

The Power of Play for Beginning Communicators

Implications for Children with Complex Communication Needs

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IMPORTANCE OF PLAY

- Play is the means through which young children learn about themselves, other people, and the world around them.
- Moments after their child's birth, parents initiate interactions with their babies through touch, movement, vision, and sound; they engage in MULTISENSORY, reciprocal experiences.
- Early social interactions between parents and their infant that do not consist of caregiving activities are considered "play" (Roggman, Bryce, & Newland, 2000).
- Play also involves "spontaneous, naturally occurring activities with objects that engage attention and interest" (Lifter and Bloom, 1998, p. 164).
- Play, communication, and language are a natural part of parent-infant interaction within the first few months of life.
- As babies begin to develop greater control of their physical abilities, they produce actions, vocalizations, and facial expressions, thereby evoking reciprocal behaviors from parents.
- For children with significant developmental disabilities, play and prelinguistic communication may be quite effortful and/or limited from the beginning.
- Knowledge about play, communication, and language acquisition in children with typical development will expand our understanding of development in children with significant disabilities (Lifter, 2000).
- This information, in turn, will help us assess and facilitate the growth of these abilities in children with complex communication needs (CCN) who may require augmentative and alternative communication (AAC).
- **This poster will:**
 - review the three stages of play in typically developing infants and toddlers, up to but not including symbolic play;
 - discuss challenges faced by young children with CCN who may require AAC; and
 - present strategies to promote their play, communication, and language development.

STAGE I: SOCIAL PLAY



Description:

- Parents interact with songs, rhythmic games, body games, "stories" with beginnings, middles, and ends.
- Infants respond with gazes, social smiles, vocalizations; and movements of arms, legs, and body (Rochat, Querido, & Striano, 1999).
- Initially, parents are active partners and infants are passive.
- Infants become more active and turn-taking becomes more balanced as infants begin to anticipate their turns.

Challenges for Young Children with CCN and:

Cerebral palsy:

- They may exhibit subtle and idiosyncratic behaviors (Rogers, 1998).
- They may have abnormal muscle tone and exaggerated primitive reflexes that impact responsivity (Blasco, 1994; Capute, Shapiro, Accardo, Wachtel, Ross, & Palmer, 1982).
- They may have co-occurring medical problems such as feeding difficulties, seizure disorders, vision and/or hearing impairment (Colver, Fairhurst, & Pharoah, 2014).

Down syndrome:

- They may show initial delay in the onset of eye contact and long periods of gaze with parents, and subsequent persistent gaze and smiling (Berger & Cunningham, 1981).
- They may have visual deficits and difficulty shifting gaze (Courage, Adams, Reyno, & Kwa, 1994); and they may have hearing impairment.
- They may have hypotonia and delayed motor development (de Campos, da Costa, Savelsbergh, & Rocha, 2013; Tudella, Pereira, Basso, & Savelsbergh, 2011).

Autism spectrum disorder:

- They may have lower amounts of behavioral synchronization with their mothers (Yirmiya, Gamliel, Pilowski, Feldman, Baron-Cohen, & Sigman, 2006).
- They may have different patterns of postural and motor development (Nickel, Thatcher, Keller, Wozniak, & Iverson, 2013).

STAGE II: EXPLORATORY PLAY



Description:

- Infants produce general actions on objects: they reach, grasp, mouth, bang, shake, and drop them (Lifter, Foster-Sanda, Arzamarski, Briesch, & McClure, 2011).
- They produce specific fine motor actions on objects: they transfer, rotate, and finger them (Soska & Adolph, 2014; Rochat, 1989).
- They pair rhythmic arm movements with vocalizations (Iverson, 2010).
- They produce rhythmic and repetitive actions on objects and begin to produce reduplicated and later variegated babbling (Fagan & Iverson, 2009).
- They play with toys in a variety of positions: on their back, tummy, or side; and in supported or unsupported sitting (Harbourne, Lobo, Karst, & Galloway, 2013).
- They learn to follow parents' gaze and pointing.
- They learn to call attention to objects and direct parents' attention through early gestures of showing, giving, and pointing.

Challenges for Young Children with CCN and:

Cerebral palsy:

- Children have motor impairments that impact their ability to sit with or without support and use their hands to reach for, grasp, and explore objects (Schmidt & Cress, 2004).
- They are more passive: they look at objects rather than actively playing with them.
- Mothers engage in more proximal than distal behaviors: they touch, kiss, and hold infants more than they talk to, sing with, look at, and smile at their infants (Brooks-Gunn & Lewis, 1984).

