

PLAY SKILLS-BASED INTERVENTIONS

CHARACTERISTICS OVERVIEW CHART

Verbal Skills	Grade Levels	Cognitive Level	Areas Addressed
<input checked="" type="checkbox"/> Nonverbal	<input checked="" type="checkbox"/> PK	<input checked="" type="checkbox"/> Classic	<input checked="" type="checkbox"/> (Pre)Academic/Cognitive/Academic
<input checked="" type="checkbox"/> Mixed	<input checked="" type="checkbox"/> Elementary	<input checked="" type="checkbox"/> High	<input checked="" type="checkbox"/> Adaptive Behavior/Daily Living
<input checked="" type="checkbox"/> Verbal	<input checked="" type="checkbox"/> Middle/High	Functioning	<input checked="" type="checkbox"/> Behavior
			<input checked="" type="checkbox"/> Communication/Speech
			<input checked="" type="checkbox"/> Social/Emotional

BRIEF INTRODUCTION

Typically, children with autism (AU) demonstrate marked impairment in developing play skills in a socially meaningful context. Play skills in the early stage are important in terms of social interaction, friendship, and functional behavior. Play skills-based interventions are designed to establish play-related skills and to improve social integration among children with autism.

DESCRIPTION

Children with autism often exhibit atypical play behaviors that are repetitive, stereotypic, nonfunctional, and nonimaginative. Considering these characteristics, play skills interventions emphasize the use of sequential or systematic play techniques in the context of play activities. Play skills interventions may be implemented using directive or nondirective approaches (i.e., using a variety of prompts to promote play). A directive teaching style focuses on specific play techniques, such as teaching the child the functional use of toys. This may include teaching skills in isolation.

According to Terpstra, Higgins, and Pierce (2002), a directive approach can include the following sequence:

1. Select a motivating toy.
2. Observe other children using the toy to determine appropriate use of the toy.

3. Give the toy to the child.
4. Observe the child interact with the toy.
5. Prompt the child to interact with the toy in an appropriate manner.
6. Model the desired behavior using the toy or ask another child to model the use of the toy.
7. Proceed to a more intrusive prompt, if needed. Stop if the child is using the toy in an acceptable manner.
8. Provide verbal prompts or direction to the child while he or she is using the toy (e.g., “Throw the ball to Zack”).
9. Provide physical prompting (e.g., put your hand on the child’s hand and direct the use of the toy) to show the child how the toy works.
10. Positive reinforcement (e.g., verbal praise, identified reinforcers) should be implemented along with the prompting and used to reinforce the desired play behaviors. (p. 122)

Nondirective teaching aims at a wider range of play skills, including play-related communication and social interaction. Some researchers suggest using structure, such as social narratives and visual supports, to teach play sequences to children with autism (Beyer & Gammeltoft, 2000; Sherratt, 1999). In that way, the child will get a sense of what the play entails and how to follow the play sequence. Play skills may also be taught using peer trainers and peer examples (see Bass & Mulick, 2007, for a review of studies by Belchic & Harris, 1994; Goldstein & Cisar, 1992; Laushey & Heflin, 2000; Pierce & Schreibman, 1995; Schleien, Mustonen, Rynders, & Fox, 1990; Stahmer, 1995; Wolfberg & Schuler, 1993).

If peers are used to teach and support the play skills of children with autism, the following should be considered:

1. Determine the preferences and motivational activities of the child with autism. From these, develop related games and activities in which several children can participate.
2. Use naturally integrated settings.
3. Use well-designed play spaces.
4. Select play materials with care.
5. Establish a consistent schedule and routine.

6. Form balanced play groups.
7. Focus on the competence of the child with autism.
8. Provide guided participation.
9. Provide full immersion in play.
10. Provide structured training for typical peers that focuses on play initiation and appropriate responses (e.g., commenting, requesting information, requesting action) (Terpstra et al., 2002), or sharing, assistance, giving affection, and compliments (see Strain & Cordisco, 1993, for a review of studies).

