

Teaching age-appropriate play skills to children with autism

A brief literature review

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Introduction

Play is integral to typical child development. Research has demonstrated that play helps to develop many important skills including language, social skills, and problem solving. A known deficit in autism is a lack of typical play patterns; therefore, children with autism do not share the same benefits of play as their typically developing peers. This paper will first examine the importance of play and pretense in child development and what this means from the perspectives of the constructivist educational theories posited by Piaget and Vygotsky. I will then review some common strategies for encouraging and teaching age-appropriate play to children with autism. Since these methods are based in behaviorism, this paper will ask, can children deeply affected by autism *really* be taught how to play in a meaningful sense? And if not, will they still receive the benefits play provides?

Background: Autism

Autism is considered a spectrum disorder because it affects each individual to different degrees in each of the three general areas of impairment (often referred to as the “triad of impairment): 1) communication, 2) socialization and 3) repetitive, unimaginative and stereotyped patterns of behavior, play and interests. Autism is one of five disorders categorized as a Pervasive Development Disorder (PDD); the other four disorders categorized as PDD are Aspergers syndrome, Childhood Disintegration Disorder, Rhett’s Syndrome, and PDD – Not Otherwise Specified (PDD-NOS). In common usage, Aspergers syndrome, PDD-NOS and autism are diagnoses that are collectively referred to as Autistic Spectrum Disorders (ASD).

People are intellectually impacted by ASD in different ways; some have severe learning disabilities while others function academically at a very high level (those with Asperger's Syndrome typically fall in this category). While there is huge individual variability in how ASD manifests intellectually, there are some common exhibited deficits in the domains of social-communicative behaviors; these include language, imitation, joint attention and pretend play.

What is play?

Play is integral to typical child development. According to Hughes, a child development expert, play has five essential characteristics: (1) intrinsically motivated, (2) chosen freely, (3) pleasurable, (4) non-literal, and (5) actively engaged in by the player (Hughes, 1999). Wolfberg, an expert in the field of autism, adds that play is focused on the process rather than the attainment of a particular goal, and that it is flexible and changing (Wolfberg, 2002). Additionally, she asserts that play is universal to all cultures and settings.

There is strong evidence supporting a relationship between "high quality" pretend play and the development of social skills, abstract thought, problem solving abilities, and language (Bergen, 2002). High quality pretend play involves transforming objects one's mind symbolically, for example, the wooden toy train transcends its reality in a child's mind when he imagines it with people inside traveling to the next city. However, before advanced pretend play is developed in typical children they first explore their world through sensory play.

Early play development is typified by play that arouses the child's senses, for example, banging items together, or putting things in their mouth. As children grow they develop "relationship play", often exhibited by activities such as lining similar items in a row demonstrating an understanding of how items relate to one another. Typically, around the age of

18 months to 2 years children develop symbolic and pretend play (Boutot et. al., 2005). There are three types of pretend play that typical developing children employ:

- (1) functional play where a child uses the toy in the way it was intended, for example, pushing a car on the ground;
- (2) symbolic play which can take three forms (a) object substitution, i.e. imagining objects as other things, for example, making a boat out of a plastic dish (b) attribution of false properties, for example, pretending a toy car needs to go the mechanic, and (c) reference to an absent object or imaginary situation, for example, a tea party with dolls and bears;
- (3) sociodramatic play involve role playing activities where children interact based on their roles, for example, the old game of cops and robbers (Libby et. al., 1998; Terpestra et. al., 2002). There are also typical progressions in how children engage in play socially.

Whereas, typical children often play alone before the age of two, social play begins to develop thereafter. Social play can take the form of parallel play (where children play side by side), observational play (watching other children play), joint attention play or common goal (organized games like Red Rover) (Wolfberg, 2002). Additionally, around the age of 2, children develop receptive and expressive language.

