

Playing to Pretend or “Pretending” to Play: Play in Children with Autism Spectrum Disorder

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ABSTRACT

Children diagnosed with autism spectrum disorder (ASD) exhibit early delays and deficits in play. In infancy, they engage in unusual exploratory behaviors with toys. As toddlers, they are slow to develop functional play, and in preschool some children with ASD fail to develop symbolic play despite having the necessary cognitive and language skills. Furthermore, when children with ASD are engaged in play, they demonstrate less playfulness. This article reviews the literature on the characteristics of exploratory, functional, and symbolic/pretend play in children with ASD and possible reasons for their unusual patterns of play development. Increased quantity and quality of play are frequent therapeutic goals for children with ASD. If play interventions are to be successful, it is critical that speech-language pathologists have an adequate assessment of children’s play skills. Several frameworks and tools appropriate for assessing play in typical children and children with ASD are described.

KEYWORDS: autism spectrum disorder, theory of mind, functional play, symbolic play, naturalistic developmental behavior intervention

Learning Outcomes: As a result of this activity, the reader will be able to (1) describe the nature of play, (2) describe ways that the play of typically developing children and children with autism spectrum disorder differ in terms of external play performance (functional/symbolic levels) and internal play experience (playfulness); (3) explain possible reasons for these play differences; and (4) employ strategies for assessing external and internal aspects of play to plan goals to promote autistic children’s play using naturalistic developmental behavioral intervention strategies.

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Pretend play is an important contributor to children's healthy development. It enhances children's capacity for cognitive flexibility and creativity^{1,2} and contributes to their development of social skills, self-regulation, delay of gratification, empathy, and reduced aggression.³⁻⁵ Lack of opportunities to play or inability to play places children at risk for a variety of developmental difficulties and particularly social-emotional deficits.

Unusual patterns of play in children with autism spectrum disorder (ASD) have been reported from the earliest descriptions of autism. Kanner,⁶ who published the first systematic description of autism, reported the tendency for children with autism to play alone for long periods of time with blocks or string beads. They had more intense, repetitive interactions with objects that caught their attention. Their play lacked pretend qualities and they rarely engaged in social play.

Compared with typically developing (TD) children, children with ASD are less likely to engage in play, particularly symbolic, pretend play. In TD children, play skills are closely associated with their cognitive and language skills. The majority of children with ASD exhibit differences and deficits in play that cannot be explained by their language or cognitive delays or disorders.⁷ Children with ASD play differently from TD children. They also play differently from cognitive and language-matched children with developmental delays (DDs) such as intellectual impairment or Down syndrome. Their differences in play are recognized early and are often a frequent diagnostic marker for ASD. This article will address (1) different aspects and types of play; (2) ways that the play of TD children and children with ASD differ in terms of their play performance (functional/symbolic levels) and play experience (playfulness); (3) possible explanations for these differences; and (4) strategies for assessing play to plan goals to promote the play of children with ASD using naturalistic developmental behavioral intervention (NDBI) strategies.

DIFFERENT ASPECTS AND TYPES OF PLAY

Play can manifest as *external performance* and *internal experience*. External performance is the

play behavior as observed through play activities, whereas the internal experience, known as *playfulness*, represents the quality of play as a reflection of an internal disposition toward an activity.

External Play Performance

External play performance can be categorized in terms of what is done with the objects of play or what is done with play partners. With regard to objects, external play can be hierarchically classified in ascending order as follows: *exploratory*, *relational*, *functional*, *pretend*, and *symbolic*.

Exploratory play involves infants and children using all their senses to examine objects by looking, touching (with hands and mouths), listening, and moving objects to learn how to influence the world around them. Initially, no conceptual relationship mediates the infant's actions and the object; therefore, actions appear undifferentiated and repetitive. As infants explore, they begin to understand how objects relate to one another, thereby transitioning into relational play. They begin to see relationships between objects (e.g., one object can be put into another). Functional play involves using toys the way they were intended (e.g., putting a phone to one's ear, rolling a toy truck into a toy garage, stirring with a spoon). Symbolic play involves pretense, as when a child pretends a block is a hat, or gives life to a doll by having it make dinner. Symbolic play can be demonstrated through one of three types of actions: object substitution (the use of one object as another, e.g., using a block for a hammer, ribbons for spaghetti); imaginary play (imagining absent objects or assigning absent attributes, e.g., pretending to put an imaginary key into a car ignition; or pretending a doll is wet); and agent play (in which a doll or similar object becomes the agent of an action).^{8,9}

Determining whether pretend play involves a symbolic component can be difficult. For example, a child may be pretending when she puts a bottle in a doll's mouth, or she may simply be engaging in functional toy use—this is what one does with a bottle and doll. Consequently, in the literature on children's play, researchers have not always made the distinction between functional play with objects and

pretend play without symbolism.¹⁰ Similarly, it can be difficult for speech-language pathologists (SLPs) and educators to determine whether a child is pretending or simply engaging in delayed imitation of an activity.