Down syndrome:

- Children have delayed acquisition of early motor skills (Pereira, Basso, Lindquist, da Silva & Tudella, 2013).
- They exhibit hypotonia; difficulty bringing hands to midline and grasping (de Campos et al., 2013).
- They show deficits in manipulative object play (Legerstee & Weintraub, 1997; Gowen, Goldman, Johnson-Martin, & Hussey, 1989).
- They often engage in passive behaviors like looking or holding toys rather than active manipulation (Landry & Chapieski, 1989).

Autism spectrum disorder:

- Children have delays in sitting, reaching, grasping, and bringing objects to mouth (Koterba, Leezenbaum, & Iverson, 2014).
- They are able to follow eye gaze and respond to joint attention, but may have difficulty with sustained looking time to a target (Bedford, Elsabbagh, Gliga, Pickles, Senju, Charman, & Johnson, 2012).
- They have difficulty initiating gaze, so may not understand the significance of a parent's interaction with an object (Bhat, Galloway, & Landa, 2010).
- They exhibit unusual patterns of object exploration and engage in restrictive/repetitive behaviors (e.g., spinning, rolling, rotating, unusual visual regard) that can interfere with purposeful object exploration.
- They may exhibit a generalized problem with movement initiation (Nickel et al., 2013).

TABLE 1: Play Stage and Importance of Behaviors for Development

Stage of Play	Importance	
I. Social Play	• Begin to take turns	• Engage in "proto-conversations"
	• Play repetitive and predictable games and routines	• Begin to develop receptive language
	• Gaze at parents; smile; move body, arms, and legs	• Develop a "visual communication system" (Preisler, 1991)
	• Engage in social closeness	• Express affection, emotions, greetings, acceptance, rejection
II. Exploratory Play	• Perform gross motor actions on objects	• Learn about general properties of objects
	• Perform fine motor actions on objects	• Learn about specific physical properties of objects
	• Produce early gestures and eye gaze	• Form basic language concepts
III. Functional Play	• Request objects, actions, information; comment, protest	• Perform specific actions on objects
	• Learn about specific properties of objects	• Demonstrate semantic relationships between self, others, other objects, events
	• Move objects in relation to self, others, and other objects,	• Learn to form categories
	• Spontaneously group like objects	• Learn to plan and carry out new ideas
	• Perform novel actions on objects	

TABLE 2: Play Stages, Challenges for Children with CCN, and Intervention Strategies**

** Each stage builds on the previous stage

Stage of Play	Challenge	Strategy
I. Social Play	Have difficulty producing distinct, identifiable behaviors (e.g., smiling, moving arms or legs, vocalizing, etc.)	• Train parents to recognize the children's subtle and idiosyncratic behaviors; encourage more overt behaviors • Train parents to increase responsivity
	Have difficulty taking turns	• Establish routines and predictable patterns of interactions • Pause > use expectant delay > observe behavior > respond contingently
	Have difficulty maintaining their focus of attention on others	• Interact face-to-face • Produce gestures/manual signs within child's field of vision and aligned with adult's gaze • Use active touching, voice and sound cues
	Have difficulty maintaining head alignment and producing voluntary movements	• Consult with OT/PT about positioning and other supports/strategies
	Have difficulty comprehending language	• Use Aided Language Modeling with objects, gestures, manual signs, photos, and/or Visual Scene Displays with symbols infused in songs, rhymes, daily routines, and play activities
II. Exploratory Play	Have difficulty achieving and sustaining upright posture, reaching, grasping	• Consult with OT/PT about supports/strategies to: encourage reaching and grasping; maintain an upright, seated position; and explore the environment
	Have difficulty exploring objects with mouth and hands	• Offer/position toys in midline • Use Velcro™ bands on hands or "sticky mittens" to pick up objects • Select toys that are easy to grasp: lightweight, large, soft objects or toys that have holes or handles for grasping • Use objects with varied textures • Suspend toys from frame or place on Velcro™ sensitive board
	Have difficulty shifting attention	• Place AAC symbols/device next to child, parent, and play materials to avoid dramatic gaze shifts and to support symbol-infused joint attention
III. Functional Play	Have difficulty separating toys or putting toys in containers	• Use containers with wide openings • Use toys that are easy to grasp • Use puzzles with large handles or thick pieces
	Have difficulty acting on objects in specific ways	• Choose toys that are lightweight and graspable: balls with holes; vehicles that roll easily; soft-body dolls that are easy to hold, and so forth
	Have difficulty expressing language	• Provide Visual Scene Displays with photos of child and family members interacting in play activities and daily routines • Use schematic organization of concepts within scenes • Use snapshots of pages for navigation to other activity pages
	Have difficulty achieving a "vocabulary spurt"	• Increase opportunities to add new concepts • Use "just in time" technology to add concepts immediately in teachable moments