Since the abilities to pretend and use expressive language develop at approximately the same time (between the ages of 1 and 2), several theorist have hypothesized about a relationship between them (Bergen, 2002). Many explanations for this relationship have been posited; one explanation is that both pretend play and language require symbolic thought, i.e. letting a thing represent something else (Lewis, 2003). Other's have suggested that pretend play and language are similar in their organizational complexity. For example, children begin language acquisition by uttering a single word then connecting those to longer sentences; play begins by manipulation

of a single object and builds in complexity in a parallel manner. Additionally, play and language are related conceptually; for a child to explain a pretending scenario, for example, a doll drinking tea, the child first needs to understand the concepts of “doll”, “drinking” and “tea”. It is also possible that the correlations found between play and language in typically developing children is mediated by some other (unknown) third factor. The relationship between language and play might help explain why children with ASD exhibit deficits in both domains.

In contrast to typically developing children, children impacted by ASD are characterized by their lack of pretend, symbolic and imaginative play (Hughes, 1998; Jarrold, 2003). Additionally, skills involved in social communicative play such as language, eye contact, turn-taking, and joint attention are exhibited deficits for children with ASD. Without intervention, many children with ASD will remain at a lower level of play participation than their typically developing peers. Educational theorist Piaget and Vygotsky both wrote about play and felt the development of pretend play was critical to child development.

The importance of play viewed from constructivist epistemology

Constructivist epistemology informed both the theoretical frameworks posited by Piaget and Vygotsky. While there are some fundamental differences in their beliefs, both asserted that children were natural explorers “constructing” their knowledge of the world through experimentation exhibited by play. Vygotsky felt that play was at the very heart of development:

“In play a child always behaves beyond his average age, above his daily behavior; in play it is as though he were a head taller than himself. As in the focus of a magnifying glass, play contains all developmental tendencies in a condensed forma and is itself a major source of development” (Vygotsky, 1978)

Both Piaget and Vygotsky felt that through experimental play children create meaningful connections to new information. According to Piaget, children moved through levels of experimental play in sequential stages.

In Piaget's theory, play follows three sequential stages of increased cognitive complexity (Brainerd, 1978). The first stage, "practice stage" is where the child engages in sensormotor activities. It is non-goal oriented and motivated by the infant's pleasure in having control over objects. Piaget argued that through oral and manual manipulation of objects infants learn about the properties and classifications of different objects and how to influence the world around them. Piaget asserted that around the age of 2 children are in a transitional stage where play is more than sensor motor but not yet symbolic described as follows:

"...during the second year of the child's development, we have seen however, that between the symbol properly so-called and the practice game there is a third term, the symbol in action without representation" (Piaget, 1962)

According to Piaget, after this transition stage a child moves to symbolic and pretend play, and then around the age of 6 children moves through a third stage of play which utilizes rules and games. According to Piaget, the stages cannot be altered, and one must follow the next (Brainerd, 1978). For example, a child who never develops sensorimotor play would not be capable of achieving symbolic play. Additionally, he felt that development proceeded learning, in other words, a four year old child would not be able to participate in a rule based game such as checkers. Whereas Piaget identified a child's level of development as their ability to perform a task independently, Vygotsky felt that the ability to imitate a more advanced skill was a better measure of the child's level.

Vygotsky argued that looking at where the child was now, i.e. tasks he could perform independently, was measuring "yesterdays" achievements. He proposed a "Zone of Proximal Development" (ZPD), which is the gap between where the child is now in his independent performance and what they can do through imitation and guidance. He further suggested that through play a more experienced partner can maximize a child's development by scaffolding

their assistance to help the child perform a play skill independently. Vygotsky also emphasized the social factors that mediate all learning.

Vygotsky felt that play is a window to the culture in which the child is growing (Wolfberg, 2002). It is through play that a child learns to encode social and cultural significance. Additionally, social play leads to capacity for peer friendships. Furthermore, Vygotsky argued that language, which is embedded in culture, is a key tool to intellectual adaptation. It is through language humans develop their thoughts (private speech) and communicate.

Both Piaget and Vygotsky stressed that play and the ability to pretend is important for children to create meaning in their world. Play, which for typically developing children follows known stages, is rooted in culture and language; it provides a framework through which a child understands his social world. Since children with ASD do not follow the typical developmental stages many researchers have questioned if they in turn develop meaningful relationships to their environments. If play is a precursor to peer interaction and later friendships, without intervention, some researchers have expressed concern whether children with ASD can they develop meaningful social relationships. Consequently, many investigations are examining methods to teach play skills exhibited by typical children to those with ASD.