Strain and Odom (cited in Bass & Mulick, 2007) have used the following structure to conduct peer-mediated training sessions in lessons that last approximately 20-25 minutes:

1. Group (one target child and at least one confederate) is brought to an intervention setting.
2. Lessons begin with a review of targeted social behaviors.
3. Teacher models social behaviors or ways to use play materials with an accompanying adult, with adult responding 50% of the time and being nonresponsive 50% of the time.
4. Confederate practices social initiation with role-playing adult. Teacher gives verbal feedback.
5. Teacher sends all but confederate to play activity, reminding confederate to play with child.
6. Teacher observes confederate closely and gives verbal prompt if no initiation occurs after 15 seconds, with length of time between prompts increased and prompts faded gradually.
7. Teacher gives verbal reinforcement or implements reward system. (pp. 732)

Laushey and Heflin (cited in Bass & Mulick, 2007) used the following structure to teach peer buddies to facilitate play skills.

Three things to do to be a good buddy:

1. *Stay with your buddy.* This means that you and your buddy will play in the same area. Sometimes you and your buddy may not want to play with the same thing. In order to be a good buddy, you will both have to take turns playing with what the other wants to play with. This means that you and your buddy play for a little while with what you want to play with

and then you and your buddy play for a little while with what he wants to play with. But no matter what, you stay together.

2. *Play with your buddy.* Not only do you and your buddy stay in the same area but you also share the same type of toys and games. You play with one another. To play with your buddy means to join in an activity that your buddy is playing, to bring a toy to your buddy, or to ask your buddy if he would like to participate in an activity.
3. *Talk to your buddy.* While you and your buddy are staying together and playing together, you should talk to each other. You will probably want to talk about what you are playing with or you may want to play pretend-type games and talk to each other while playing pretend. Even if your buddy does not always talk back to you, try to talk to them. They may just be a bit more shy and quiet and you may be able to help them talk more. (p. 731)

Play skills can also be taught using pivotal response training (Pierce & Schreibman, 1995; Stahmer, 1995; Thorp, Stahmer, & Schreibman, 1995) as well as a variety of other behaviorally based strategies.

Another empirical example of play skills intervention is LEGO play (LeGoff, 2004). LEGO play may be used as a therapeutic medium for improving social competence of children with autism, such as verbal and nonverbal communication, joint attention, work concentration, collaborative problem solving, turn taking, and sharing (LeGoff, 2006). In the process of building with LEGOs, children with autism may have the opportunity to work collaboratively with playmates. As opposed to social skill drills, LEGO play provides children with autism spontaneous opportunities to practice social skills with peers or adults in a more natural and less robotic way. As a result, more social communication and reciprocal interaction can be expected.

The purpose of play skills interventions is to facilitate better social interaction and establish typical development. Therefore, the interventions should take place in the child's natural environment. Language use should be simple and direct. Since play skills-based interventions take place in the context of play, the child enjoys the activities.

Examples of methods to teach play skills include (Thomas & Smith, 2004):

- Modeling
- Mirroring
- Play routines
- Play scripts
- Action songs
- Integrated Play Groups (see Wolfberg, as cited in Bass & Mulick, 2007)
- The PLAY project with four components (Solomon, Necheles, Ferch, & Bruckman, 2007):
 1. Medical consultation
 2. Training involving community-based workshops and agency trainings
 3. Parent support and advocacy services
 4. The PLAY Project Home Consultation (PPHC) program
- LEGO play and LEGO-based interactive play groups (LeGoff, 2004, 2006).

BRIEF EXAMPLE

Mike is a preschooler who attends an inclusive classroom. He is able to communicate with simple words and short sentences. His teacher noticed that when he played with toy cars, Mike tended to repeatedly spin the wheel of the car. Other preschoolers did not play with cars in the way Mike did, so they often ignored him. Specifically, the peers raced cars with each other, while Mike sat alone spinning a car wheel.

The teacher decided to teach Mike the appropriate way to manipulate play material using the theme play of toy cars. Each day the teacher identified a play scheme with a toy car. The first day was “car wash” day. Each child, including Mike, picked a car and pretended that a car returned from the countryside and was very dirty. Each child had to take the car to the carwash. The teacher had created a narrative (see Social Narratives) along with some pictures depicting carwash procedures and prepared reinforcement for students who followed the narrative. The next day, the theme was car racing competition. In this way, Mike learned different ways of playing with toy cars and was able to play with his peers.