External play performance can also be categorized in terms of social interactions with others. Conventional categories describing TD children's advancement include the following¹¹:

- Solitary play (birth to 2 years): A child plays alone and is not interested in playing with children.
- Onlooker play (2 years): A child watches other children playing but does not play with them.
- Parallel play (2+ years): A child plays alongside or near others but does not play with them. They may share resources and observe one another from a distance, but do not share the same goals while playing.
- Associative play (3–4 years): Children begin to play with others. They share play materials, but may be following their own story line. They may be playing with the same set of toys, but do different things with the toys.
- Social collaborative play (4+ years): The child plays with others and is interested in both the activity and other children involved in playing. They share toys and cooperate in developing a play theme.

The developmental sequence of these stages of social play are considered universal in TD children and children with DDs.¹² Lower levels of play, however, do not necessarily decrease with advancing age. Even when children are able to engage in associative or collaborative play, they may choose to engage in solitary or parallel play. The frequency of social play forms may also vary with the environmental setting or philosophy of the school context.^{13,14}

The Internal Experience of Play—Playfulness

The internal aspect of children's play, termed *playfulness*, refers to the inner experience of play. Playfulness means being able to explore and to do things for the sheer delight of doing them. Four elements are considered part of playfulness and have been used to evaluate playfulness.¹⁵

The first is *intrinsic motivation*: children engage in a play activity simply because they want to, not for any other reason. The doing (process) is more important than the outcome (product). The child's internal motivation to play is independent of external expectations, such as winning. A second element is *internal control*: Children feel they are in charge of their actions and some aspects of their actions' outcomes. Children determine or direct the play action and decide who to play with, what to play, and how and when the play should end. A third element involves the ability to *suspend reality*: children may pretend that they are someone else or that an object is something other than what it really is, or they may pretend to do something they are not actually doing. A fourth and final element is *framing*: children frame or recognize the activity as play; consequently, they are able to communicate and interpret social cues in play.

PLAY IN CHILDREN WITH ASD

Research comparing the play characteristics of children with ASD compared with TD children and children with other types of DDs has yielded mixed results. This is likely due to the varied definitions and descriptions of play used in the studies. Studies that have employed finer grained analyses of play skills and development have more consistently reported delays and differences in the play of children with ASD compared with TD children and those with other DDs. Sometimes, results are difficult to interpret because the researchers are not consistent in how groups are matched with respect to age, cognition, or language skills. Despite some variability in the findings, overall, research indicates that children with ASD differ from TD children in all of the aforementioned aspects of external play performance as well as the internal experience of playfulness.

Differences in Exploratory Play Performance

Sensorimotor or exploratory play marks the earliest infant manipulations of an object (e.g., mouthing, banging), and serves as a means of gaining information about the physical world.^{16,17} In exploratory play, children perform simple actions on single objects.

Exploratory play relies on visuomotor skills such as tracking, fixating, reaching, grasping, and fingering. Recall that no functional relationship exists between the infant's actions and the object; thus, actions are indiscriminate and repetitive.

Differences in exploratory play between TD children and children with ASD have been reported within the first year of life. Studies of infants at risk for autism (because they had an older sibling with autism) who were later diagnosed with ASD are likely to exhibit different patterns of exploratory play compared with TD children. Ozonoff et al¹⁸ and Kaur et al¹⁹ considered frequency and duration of typical and atypical uses of objects by infants as noted below.

Typical uses of objects:

- Shakes/waves: Infant shakes, waves, or twiddles the object.
- Bangs/taps: Infant hits, bangs, or pounds on an object, or uses an object to hit, bang, or pound another object, such as the table.
- Mouths: Infant licks, sucks, or chews on an object.
- Throws/pushes: Infant throws the object, drops it off the table, or pushes it toward the examiner, ending their interaction with that object.

Atypical uses of objects:

- Spins: Infant drops, tosses, or manipulates an object to make it spin or wobble.
- Rolls: Infant pushes a round object along a surface so that it rolls.
- Rotates: Infant turns, flips, or rotates object at least twice.
- Unusual visual: Infant engages in prolonged visual inspection (>10 seconds), examines object from odd angles, looks at things laterally (i.e., from the corner of the eyes), or squints or blinks repeatedly while examining object.

When evaluated on this detailed list of exploratory behaviors, infants at risk for ASD tend to spend more time visually inspecting objects in unusual ways (from odd angles or from their peripheral vision).^{18–20} This unusual visual object inspection is present and

stable by 9 months and predicts reduced social engagement 3 months later, and is a particularly distinctive feature of the early autism phenotype. Infants at risk for ASD also engage in greater atypical object use, particularly spinning objects.^{18,20} Nine- to 12-month-old at-risk infants demonstrate grasping delays and significantly lower levels of purposeful dropping of objects; and whereas TD infants decreased their mouthing of objects, at-risk infants were more likely to increase mouthing of objects.¹⁹

Differences in Relational and Functional Play Performance

Functional play is an ambiguous term; it is typically defined as using toys the way they were intended, but it may also refer to separations and combinations of toys (considered relational play), which develops before children use toys in their intended ways.²¹ When determining whether functional skills are impaired, consideration should be given to how play skills are measured—the level of functional play, the frequency of play, the type or diversity of functional play behaviors, whether play skills are measured as spontaneous or in response to a model or prompt, and the overall quality of play.