STAGE III: FUNCTIONAL PLAY

Description:

- Parents demonstrate functional actions on objects (e.g., pushing a car, rolling a ball, etc.)
- Infants engage in functional play that is more specific to the characteristics of the objects.
- This requires greater fine motor control (Contaldo, Cola, Minichilli, Crecchi, Rossi, and Bonfiglio, 2013).
- Infants' gestures evolve from their actions on objects (Capirci, Contaldo, Caselli, & Volterra, 2005).
- Infants begin to act on objects in the ways the objects were first presented; then they combine objects in novel ways depending on their specific properties (Lifter & Bloom, 1998).
- These novel behaviors depend on having an idea about something not observable in the immediate environment and the ability to implement a plan; both rely on increased memory capacity (Lifter & Bloom, 1989).
- As their functional play increases, Infants simultaneously experience a rapid increase in vocabulary (i.e., the "vocabulary spurt," Lifter et al., 2011; Lifter & Bloom, 1998).
- Gesture + word combinations precede two-word combinations and may signal need for expanded verbal input from parents (Iverson & Goldin-Meadow, 2005).
- Parents use more referential language with greater information content: nouns, verbs, adjectives, and adverbs; they use less regulatory language with commands, prohibitions and pronouns (Tamis-LeMonda, Kuchirko, & Tafuro, 2013).
- Infants' interest in objects in the environment provides motivation to begin crawling, cruising, and eventually walking (Karasik, Tamis-LeMonda, & Adolph, 2011).

Challenges for Young Children with CCN and:

Cerebral palsy:

- Children have difficulty sustaining engagement with toys in interactions with parents (Smid & Cress, 2004).
- They have difficulty manipulating objects.
- They have difficulty independently moving toward objects of interest in environment.

Down syndrome:

- Children have delays in gross motor skills: sitting independently, crawling, and walking (Pereira et al., 2013).
- Delays in fine motor skills: performing actions on objects, grasping, showing, giving, and pointing (Gowen et al., 1989)
- Mothers use showing gestures throughout a spoken message to help child attend to the topic, improve comprehension, and maintain child's focus of attention (Iverson, Longobardi, Spampinato, & Caselli, 2006)

Autism spectrum disorder:

- Children exhibit atypical behaviors when interacting with objects (Ozonoff, Macari, Young, Goldrin, Thompson, & Rogers, 2008).
- They engage in lesser amounts of giving and pointing (Yirmiya et al., 2006).
- They perform simple functional play on single objects more often than combinatorial functional play (Thiemann-Bourke, Brady, & Fleming, 2012).
- They tend to engage with objects in the way the objects were first presented to them rather than in novel and creative ways (Thiemann-Bourke et al., 2012).

CONCLUSIONS

- Because spontaneous play is joyful, fun, motivating, and can take place anywhere and at anytime in the daily lives of children, it is the ideal context in which to embed communication and language. For infants, toddlers, and young children, the most effective learning starts with play. Just as we should use a developmental approach for targeting language and communication interventions, we should also use a developmental approach for play interventions. Therefore, careful thought should be given to children's current levels of play in order to help them progress further in each of these domains.

- For very young children with CCN, AAC provides the voice to express their thoughts and ideas to others. We must support communication, language, and play within the context of the child's daily life with parents and siblings. Granlund, Akesson, Wilder, and Ylven (2008) indicate that few studies have investigated the effects of AAC interventions for infants, toddlers, and young children implemented by parents in the context of daily routines and play at home. This is an area of research that is critically important.

- Furthermore, most of the studies reviewed in this poster presentation focused on mother-infant or mother-child interactions in play. Little research has been conducted that investigates the play interactions of young children with CCN with other family members, such as fathers, siblings, or grandparents. In addition, although many studies are conducted in the context of play interactions between mothers and children, the specific characteristics of play are rarely identified or described in the AAC or child language literature. These are additional areas where future research is urgently needed.

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