TIPS FOR MODIFICATION

Teachers and adult facilitators may modify the play activities according to the child’s developmental levels and communicative abilities. In addition, IEP objectives may be embedded into the play activities. It is also important to consider the possibilities of generalizing play skills into multiple play contexts. If the child is not using the play skills, the teaching structure should be modified or broken down into smaller steps.

SUMMARY

Play skills-based interventions are essential for developing social relationships. The purpose is to teach typical play behaviors to children with autism, such as imaginative play, functional play of toys, turn taking, pretend play, and play-related talk.

RESEARCH TABLE

Number of Studies	Ages (year)	Sample Size	Area(s) Addressed	Outcome
17	3-16	318	Play behavior, social interactions, on-task play behavior, play-related talk, initiation of social contact, duration of social contact, reduction in stereotyped behaviors, motivation	+

STUDIES CITED IN RESEARCH TABLE

1. Boudreau, E. & D’Entremont, B. (2010). Improving the pretend play skills of preschoolers with autism spectrum disorders: The effects of video modeling. *Journal of Developmental Physical Disabilities, 22*, 415-431.
2 5-yr old boys with ASD were taught appropriate toy play using a video-modeling procedure. The effectiveness of the procedure was evaluated using a multiple-baseline-across-participants design. Video modeling increased the number of appropriate toy interactions over baseline, and the additional inclusion of reinforcement for appropriate play further increased the amount of appropriate play. The play skills generalized to novel toys with similar characteristics as the model toys, and for one participant, maintained through a 4-week follow-up.

2. Palechka, G. & MacDonald, R. (2010). A comparison of the acquisition of play skills using instructor-created video models and commercially available videos. *Education and Treatment of Children, 33*(3), 457-474.
This study compared the differences in acquisition of toy play skills for three children with ASD (4, 5, & 5) across two video modeling conditions: use of a commercially-produced video with clay figures and use of an instructor created video with an adult modeling the toy play. The experimenters measured both the appropriate play actions and statements of each participant when playing with toys from each condition. Both types of video modeling increased toy play behavior, but 2 participants engaged in more appropriate toy play in the instructor-created condition while 1 participant showed no difference.
3. Sancho, K., Sidener, T.M., Reeve, S.A., Sidener, D.W. (2010). Two variations of video modeling interventions for teaching play skills to children with autism. *Education and Treatment of Children, 33*(3), 421-442.
This study compared the rates of play skills acquired by two children with ASD as a results of video modeling procedures of two kinds: simultaneous video modeling where the child was prompted to play with the toys while the video played, and video priming where the child watched the video without the toys present before being allowed to play with them. Both children learned play skills using both kinds of video modeling procedure.
4. Jones, E. A. (2009). Establishing response and stimulus classes for initiating joint attention in children with autism. *Research in Autism Spectrum Disorders, 3*, 375-389.
Two children with autism (ages 3 and 4) were taught joint attention skills using a play-based format that included natural consequences, activity intersperal (two PRT strategies), prompts, and hand-over-hand assistance, and scripting. Joint attention skills improved and were generalized across settings.
5. Kim, J., Wigram, T., & Gold, C. (2008). The effects of improvisational music therapy on joint attention behaviors in autistic children: A randomized controlled study. *Journal of Autism and Developmental Disorders, 28*, 1758-1766.
The purpose of this study was to investigate the effects of improvisational music therapy on joint attention behaviors in 10 pre-school children with autism – five of whom were nonverbal and five of whom had varying degrees of language. Children ranged in age from 3- to 6-years-old. Improvisational music therapy was more effective at facilitating joint attention and non-verbal social communication skills in children than therapist-supported play.
6. Liber, D. B., Frea, W. D., & Symon, J. B. G. (2008). Using time-delay to improve social play skills with peers for children with autism. *Journal of Autism and Developmental Disorders, 38*, 312-323.
The study involved three boys with autism, who were taught play activities that combined a play sequence with requesting peer assistance using a graduated time-delay procedure. Results showed increased pretend play by one of the participants. Two demonstrated generalization of the skills learned through the time-delay procedure.