Functional play begins to emerge around 12 months of age, becoming more complex during the next 6 to 12 months. Functional play can be differentiated based on the number of objects involved and the direction of the action on the object. In simple functional play, the child acts on a single toy or uses the object on themselves (self-direction action). In elaborated functional play, the child directs the action with the toy on other persons or dolls/stuffed animals and may use multiple objects. When the simple definition of functional play is used to code play behaviors, children with ASD may show no difference in frequency of functional play compared with TD children. But like studies on object exploration, a more detailed coding of functional play often reveals play differences between TD children and those with (or at risk for) ASD. There have been several coding systems for functional play.^{10,22–24} The following list represents an

integration of these systems into a hierarchical list from earliest to latest developing:

Simple functional play:

- Discriminative actions on single objects (e.g., child differentiates among objects, preserving their physical characteristics—rolling a ball, pushing a toy truck).
- Relational: Begin to relate objects but without social-conventional knowledge or typical use of the objects.
 - Separations: Take apart combinations (e.g., detaches pop beads; takes pieces out of puzzle, cup from nesting set).
 - Constructions: The play is object-directed. The child combines two objects (e.g., drops blocks in bottle; puts lid on bottle; puts a peg in a hole).
- Discovers cause-effect in toys; intentional use of toys (e.g., turns knobs/presses buttons to open lids on busy box).
- Functional use of single object/conventional acts on object directed to self: The child acts on an object in a manner that reflects its conventional use (e.g., bringing a bottle or a cup to the mouth, brushing own hair with a toy brush, placing a toy telephone to the ear).

Elaborated functional play:

- Functional use of multiple objects: The child uses two or more objects appropriately together accompanied by a clear supporting gesture (e.g., stirring a spoon in a pot, tipping a jug over a cup, as if pouring something into it. To be included in this category a child must stir the spoon around, rather than simply place it in the pot, thus distinguishing the behavior from simple functional association).
- Functional acts supported by appropriate vocalization/gesture: The child acts on an object in a manner that reflects its conventional use and accompanies this with an appropriate vocalization or exaggerated gesture (e.g., placing a toy telephone to the ear and vocalizing, making slurping noises while drinking from a bottle, drinking from a cup, and throwing head back in an exaggerated drinking gesture).

- Conventional acts on object directed to partner (e.g., holding toy telephone to the mother's ear).
- Doll-directed/stuffed animal-directed functional acts: The child carries out an act involving the use of a doll (e.g., brushing a doll's hair with a toy brush, putting a doll in the bath).

Infants with older siblings with ASD exhibit fewer functional and nonfunctional repeated play behaviors than TD controls.²⁵ They do not necessarily show fewer object-directed functional play behaviors, but do show fewer self-directed and other-directed functional play to an adult or doll. This suggests that they may not realize that they or others can be recipients of a play action or perhaps they are not motivated to direct play to themselves or others. Other-directed functional play would necessitate joint attention. Without joint attention, infants are also likely to be less attentive to the behaviors of others, and as a consequence, they would be slower to learn the ways to interact with objects and people around them. Responding to joint attention is significantly correlated with simple functional play, and initiating joint attention is significantly correlated with elaborated functional play.²³ For this reason, an evaluation of the play of infants/toddlers with ASD should also include an assessment of their joint attention.

When researchers code a variety of types of functional play (as opposed to just the amount of functional play), preschool children with ASD matched on developmental level with TD children exhibit functional play that is less elaborated, less varied, and less integrated, even though they may spend the same amount of time in functional play.²⁴ With a selection of toys, preschool TD children have exhibited greater functional than nonfunctional play, whereas children with ASD exhibited similar amounts of functional and nonfunctional play, with significantly less time in functional play.²⁶ Sparaci and colleagues²⁷ offer an interesting possible explanation for reduced functional play found in children at risk for ASD. Like Kaur et al,¹⁹ they found that infants at risk for ASD show delays and differences in development of grasp types. In the study by Sparaci et al,²⁷

significantly fewer at-risk infants compared with not at-risk infants produced grasp types facilitating spoon use. The delays and differences in grasp development could affect the infants' ability to engage in object exploration and functional play and underscore the complexity of play as a composite skill dependent on development across social, cognitive, and motor domains.

Differences in Pretend and Symbolic Play Performance

The shift from exploratory functional play to symbolic pretend play represents a significant developmental shift. Pretend play of TD children is first observed when they pretend to drink from an empty cup or give a doll a bottle. Because of the difficulty in determining whether such acts are true pretend for the child (the child is aware that they are representing a real act, not actually performing a real act), particularly when displayed by children with ASD, such behaviors are usually coded as functional use, rather than pretend. Pretend behaviors are coded as symbolic only when there is at least one element of symbolism, for example:

- Object substitution (e.g., using a banana for a telephone).
- Imagining absent objects or assigning absent or false attributes (e.g., the child uses an imaginary key to open a chest; the teapot is hot; the dollhouse is on fire).
- Agent play (e.g., the child uses a doll as an agent in carrying out an activity).

