, rate, appropriateness, duration, motivation), 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, initiating comments & requests, making contingent responses, comfort & confidence in social interactions, compromise, judgment and reasoning, responding behaviors, interacting behaviors, expression matching, & higher overall affect, play skills, self-efficacy, non-verbal skills, leisure education, transition skills, assertiveness, self-control, cooperation, responsibility, class room skills, higher overall affect, quality of rapport (asking question, topic change), decreased irritability, anxiety, lethargy/withdraw, hyperactivity, inappropriate speech, conduct problems and ritualistic/stereotypic behavior

References

- Avcioglu, H. (2012). The effectiveness of the instructional programs based on self-management strategies in acquisition of social skills by the children with intellectual disabilities. *Educational Sciences: Theory & Practice*, 12(1), 345-351.
- Banda, D. R., Hart, S. L., & Liu-Gitz, L. (2010). Impact of training peers and children with autism on social skills during center time activities in inclusive classrooms. *Research in Autism Spectrum Disorders*, 4(4), 619-625.
- Bellini, S., Peters, J. Benner, L., & Hopf, A. (2007). A meta-analysis of school-based social skills interventions for children with autism spectrum disorders. *Remedial & Special Education*, 28(3), 153-162.
- Bock, M. A. (2007). The impact of social-behavioral learning strategy training on the social interaction skills of four students with asperger syndrome. *Focus on Autism & Other Developmental Disabilities*, 22(2), 88-95.
- Canney, C., & Byrne, A. (2006). Evaluating circle time as a support to social skills development reflections on a journey in school-based research. *British Journal of Special Education*, 33(1), 19-24.
- Castorina, L. L., & Negri, L. M. (2011). The inclusion of siblings in social skills training groups for boys with asperger syndrome. *Journal of Autism & Developmental Disorders*, 41(1), 73-81.
- Center for Disease Control, (2012). Data & Statistics for Cerebral Palsy. Retrieved from <http://www.cdc.gov/ncbddd/cp/data.html>
- Cetin, M.E. & Avcioglu, H. (2010). Investigation of the effectiveness of social skills training program prepared through drama technique for mentally disabled students. *International Online Journal of Educational Sciences*, 2(3), 792-817.
- Cotugno, A. J. (2009). Social competence and social skills training and intervention for children with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 39(9), 1268-77.
- Crawford, M.E., Gray, C., & Woolhiser, J. (2012). Design and delivery of a public school social skills training program for youth with autism spectrum disorders: A five year retrospective of the school/community/home (SCH) model of social skills development. *Annual in Therapeutic Recreation*, (20), 17-35.
- Deitchman, C., R. Reeve, S. A., Reeve, K. F., & Progar, P. (2010). Incorporating video feedback into self-management training to promote generalization of social initiations by children with autism. *Education & Treatment of Children (West Virginia University Press)*, 475-488.
- Delano, M., & Snell, M. E. (2006). The effects of social stories on the social engagement of children with autism. *Journal of Positive Behavior Interventions*, 8(1), 29-42.
- DeRosier, M. E., Swick, D. C., Davis, N. O., McMillen, J. S., & Matthews, R. (2011). The efficacy of a social skills group intervention for improving social behaviors in children with high functioning autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 41(8), 1033-1043.
- Encyclopedia of Mental Disorders, (2012). Social Skills Training. Retrieved from <http://www.minddisorders.com/Py-Z/Social-skills-training.html>
- Epp, K. (2008). Outcome-based evaluation of a social skills program using art therapy and group therapy for children on the autism spectrum. *Children & Schools*, 30(1), 27-36.
- Frankel, F., Myatt, R., Sugar, C., Whitham, C., Gorospe, C. M., & Laugeson, E. (2010). A randomized controlled study of parent-assisted children's friendship training with children having autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 40(7), 827-842.
- Gooding, L. F. (2011). The effect of a music therapy social skills training program on improving social competence in children and adolescents with social skills deficits. *Journal of Music Therapy*, (48)4, 440-462.
- Hagopian, L. P., Kuhn, D. E., & Strother, G. E. (2009). Targeting social skills deficits in an adolescent with pervasive developmental disorder. *Journal of Applied Behavior Analysis*, 42(4), 907-911.
- Harper, C. B., Symon, J. B. G., & Frea, W. D. (2008). Recess is time-in: Using peers to improve social skills of children with autism. *Journal of Autism and Developmental Disorders*, 38(5), 815-826.