Strategies for teaching play

Strategies for teaching play typically begin with assessing where child is currently in their development of social and pretend play. The literature concerning teaching children with ASD addresses two general areas, (1) object play, engaging the child to interact with toys in age-appropriate manners, and (2) social play, engaging children to play with adults or peers. Most of the techniques are inspired by behaviorist theory and use different types of reinforcement to

shape behavior. Since many children with ASD will not learn to imitate on their own, this is often where researchers begin.

Object Play

Discrete Trial Training (DTT) is probably the most extensively researched evidenced-based behavioral technique employed to shape the behaviors of children with ASD (Stahmer et.al 2003). While not used specifically to teach pretend play skills, the literature suggests it has been successful at teaching joint attention and imitation which are building blocks of pretend play. A discrete trial is a small unit of instruction with its roots in Applied Behavior Analysis (ABA) and the experimental work of Dr. O. Ivar Lovaas. Each trial requires five distinct steps where the child is sitting in a chair to the side or in front of the teacher:

- 1) The first step requires the teacher to display a stimulus (called the discrimination stimulus). For example, if teaching a child to learn matching, the teacher might place a card of Barney on a table in front of the child, then hold up a card of Barney and something else asking the child “which card matches?”, asking the child to discriminate and respond.
- 2) If the child does not spontaneously respond, the teacher will guide the child towards the targeted response. In the example above, the teacher would guide the child’s hand to the Barney card.
- 3) The child responds to the request.
- 4) If the child performs the action correctly they are reinforced using something meaningful to the child. This could be food, praise or a moment to play with a favored toy.

5) Finally, after giving the reinforcement the teacher pauses and then presents a new stimulus.

Research supports the efficacy of using DTT to teach the building blocks of play, including imitation and simple object manipulation (Stahmer et. al., 2003). One study that supported the use of DTT used shaped children to engage with books and toys.

Two different experiments with four children were conducted to determine if a child could be taught to engage with toys or books through DTT; additionally they questioned if a child's attention increased towards toys or books would the common negative behaviors of stereotypy and passivity decrease (Nuzzolo-Gomez et. al., 2002). Stereotypy is defined as cycles of repetitive movement with no apparent consequences for the individual beyond the movement itself, often called self-stimulation. Passivity was operationally defined as non-engagement with the targeted stimulus. In the first experiment the researchers used DTT to conditioned one child to look at books, using edibles as reinforcers. They were successful at conditioning this child to spontaneously pick up and look at books; however, if books were not present the child would not actively search for similar stimulus.

In the second study they conditioned three children to play with toys through imitation using edible reinforcement. In this study, the children later sought out the toys in free-play settings, and self-stimulating behavior decreased. The authors hypothesized that stereotypy occurs because of a lack of preferred activities. The authors did not address the issues of generalization, or if this type of conditioning constituted "play" as defined by Hughes and Wolfberg. Other researchers have tried to move toward teaching play skill acquisition in more natural conditions.

Pivotal response training (PRT) attempts to bridge the gap from DTT to more naturalistic play. It was designed specifically to increase two behaviors, motivation and responsiveness to multiple cues (Koegel et.al. 1999). The creators, Koegel & Schreibman, argue that these two behaviors are central to a wide area of functioning, so interventions that address them should have widespread effects on other behaviors. PRT involves the use of specific strategies with the reinforcements to shape behavior.

Using PRT to teach play strategies first involves allowing the target child to choose a toy, for example, set of cars. The therapist will then contribute a second toy of his own, for example a block, and encourage the child to use the toys together in a symbolic manner. An appropriate use of the block symbolically, for example, would be to use it as a wash brush on the car. If the child does not respond with a symbolic form of play the therapist might assist the child or pick a new toy. When the child does respond using symbolic play he is reinforced with something contextual to the situation. For example, in the scenario above, he might be given the entire set of cars to play with on his own for a period of time. One advantage PRT has over DTT, is that the child is allowed to choose their own toy, possibly increasing motivation. Additionally, the reinforcer is related to the desired behavior in a direct way. There are many studies supporting the efficacy of using PRT to increase age appropriate play.