The earliest accounts of autism reported on children's symbolic pretend play deficits. Even when accounting for children's cognitive and language levels, children with ASD exhibit not only far fewer pretend behaviors but also pretend behaviors that are less complex, novel, and spontaneous.²⁸ For example, Wing and Gould²⁹ noted that 55% of children with ASD exhibited no symbolic play behaviors. Charman et al³⁰ reported that in structured play trials, all 20-month-old infants with DD produced at least one example of object substitution, but not one of the young children with ASD did so even after prompting and modeling. When children with ASD do engage in

symbolic play, they are most likely to employ object substitution. They are least likely to exhibit the symbolic behavior as dolls as agents.⁷

When left to their own devices, children with ASD tend not to engage in spontaneous pretend play, and indeed are less likely to do so than one would expect for their general level of development.³¹ The fact that some children with ASD do engage in pretend play in *some* instances suggests an underlying capacity for pretense, but, for whatever reason, they often fail to show this spontaneously.^{32,33} This possibility has led researchers to examine the quality of play shown by children where pretending is more directly encouraged. As children with ASD grow older, many show pretend actions when such actions are modeled for them or when they are directly instructed to perform a pretend activity (e.g., "Show me what you can do with these." "Show me how the doll might eat a cookie").^{34,35} When cues are provided, they may show the ability to substitute one object for another in play, even though they tend not to generate novel pretend acts themselves.³⁶ Just because children with ASD may "pretend" in a structured activity or in response to a model or instruction does not necessarily mean they are actually pretending. Rather, they may be performing an expected behavior. Furthermore, even when they respond to modeled or instructed pretend play like TD children, their spontaneous pretend play is less frequent, has fewer novel acts, is more ritualized, and less complex.³⁷

Some authors have suggested that symbolic play deficits in ASD are due to children's difficulty generating play ideas (a performance limitation), rather than difficulty comprehending symbolic pretend (a competence limitation). Do children with ASD lack an awareness or understanding of pretend when they observe others engage in pretend play (a competence deficit), or do they understand pretend play and can engage in it but rarely do so (a performance deficit)?³⁸ Children's spontaneous pretend play is taken as an indicator of performance; and their response to scaffolded pretend play (with modeling and instruction) is taken as an indicator of competence. Even though children with ASD do somewhat better in scaffolded

play, they nonetheless exhibit play deficits in both spontaneous and scaffolded play, suggesting play deficits in both competence and performance; therefore, the play deficit is not limited to problems with generativity.³⁷

Differences in The Internal Experience of Play (Playfulness)

As defined earlier in this article,¹⁵ playfulness has four dimensions: internal control, the ability to suspend reality, intrinsic motivation, and framing the activity as play. Through their external performance of play, children act out their internal experience, i.e., how they feel about the play. Children with ASD are less likely to have positive play experiences and to derive pleasure from play. Even when children with ASD engage in symbolic play, they seem less playful than their peers, showing repetitive behaviors with objects, and restricted play interests.³⁹ The way they play is more often characterized by certain fixations or preoccupations, such as an intense focus on arcane topics.⁴⁰

Several studies of children with ASD have evaluated both children's external play performance and their playfulness. Evaluation of their play performance typically has involved number of and complexity of the children's novel functional or pretend play behaviors with the toys, number of substituted objects in the play (e.g., a bowl for a hat), and the number of play behaviors a child imitates after an adult model. The Skard and Bundy¹⁵ playfulness framework has been used to assess the children's playfulness.^{41–45} Although theory of mind (ToM) skills of children with ASD are predictive of their symbolic play, they do not predict their playfulness.⁴¹ The more children with ASD imitate the actions of an adult in play, the less able they are to suspend reality. This is consistent with studies reporting that copying pretend behaviors is associated with less imagination in children.⁴⁴ Number of imitated actions is also associated with lower locus of control.⁴² If children are to have a sense of locus of control, they must be able to self-generate play ideas. Severity of ASD symptoms is most associated with reduced playfulness, particularly with reduced internal control and reduced framing abilities (giving and reading social cues in

play). Higher levels of elaborated pretend play with object substitutions in children with ASD are positively associated with all playfulness dimensions,⁴² and particularly framing.⁴⁴

Even when children with ASD exhibit complexity in symbolic pretend play that appears similar to that of language-matched children with DDs, they exhibit less playfulness.⁴³ They show less fun during the play and less awareness that they are pretending. With play modeling, they do show some increase in playfulness. Researchers suggest that the apparent symbolic pretend of children with ASD may not represent true pretend. They may have learned that one thing can substitute for something else, but they do not have a good feeling about what they have done; they appear unaware they have given new meaning to a situation or have created something novel.