7. Owens, G., Granader, Y., Humphrey, A., & Baron-Cohen, S. (2008). LEGO Therapy and the Social Use of Language Programme (SULP): An evaluation of two social skills interventions for children with high functioning autism and Asperger Syndrome. *Journal of Autism and Developmental Disorders, 28*, 1944-1957.
LEGO therapy and the Social Use of Language Programme (SULP, Rinaldi, 2004) were evaluated as social skills interventions for 6–11 year olds with high functioning autism and Asperger Syndrome. Intervention occurred for 1 h/week over 18 weeks. A no-intervention control group was also assessed. Sixteen individuals participated in each group. Results showed that the LEGO therapy group improved more than the other groups on autism specific social interaction scores. Maladaptive behavior decreased significantly more in the LEGO and SULP groups compared to the control group. No differences existed in the three groups (SULP, LEGO, control groups) on communication and socialization skills.
8. Kroeger, K. A., Schultz, J. R., & Newsom, C. (2007). A comparison of two group-delivered social skills programs for young children with autism. *Journal of Autism and Developmental Disorders, 37*, 808-817.
The study compared the effectiveness of two social skills groups: direct teaching group and a play activities group. The direct teaching group used a video-modeling format to teach play and social skills whereas the play activities group engaged in unstructured play. Twenty-five children with autism were assigned to one of the two groups. Findings suggested that while members of both groups increased prosocial behaviors, the direct teaching group made more gains in social skills.
9. Solomon, R., Necheles, J., Ferch, C., & Bruckman, D. (2007). Pilot study of a parent training program for young children with autism. *Autism: The International Journal of Research and Practice, 3*, 205-224.
Sixty-eight children with autism and their parents participated in this 8- to 12-month program of the PLAY projects. Parents were trained to provide 1:1 interaction with their children using a variation of the DIR/Floor Time™ model. Positive growth over all social/pragmatic skills occurred using the model.
10. Kasari, C., Freeman, S., & Paparella, T. (2006). Joint attention and symbolic play in young children with autism: A randomized controlled intervention study. *Journal of Child Psychology and Psychiatry, 47*, 611-620.
Fifty-eight children (ages 3 to 4 years) participated in this randomized controlled trial. The joint attention treatment group had significantly more initiations and responses than the control group. The symbolic play group exhibited significantly greater levels of play than that of control group and had significantly greater use of symbolic play than the joint attention treatment and control groups.
11. LeGoff, D. B. (2006). Long-term outcome of social skills intervention based on interactive LEGO play. *Autism: The International Journal of Research and Practice, 10*, 317-329.
This three-year-long study with 60 children with autism used interactive LEGO play to improve social skills. Results showed significant improvement on two instrument scores:

Vineland Adaptive Behavior Scale socialization domain (VABS-SD) and Gilliam Autism Rating Scale social interaction subscale (GARS-SI).

12. Rogers, S. J., Hayden, D., Hepburn, S., Charlifue, R., Hall, R., & Hayes, A. (2006). Teaching young nonverbal children with autism useful speech: A pilot study of the Denver Model and PROMPT interventions. *Journal of Autism and Developmental Disorders, 36*, 1007-1024. This study examined two models of intervention: Denver Model (which merges behavioral, developmental, and relationship-oriented intervention), and PROMPT (a neuro-developmental approach for speech production disorders). Ten young, nonverbal children with autism (six of whom were 3 to 6 years of age) were randomly assigned to one of the two interventions. There were no differences in acquired language skills by intervention group. Initial characteristics of the best responders were mild to moderate symptoms of autism, better motor imitation skills, and emerging joint attention skills.
13. Bernard-Opitz, V., & Kong, T. Y. (2004). Comparison of behavioural and natural play interventions for young children with autism. *Autism, 8*, 319-333. This study compared traditional behavioral approaches and natural play interventions for two groups of eight young children with autism over a 10-week period. The discrete trial format included: table-top activities; objects, pictures, actions; natural and artificial reinforcers; and prescriptive, adult-directed teaching. The natural play condition included a natural play setting with toys and actions; natural reinforcers; and a flexible, child-centered teaching approach. Positive changes occurred in both groups. Six of the eight children showed high compliance when engaged in the discrete trial format. The authors recommended beginning with an unstructured play approach but cautioned that this decision should be based on child need and characteristics.
14. LeGoff, D. B. (2004). Use of LEGO as a therapeutic medium for improving social competence. *Journal of Autism and Developmental Disorders, 34*, 557-571. The study utilized LEGO building materials as a medium to teach social skills and increase social interaction. A total of 47 children with autism participated in this study. Results showed significant improvement in three areas: motivation to initiate social contact with peers, ability to sustain interaction with peers, and reduction in stereotyped behaviors.
15. Thomas, N., & Smith, C. (2004). Developing play skills in children with autistic spectrum disorders. *Educational Psychology in Practice, 20*(3), 195-206. This study was a two-week intervention with three preschool children with autism. Tabletop play was implemented as a play skills intervention, combining a play script and adult mirroring. Video observations and key worker questionnaires showed positive changes in functional use of toys and social interactions with peers.
16. Cauley, K. S., Brian, J. A., & Snider, J. (2003). Teaching children with autism to engage in play-related talk. *Journal of Precision Teaching and Celeration, 19*(2), 39-42. The study utilized a fluency-based procedure to reinforce play-related talk during playing with toys for two preschool children with autism. Through novel theme-based toys, both children demonstrated increased use of context-relevant talk.