Children need to be ready to learn symbolic or sociodramatic play for PRT to be an effective intervention (Stahmer et. al. 2003). However, when rated by naïve observers, children who are received PRT as a play intervention improved significantly in their levels of creativity and spontaneity (Stahmer, 1995). Two major concerns remain, (1) the children with ASD still exhibited play that was distinguishable from the play of typical children and (2) the training did not increase peer interaction (Stahmer et. al. 2003). Differential reinforcement of appropriate

behavior (DRA) is a technique that attempts to address some of the generalization problems found with DTT and PRT.

While DTT and PRT appear to have some efficacy in teaching simple play strategies, families have reported continued difficulty for treated individuals with ASD in the areas of sustained play and leisure activities over extended periods of time; DRA was created to address these issues (Stahmer et. al. , 2003). When using DRA to teach play strategies a therapist monitors the behavior of the child as he engages with toys. When he engages a toy using age-appropriate play the child is reinforced with an edible or praise. If the child disengages and stops playing, he is prompted to continue. Results of studies using DRA have been mixed.

In a study using DRA with adolescents results were positive (Nietupski et.al., 1986). The participants continued to engage in leisure activities even after the reinforcements were removed. However, in a two participant study using young children, DRA appeared to be ineffective suggesting that DRA may be a more effective technique for older children with ASD. While all of the previous strategies have focused on object play, the next three focus on teaching social play in addition to object play.

Social Play

Modeling is another evidence-based technique employed to teach children with ASD many different skills including object and social play strategies. In one study investigating the efficacy of modeling to teach play strategies compared two in-vivo (live) modeling techniques (Jahr et.al.,2002). In the first condition the targeted children watched as models engaged in scripted play scenarios. The children were then encouraged to take on the role of one of the models and repeat the scenario. The second condition was the same, except the child was asked to describe the play situation before he engaged in the role-playing activity. Results indicated

that adding the requirement for the child to first describe the situation was a necessary component for the play skill to generalize to other areas (Jahr et.al., 2002). While in-vivo modeling has been supported in the research, video modeling seems to be a particularly effective method for children with ASD.

Evidence suggests that video modeling is more effective than in-vivo modeling for children with ASD, (Angeliki, et. al. 2005). Some researchers suggest that this is because the video-tape can be repeated with no variation, where as a live model will always perform the targeted behavior a little differently every time. Video modeling involves first recording an adult, peer, sibling, or the child himself engaging in positive targeted behavior, and then asking the child to watch the videotape as an “example” of appropriate behavior.

Using the target child to perform as the video model is a bit more complicated than using a peer or an adult, because it requires capturing the child performing the targeted behavior, and then editing the final tape to only display the appropriate modeling action. While there is strong evidence supporting the benefits of self-modeling with other populations, the results from studies using children with ASD suggest that there is no significant difference in the rate of acquisition between the two conditions. Conversely, the use of siblings in video modeling appears to be very effective.

Siblings of children with ASD can be taught to serve as effective video models and then later as play partners. In one supporting study the older brother of a child with ASD and a peer acted out four scripted pretend-play scenarios (Reagon et. al. 2006). After watching the video, the four year old boy with ASD successfully engaged in the pretend-play scenarios with his brother. Additionally the boy had an increasing number of spontaneous utterances after multiple sessions. This lead the authors to conclude that video modeling could serve as a good starting

point for encouraging social pretend play for children with ASD (Reagon et. al. 2006). Another social play technique researchers have employed is the “Integrated Play Groups” model (IPG).

IPG, inspired by the work of Vygotsky, is the brainchild of Dr. Pamela Wolfberg, the co-founder of the ASD Institute on Peer Relations at San Francisco State University. An integrated play group consists of 3-5 children where at least half are typically developing peers (called “experts”) of the children with ASD in the group (called “novices”), and a mediating adult. Both the adult and the expert children receive special training prior to the play sessions. The group agrees to meet 2 times a week, 30-60 minutes for a 6-12 month period in a naturalistic play setting.