Explanations for Play Differences

Multiple explanations have been offered for the limited and qualitatively different symbolic pretend play of children with ASD.^{28,46}

- ToM deficits: ToM is a multidimensional construct involving (1) intrapersonal ToM—awareness of and reflection on one's own mental states, thoughts, and feelings and (2) interpersonal ToM—the ability to infer mental states (e.g., thoughts and feelings) of others. Although considerable heterogeneity exists in the nature and expression of intra- and interpersonal ToM in ASD, deficits in both are considered universal in ASD.⁴⁷ This is important because pretend play is a facet in development of both intrapersonal and interpersonal ToM. When engaged in true pretend play, children are employing intrapersonal ToM, realizing that their actions on an object are not the same as their thoughts about the object. While playing, children must be able to hold two mental state representations in mind—for example, distinguishing between actually eating and pretending to eat or recognizing an object as a pencil while pretending to use it as a toothbrush.⁸ Taking on character roles in pretend play and recognizing that others are playing character

roles requires interpersonal ToM. ToM facilitates pretend play, particularly social pretend play, but social pretend play likely contributes to the development of ToM, particularly children's ability to interpret the social cues of others.⁴⁸ Performance on ToM tasks of children with ASD significantly predicts symbolic play.⁴⁹

- Executive function (EF) deficits: Autism has been viewed as an executive function disorder.⁵⁰ Executive functions are involved in response inhibition, set shifting, and planning behaviors. Pretend play requires that children inhibit a prepotent response to an object, generate an alternative response, and shift from the primary identity of the object (e.g., a pencil) to the make-believe identity (e.g., a toothbrush).²⁸ EF develops in the later preschool years and is associated with language skills. Children aged 3 to 4 years with ASD who had higher language scores have exhibited better EF on tasks involving inhibition and spatial working memory. Better EF on these tasks at ages 3 to 4 years predicted symbolic play behavior at age 6 years.⁵¹
- Central coherence: Central coherence refers to the tendency to process incoming information globally and in context, thus aiding persons to make sense and see structure and meaning in the world around them. Children with ASD frequently have weak central coherence—they focus on parts not wholes.⁵² They have difficulty seeing the relationships among toys and social cues in a play context. As a result, they have difficulty generating play with thematic relationships among the toys. Symbolic play skills of children with ASD have been shown to be significantly correlated with their scores on a picture puzzle task, a measure of central coherence.²⁸
- Atypical sociocultural learning: Characteristically, children with ASD do not participate in social routines in the same way as TD children and, therefore, do not have the same kind or degree of social knowledge. The children's limited play interactions result in delays and differences in social skills that further contribute to play deficits.

Moreover, reduced social play of children with ASD has been linked to deficits in cognitive and emotional development,⁵³ while difficulties in verbal and nonverbal communication limit the capacity of children with ASD to engage in play with others.⁴⁰

- Children with ASD may lack the motivation to carry out pretend play. A primary characteristic of autism is restricted, repetitive patterns of behavior, interests, or activities. Children with ASD may find no interest in pretend play activities, or they want to repeat the same scripted play over and over. Baron-Cohen⁵⁴ suggests persons with ASD are systematizers who seek patterns that show them what is real and true. They may reject pretend or fiction because it is not real.

Depending on the age of the children and nature and severity of their ASD, each of these explanations appears to provide some support for explaining symbolic play deficits, but for each, there is also evidence that challenges their explanations. Each of these explanations should be considered when designing interventions for specific children.

ASSESSING PLAY TO DEVELOP INTERVENTION GOALS FOR CHILDREN WITH ASD

Intervention Approaches

Children with ASD who play symbolically are more likely to communicate with spoken language and have better peer interactions.⁵⁵ Therefore, foundational play skills appear to be important in the social development of children with autism. Improving the play skills of children with ASD has been a focus of therapy for at least 40 years, but the ways these skills are taught have changed. In the latter part of the 20th century, research articles published by Lovaas and McEachin et al^{56,57} reported that 47% of an experimental group of children with ASD who received applied behavioral analysis (ABA) or discrete trial treatment achieved normal intellectual and educational functioning (although they did not determine whether autism symptoms had completely resolved).

Many readers interpreted this report as implying the children had “recovered” or been “cured.”⁵⁸ Although Smith and Lovaas⁵⁹ later explained that they did not claim that the children had recovered from ASD, ABA/DTT became the preferred treatment for children with ASD. ABA, based on operant learning theory from behavioral psychology, uses a system of rewards and consequences to teach children to imitate or reproduce play behaviors. Skills are initially taught in highly structured interactions within decontextualized contexts. Although ABA/DTT can be effective in teaching some types of treatment targets, it often leads to (1) a child’s failure to generalize newly learned skills across environments and circumstances, (2) the development of escape/avoidance challenging behaviors, (3) lack of naturalness and spontaneity, and (4) overdependence on prompts.⁶⁰ Based on developmental science, rather than behavioral psychology, more naturalistic intervention approaches to facilitate play development emerged, such as Developmental, Individual Difference, Relationship-based/Floortime (DIR/Floortime⁶¹), Relationship Development Intervention,⁶² and Hanen More Than Words.⁶³