17. Kok, A. J., Kong, T. Y., & Bernard-Optiz, V. (2002). A comparison of the effects of structured play and facilitated play approaches on preschoolers with autism. *Autism, 6*, 181-192. This study compared the effect of structured play (SP) and facilitated play (FP) in promoting spontaneity and responsiveness in communication and play behaviors in eight children with autism. SP included mass practice trials, whereas FP incorporated incidental teaching. All eight preschoolers showed gains in appropriate communication and play across both treatments. Children with a lower mental age appeared to respond better to SP, whereas those with higher cognitive levels had more gains in an FP setting.

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RESOURCES AND MATERIALS

- The Autism Webcourse. World of Play Module:
http://cdd.unm.edu/swan/autism_course/modules/comm/worldofplay/index.htm
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- Bellini, S. (2006). *Building social relationships: A systematic approach to teaching social interaction skills to children and adolescents with autism spectrum disorders and other social difficulties*. Shawnee Mission, KS: Autism Asperger Publishing Company.

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This site describes how to teach children with autism to interact with peers.
- Prendeville, J., Prelock, P. A., & Unwin, G. (2006). Peer play interventions to support the social competence of children with autism spectrum disorders. *Seminars in Speech and Language*, 27(1), 32-46.
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GENERAL RESOURCES

- Autism Internet Modules (AIM) www.autisminternetmodules.org. The Autism Internet Modules were developed with one aim in mind: to make comprehensive, up-to-date, and usable information on autism accessible and applicable to educators, other professionals, and families who support individuals with autism spectrum disorders (ASD). Written by experts from across the U.S., all online modules are free, and are designed to promote understanding of, respect for, and equality of persons with ASD.
- The Autism Web Course: http://cdd.unm.edu/swan/autism_course/about/index.htm. This web course was developed out of materials from the Interactive Collaborative Autism Network (ICAN). The Autism Programs at the University of New Mexico has updated and added information to this web course.
 - Characteristics
 - Assessment
 - Academic Interventions
 - Behavioral Interventions
 - Communication Interventions
 - Environmental Interventions
 - Social Interventions
 - Family Support Suggestions
- Indiana Resource Center for Autism (IRCA) <http://www.iidc.indiana.edu/irca/fmain1.html>. The Indiana Resource Center for Autism staff's efforts are focused on providing communities, organizations, agencies, and families with the knowledge and skills to support children and adults in typical early intervention, school, community, work, and home settings.
 - IRCA Articles: <http://www.iidc.indiana.edu/index.php?pageId=273>
- Texas Statewide Leadership for Autism www.txautism.net. The Texas Statewide Leadership for Autism in conjunction with the network of Texas Education Service center with a grant from the Texas Education Agency has developed a series of free online courses in autism. Please check the training page, www.txautism.net/training.html, for update lists

of courses, course numbers and registration information. Current courses include the following:

- Asperger Syndrome 101
- Augmentative and Alternative Communication and the Autism Spectrum
- Autism for the General Education Teacher
- Autism 101: Top Ten Pieces to the Puzzle
- Classroom Organization: The Power of Structure for Individuals with ASD
- Communication: The Power of Communication for Individuals with ASD
- Futures Planning for Students with Autism Spectrum Disorder
- Navigating the Social Maze: Supports and Interventions for Individuals with ASD
- Solving the Behavior Puzzle: Making Connections for Individuals with ASD