Wolfberg suggests setting up room environments with multiple stations designed for a specific play use. For example, one area might be set up as a kitchen for socio-dramatic play, while another might be set up with a train set for object play. The children with ASD are observed and assessed monthly to measure results. Over 15 separate studies have been conducted (about 75% by the Wolfberg herself) and the findings are generally positive.

Findings for IPG include decreased isolation and stereotyped behaviors exhibited by children with ASD. Language increased, and anecdotal reports from parents claimed the children generalized their new play skills to novel situations and peer activities. An additional benefit was that the expert children displayed an increased sensitivity and tolerance towards their peers with ASD. IPG is by far the most naturalistic of the methods discussed here, and most clearly resembles play practiced by typically developing children.

Discussion

It is believed by researchers presented here that after being taught how to play children with ASD display fewer inappropriate behaviors, increased interaction with peers, and increased

symbolic, functional and social play (Stahmer, 1995). While this is not an exhaustive list of strategies for teaching play, it is clear that most of the techniques use methods of reinforcement inspired by behaviorist theories. If the very nature of play is intrinsically motivated, chosen freely and pleasurable as defined by Hughes and Wolfberg, then are they truly teaching play? If you have to be reinforced to commit an action, can you call that intrinsic? In all these studies the children appeared to produce something that looks like pretend play, but they were not “cured” of their deficit in their ability to pretend. To complicate the matter, determining whether a child is truly pretending is nearly impossible. For example, even if the child pushes the car on road is he truly symbolically transforming the toy in his head to represent the real-life version? Most researchers would argue (and I would agree) that the techniques used presented in this paper to teach play are in actuality a starting point that is meant to expose children to a play situation that they hopefully spontaneously reproduce without reinforcement.

There is strong evidence supporting a positive relationship between the ability to produce pretend play and the development of social skills, abstract thought, problem solving abilities, and language. It is unknown if children with ASD actually have an intact ability for pretense, but are just unable to translate the ability into action. While there are many theories as to why children with ASD have deficits in producing pretend play spontaneously, it is generally agreed that it is an important goal in their therapy to transform their abilities so they may receive the many benefits play provides.

Both Piaget and Vygotsky wrote about the importance of child play in typical development. Imagining the child as a little explorer is not applicable when one imagines those children severely impacted by ASD. If exploration through play is critical to constructing meaningful knowledge about the world, what does this mean for children with ASD?

Future Research

Since children with ASD vary widely in the abilities, no one approach will work to encourage play strategies. While the results of IPG are very positive, not all children are capable of participating in an integrated play group. It would be interesting to use a combined approach in longitudinal research for those children most deeply impacted by ASD. A combined method might start with DTT, move to PRT to try to prepare the child for an integrated play group experience. In addition, research in how assess children with ASD would be helpful.

Traditional assessment assumes that play development follows closely to Piagetian stages. While we know that children with ASD develop differently, we do not really know what is more typical for their non-linear play development. Additionally, the future of play skills instruction and research for children with ASD should also focus not only on the instruction of play, but on the peripheral benefits of play. Finally, as with all research involving children with ASD, these studies had incredibly small samples (largest was 5); larger groups would allow for greater generalization of results.

Investigations that seek to understand and shed light on the connection between play and the acquisition of other appropriate skills should be a focus. How do we create structures that support children with ASD so they too can construct their own knowledge in a meaningful way, realizing that this is probably too much to ask for with children deeply affected by ASD. While we might not ever understand the reasons for the deficits there are several research questions surrounding teaching play strategies that are largely left unanswered.

Research questions that need to be addressed future studies in teaching play strategies to children with ASD include:

- Can teaching play strategies discussed here increase the amount of complex play as described by Piaget?

- Does acquisition of play skills translate to greater social awareness described by Vygotsky?
- Can teaching play strategies in turn help in their language development?
- Once a play skill has been learned will it generalize to novel situation? Will the acquisition of play skills transfer to peer to peer relationships?
- Is the acquisition of a play skill – still play as defined by Hughes and Wolfberg?

With the ever-increasing rates of children being diagnosed with ASD, understanding their unique development is imperative. Investigations into play therapy are part of that important body of research.

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