Principles of ABA behavioral psychology and developmental science are being merged into NDBIs (e.g., Pivotal Response Treatment [PRT⁶⁴]; Joint Attention Symbolic Play Engagement and Regulation [JASPER⁶⁵]; and Early Start Denver Model⁶⁶). Benefits of NDBIs for young children with ASD include (1) reduced dependence on prompts, (2) more natural-sounding language, (3) efficiency advantage of teaching language form with meaning, and (4) habituation to everyday distractions present in the real world. A recent meta-analysis of intervention studies for young children with ASD reported that NDBI and developmental interventions had the most promising evidence for a range of outcomes (beyond the benefits of intensive behavioral interventions).⁶⁷ As a result, the American Medical Association revised their intervention recommendations for children with ASD.⁶⁸

Core components of NDBIs fall into three general areas: the nature of the intervention targets, contexts in which the interventions are delivered, and instructional strategies. Research

in the development of play in TD children informs considerations for these components. In recent years, the Lego Foundation has collaborated with the Play in Education Development and Learning (PEDAL) project at Cambridge University to conduct research into the role of play in young children’s education, development, and learning to inform wider practice and policy (see <https://www.pedalhub.org.uk/>; <https://www.educ.cam.ac.uk/centres/pedal/>; <https://www.legofoundation.com>). Publications of PEDAL/LEGO emphasize that optimal learning through play happens when the activity is playful in several ways—the activity (1) is experienced as joyful; (2) helps children find meaning in what they are doing or learning; (3) involves active, engaged, minds-on thinking; (4) involves iterative thinking (e.g., experimentation, hypothesis testing); and (5) emphasizes social interaction.⁶⁹ In addition to children having a sense of agency (that they are in charge of their actions), joy, meaningfulness, and active engagement are essential if children are to reach a depth of understanding and ability to apply what they are learning. Iteration and social interaction supports even deeper learning.

If NDBIs are to incorporate the PEDAL/LEGO recommendations for playful experience and be appropriate and effective for specific children, they must be tailored to children’s developmental play levels. Despite considerable interest in promoting play in children with ASD, limited attention has been given to integrating research on the foundations for and contributors to play (e.g., specific play activities, joint attention, ToM, EF, central coherence, social skills) into a holistic hierarchy of play development which could be used in designing play interventions for children.¹⁰

Play Assessments Used in Intervention Research

The play of children with ASD has been evaluated in many different ways. The content and administration of several of these measures is briefly described below.

- Child-Initiated Pretend Play Assessment (ChiPPA).⁷⁰ The ChiPPA is a norm-

referenced standardized assessment of the quality of 4- to 7-year-old children's ability to self-initiate pretend play. The ChiPPA comprises two sets of play materials to assess two different aspects of pretend play: *conventional-imaginative play* using a set of toys functionally and *symbolic play* using a set of unstructured play materials. The ChiPPA measures the elaborateness of a child's play (percentage of elaborated functional play actions), the ability to use symbols in play (number of object substitutions), and reliance if a child relies on others for play ideas (number of imitated actions).

- Structured Play Assessment (SPA).³³ Using the SPA, the evaluator observes a child between 1 and 6 years of age playing with toys (e.g., dolls and furniture, dump truck, blocks, a brush, a mirror) for 15 to 20 minutes. The evaluator notes the different instances of the child's play behaviors including simple manipulation, relational play, functional play, and symbolic play (object substitution, agent play, or imaginary play). A child's play level is calculated by recording the duration of functional and symbolic play sequences, as well as the number of different types or examples of the different play sequences.
- Test of Pretend Play (ToPP).⁷¹ The ToPP is a structured protocol intended to assess symbolic play in children from 1½ to 8 years of age.⁷² Children participate in a series of tasks with toys that require three different types of symbolic play: namely substituting one object for another (e.g., using a tissue for a bed cover), reference to an absent object as if it were present (e.g., licking an imaginary ice-cream), and attributing an imaginary property to an object (e.g., pretending dolly is sick). In addition, the ToPP is designed to assess the extent to which the child can incorporate several symbolic actions into a meaningful sequence.
- Test of Playfulness (ToP).¹⁵ The ToP is intended to assess children's playfulness between the ages of 6 months and 18 years. It comprises 29 items that are scored following an observation of the individual's free play for 15 minutes. Items are scored on a 4-point

Likert scale with respect to three dimensions: extent (proportion of time in play), intensity (degree to which the child perseveres to overcome obstacles to continuing the activity), and skillfulness (ease of performance). The items can be grouped according to the elements of playfulness (motivation, control, suspending reality, and framing; available at: <https://www.chirocredit.com/downloads/pediatrics/pediatrics215.pdf>).

The ChiPPA, ToPP, and SPA are intended to evaluate a child's external play performance; the ToP is intended to evaluate a child's internal play experience. The ChiPPA and SPA assess both functional and symbolic play; the ToPP assesses only symbolic play behaviors. All of these assessments employ standardized administration protocols, but only the ChiPPA is norm-referenced. Reliability and validity data are available for these four play assessments.