- Hopkins, I. M., Gower, M. W., Perez, T. A., Smith, D. S., Amthor, F. R., Wimsatt, F. C., & Biasini, F. J. (2011). Avatar assistant: Improving social skills in students with an ASD through a computer-based intervention. *Journal of Autism and Developmental Disorders, 41*(11), 1543-1555.
- Kasari, C., Rotheram-Fuller, E., Locke, J., & Gulsrud, A. (2012). Making the connection: Randomized controlled trial of social skills at school for children with autism spectrum disorders. *Journal of Child Psychology and Psychiatry, and Allied Disciplines, 53*(4), 431-439.
- Koegel, R. L., Vernon, T. W., & Koegel, L. K. (2009). Improving social initiations in young children with autism using reinforcers with embedded social interactions. *Journal of Autism and Developmental Disorders, 39*(9), 1240-1251.
- Kokina, A., & Kern, L. (2010). Social story interventions for students with autism spectrum disorders: A meta-analysis. *Journal of Autism and Developmental Disorders, 40*(7), 812-826.
- Kroeger, K.A., Schultz, J.R., Newsom, C.A. (2007). Comparison of two group-delivered social skills programs for young children with autism. *Journal of Autism and Developmental Disorders, 37*:808-817.
- Laugeson, E. A., Frankel, F., Mogil, C., & Dillon, A. R. (2009). Parent-assisted social skills training to improve friendships in teens with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 39*(4), 596-606.
- 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*(10), 1435-1448.
- Leaf, J. B., Dotson, W. H., Oppeneheim, M. L., Sheldon, J. B., & Sherman, J. A. (2010). The effectiveness of a group teaching interaction procedure for teaching social skills to young children with a pervasive developmental disorder. *Research in Autism Spectrum Disorders, 4*(2), 186-198.
- Lopata, C., Thomeer, M. L., Volker, M. A., Nida, R. E., & Lee, G. K. (2008). Effectiveness of a manualized summer social treatment program for high-functioning children with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 38*(5), 890-904.
- 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 & Treatment of Children (West Virginia University Press), 27-37*.
- MacKay, T., Knott, F., & Dunlop, A. (2007). Developing social interaction and understanding in individuals with autism spectrum disorder: A groupwork intervention. *Journal of Intellectual & Developmental Disability, 32*(4), 279-279.
- Mazurik-Charles, R., & Stefanou, C. (2010). Using paraprofessionals to teach social skills to children with autism spectrum disorders in the general education classroom. *Journal of Instructional Psychology, 37*(2), 161-169.
- Mitchell, P., Parsons, S., & Leonard, A. (2007). Using virtual environments for teaching social understanding to 6 adolescents with autistic spectrum disorders. *Journal of Autism and Developmental Disorders, 37*(3), 589-600.
- Minihan, A., Kinsella, W., & Honan, R. (2011). Social skills training for adolescents with asperger's syndrome using a consultation model. *Journal of Research in Special Educational Needs, 11*(1), 55-69.
- Ratto, A. B., Turner-Brown, L., Rupp, B. M., Mesibov, G. B., & Penn, D. L. (2011). Development of the contextual assessment of social skills (CASS): A role play measure of social skill for individuals with high-functioning autism. *Journal of Autism and Developmental Disorders, 41*(9), 1277-1286.
- Scattone, D., Tingstrom, D. H., & Wilczynski, S. M. (2006). Increasing appropriate social interactions of children with autism spectrum disorders using social stories. *Focus on Autism and Other Developmental Disabilities, 21*(4), 211-222.
- Sheridan, B. A., MacDonald, D. A., Donlon, M., Kuhn, B., McGovern, K., & Friedman, H. (2011). Evaluation of a social skills program based on social learning theory, implemented in a school setting. *Psychological Reports, 108*(2), 420-436.
- Stanton-Chapman, T. L., & Snell, M. E. (2011). Promoting turn-taking skills in preschool children with disabilities: The effects of a peer-based social communication intervention. *Early Childhood Research Quarterly, 26*(3), 303-319.
- Tetreault, A., & Lerman, D. C. (2010). Teaching social skills to children with autism using point-of-view video modeling. *Education & Treatment of Children (West Virginia University Press), 395-419*.
- Tekinarslan, I.C., & Sucuoglu, B. (2007). Effectiveness of cognitive process approached social skills training program for people with mental retardation. *International Journal of Special Education, 22*(7).

The Beck Institute, (2012). Cognitive Behavior Therapy. Retrieved from <http://www.beckinstitute.org/what-is-cognitive-behavioral-therapy/>

Tse, J., Strulovitch, J., Tagalakis, V., Meng, L., & Fombonne, E. (2007). Social skills training for adolescents with asperger syndrome and high-functioning autism. *Journal of Autism and Developmental Disorders*, 37(10), 1960-1968.

Voorman, J. M., Dallmeijer, A. J., Van Eck, M., Schuengel, C., & Becher, J. G. (2010). Social functioning and communication in children with cerebral palsy: Association with disease characteristics and personal and environmental factors. *Developmental Medicine and Child Neurology*, 52(5), 441-447.