Assessing Hierarchies of Symbolic and Social Pretend Skills

Pretend symbolic play involves multiple behaviors, each with its own hierarchy of development. The play assessments that have commonly been used in research studies provide some information on the variety and range of functional play behaviors, but limited information regarding the range and specific levels of children's symbolic pretend play behaviors; these assessments focus primarily on children's ability to decontextualize (i.e., to make substitutions in play or play without props). There are other aspects of symbolic play development. If SLPs or educators are to design appropriate play goals or NDBIs for older or higher-functioning children with ASD, they must know, more specifically, what aspects of pretend symbolic play the children comprehend and perform. However, one must be cautious in interpreting the performance of children with ASD on symbolic play tasks, because one cannot be certain if a child is pretending or simply imitating the adult or reproducing a memorized script. The symbolic component of the Westby Playscale (WPS)^{73,74} is intended to provide an assessment of a child's development in multiple symbolic play components.

The WPS considers children's symbolic play development along the following four dimensions (see Table 1):

1. ToM/decentration: The roles the child takes or gives to others in play, from pretend on self to pretend on others, to making dolls and small figures agents of pretend activities.
2. Decontextualization/object substitution: The props the child uses in symbolic play/the degree to which the child can substitute objects/actions, from requiring realistic toys/props to substituting objects with similar structures/functions, to substituting objects that do not have similar structures/functions, to using gestures/language to set a scene.
3. Thematic content: The familiarity or novelty of the schemas/scripts children represent in play, from activities in which the children have been frequent active participants to themes in which they have participated less frequently, to themes they have only observed, and finally to novel themes they have invented.
4. Organization of schemas/scripts: The degree to which the play events are organized in a coherent temporal/cause-effect manner, from a single pretend action to a combination of two to three actions, to an evolving logical temporal sequence of activities, to planned ahead activities.

In the administration of the WPS, the evaluator observes the child with a variety of toys associated with different developmental play levels. TD children generally exhibit synchrony among the symbolic dimensions; that is, they demonstrate the majority of behaviors in each dimension associated with a particular age level. In contrast, children with ASD, particularly as they get older, are likely to exhibit a decalage in play dimensions. They may demonstrate a 3½-year-old behavior in decontextualization dimension but not a 22-month behavior in ToM dimension. It is as though each of the play dimensions are developmental or functional siloes. Consequently, children with ASD may exhibit considerable variability in symbolic concepts that are expected to coemerge in TD children. This asymmetry in development, where some processes lag behind others, is

common in children with developmental disorders.³⁵

A play assessment using the WPS is designed to measure children's capacity for play and language within the zone of proximal development—what they are able to do in a somewhat structured environment with a supportive adult. But just because a child has the capacity to engage in pretend play and use relevant language with the adult in an evaluation, there is no guarantee that a child will perform these skills when participating in play with peers. This is particularly a problem with children with ASD; they may have play skills, but they do not use them with others and are more likely to play alone. Winner and co-workers⁷⁵ developed the Group Play Scale (GPS) which is intended to evaluate children's participation and play performance when playing with other children. The GPS provides a framework for assessing children's social competence related to participation with their peers in play. The GPS proposes six questions for an evaluator to ask when observing how a child plays with others:

1. Does the child seek peers or adults as a play partner in interactive play?
2. How does the child use language during interactive play?
3. How does the child engage with objects or play materials during interactive play?
4. What type of pretend play is the child using when interacting with peers?
5. How flexibly does the child shift his or her play based on others' ideas during interactive play?
6. How well does the child problem solve during interactive play?

Based on responses to these questions, children can be placed on a continuum of GPS play levels from 1 to 5 (see Table 2). The amount of support a child requires to participate in peer play is a primary feature that distinguishes among the levels. The ultimate goal of play interventions with children with ASD should be to enable them to play in collaborative ways with peers. Increasing the quantity and quality of children's play is a focus of many developmental interventions and NDBIs for children with ASD. In the JASPER

Table 1 Westby Playscale (Adapted from Westby⁷³)

Ages	Theory of mind/Decentration <i>What roles does child take and give to toys and other people?</i>	Decontextualization/Substitution <i>What props are used in pretend play?</i>	Episodic autobiographical memory <i>Content themes What schemas/scripts does the child represent?</i>	Organization/Integration <i>How coherent and logical are the child's schemas/scripts?</i>
17–19 mo	___ Pretends on self (pretends to eat, drink, sleep)	___ Pretends using realistic, life-like props	___ Pretends at familiar everyday activities (eating, sleeping) in which child has been the agent	___ Single pretend action on a toy or self
19–22 mo	___ Performs pretend actions on others (e.g., caregiver) ___ Acts on doll (doll passive recipient); brushes hair, feeds, covers with blanket		___ Pretends at activities of familiar others (mom, dad, siblings; cooking, reading, cleaning)	___ Short schema combinations: combines 2 actions/toys in pretend, e.g., rocking doll and putting it to bed; pouring from pitcher into cup, or feeding doll from plate with spoon ___ Elaborated single schemas representing daily experiences with details (e.g., puts lids on pan, puts pan on stove, collects items associated with cooking/eating such as dishes, pans, silverware, glasses, highchair)
2 y				
2½ y	___ Talks to doll	___ Substitutes objects with similar structures/functions ^a	___ Represents less frequently personally experienced events that are associated with positive or negative emotions (e.g., grocery shopping, doctor play)	
3–3½ y	___ Makes dolls/puppets agents in play; gives voice to dolls or puppets ^b	___ Carries out pretend activities with replica toys (e.g., Fischer-Price, Playmobile figures) ___ Substitutes objects not similar in structure/function ^a ___ Uses language to invent props and set scene (imagines props) ^a	___ Events child has seen or read about but not personally experienced (e.g., firefighter)	___ Evolving episode sequences of temporally related pretend activities; (e.g., child mixes cake, bakes it, serves it, washes dishes)
4 y	___ Takes on roles of characters			___ Plans play events with cause-effect sequences before beginning play (e.g., planning to have a pretend birthday party)
5–6 y	___ Gives characters multiple roles (mother, wife, doctor; astronaut, son, teacher)	___ Does not require any physical props; can use language/gestures to set the scene, actions, and roles in play ___ Can use any object for anything ^a	___ Highly imaginative play that integrates parts of known schemas/scripts for events child has never participated in or observed; not a memorized script (e.g., astronaut builds ship, flies to strange planet, explores, eats unusual food, talks with creatures on planet)	___ Plans multiple play sequences (e.g., one child prepares meal, while another takes dog to vet) ___ Organizes what is needed for play

^aConsidered symbolic behaviors. Copyright 2017 by Carol Westby. Shared by permission of the author.

Table 2 Group Play Scale (GPS) Play Levels⁷⁵

GPS Level	Play description
GPS Level 1	Child plays alone; play is object directed; child will attend to adult if adult actively seeks child's attention; does not attend to peers
GPS Level 2	Child still plays alone but will engage adult to play their way; with adult effort, the child will briefly attend to another child in play; follows own play script
GPS Level 3	Child does not seek peer group, but will play near others; adult directs the play, providing structure, ideas, and context; peers take a role and enact the play within the structure; child rejects peers' ideas if don't fit child's script
GPS Level 4	Child will seek out peers; has difficulty maintaining role and shifting scripts; adults provide props and initial ideas, but are minimally involved in facilitating play; peers create structured play together; adult may step in to resolve conflicts and to keep the play moving
GPS Level 5	Shared collaborative imaginative play; child seeks out peers; child can be both leader and follower; peers provide ideas, decide on a theme, choose roles, negotiate, and problem solve on their own. Minimal adult facilitation, if any

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NDBI, goals involve developing the child's play and using play to promote joint attention, engagement, and regulation.⁷⁶ Kasari and colleagues,⁷⁶ authors of JASPER, emphasized the importance of knowing a child's developmental play level. If the play intervention is not at the best level for the child, it is difficult for clinicians to get joint attention and engagement with the child, and the child is likely to become dysregulated. Hence, a comprehensive assessment of a child's play skills is essential before beginning intervention.

CONCLUSIONS

Play and children's skill development in multiple domains are interactive. Play is dependent on children's cognitive, language, social-emotional, and executive functional skills, but play also *develops* skills in these areas. NDBI intervention programs for young children with ASD typically aim to teach skills within playful contexts, but they should also seek to develop children's functional and symbolic play skills, so the children have the ability to use toys appropriately and understand play content, enabling meaningful engagement with peers. Data from NDBI studies of children with ASD indicate that most children exhibit gains on the play skills targeted within the intervention sessions; results are mixed regarding generalization of the skills to novel situations and increases in a playfulness disposition.⁶⁷

Researchers have asked if children with ASD are playing to pretend, or "pretending" to play. That is, are they simply doing what the adult expects them to do in the activity?^{38,77} Even though children with ASD may appear to be participating in pretend and symbolic activities, they may not perceive the activities as pretend. Although some children may not view their behaviors in the intervention activities as pretend, engaging children in these activities can still be valuable because they can promote joint attention, engagement, and regulation. In addition, in elaborated play contexts, children can learn meaningful language as well as the social play behaviors that reflect the cognitive schemas and scripts being modeled. When these activities resemble real-life situations, the children are more likely to transfer the taught skills.

Play is a central component of many NDBIs, such as DIR/Floortime,⁶¹ Hanen More Than Words,⁶³ and JASPER.⁶⁵ When employing JASPER, interventionists are to establish specific goals to increase children's frequency and diversity of play behaviors and their developmental play level. Within play activities, additional goals address engagement, joint attention, and regulation, which are characteristically problematic areas for children with ASD. Kasari and colleagues⁷⁶ stressed that if intervention play activities are not at a child's developmental play level, other developmental goals cannot be achieved. In

fact, if the play activities are not at the appropriate developmental level, children will likely become dysregulated, less engaged, and display less joint attention. Thus, effective interventions for young children with ASD require a comprehensive assessment of their play skills.

CONFLICT OF INTEREST

None declared.

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