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The Use of Picture Prompts to Generalize Play Skills and Parallel Play for Children with Autism

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Introduction

Autism is the most common of the Pervasive Developmental Disorders, affecting an estimated 1 in 100 births" (Autism Society of America, 2009). Due to the dramatic increase in cases of autism in recent years amplified attention has been given to the disorder. Research has found that children with autism typically display problems with communication and social skills (Zager, 2005). Due to the variability in severity of those problems as well as the variety of other issues that can accompany these deficits autism can look very different from person to person. Now autism is more commonly referred to as an autism spectrum disorder (ASD) to include people who display deficits in communication and social skills to varying degrees (Zager, 2005).

People with autism often display symptoms in addition to the impaired social skills and interpersonal relations. These can include problems in behavioral, affective, adaptive and cognitive development such as aggression, stereotypic behaviors, mood instability and learning disabilities (Zager, 2005). Parents can recognize symptoms of ASD in their children at an early age because kids typically begin showing these behaviors between birth and three years of age. Indicators of ASD include lack of eye contact, difficulty expressing needs, resistance to change and sustained odd play, among others (Autism Society of America, 2009). If parents or family doctors notice these symptoms in a child the next step is to get them into a program that implements effective evidenced based interventions, in hopes of helping the child overcome difficulties in communication, social and play skills.

Children with ASD typically experience deficits in play skills, which is particularly worrisome for their future development. The process of learning begins when a baby is in the womb, though formal education begins in the preschool years. When in preschool, play is

considered work. It helps kids discover social skills and lays the foundation for more complex academic skills. In fact, kids who have trouble playing appropriately in early childhood have more difficulty adjusting to the typical school environment because it emphasizes group instruction (Morrison, Sainato, Benchaaban & Endo 2002). Specifically children with ASD often remain on the outside of play activities and rarely engage in play with other kids. In the rare instances there are interactions, they typically appear scripted and one-sided rather than creative, interactive and imaginative like their typically developing peers. Kids with autism tend to have narrow and unchanging play, and as they grow older they often prefer to learn about a particular interest area than play (Zager, 2005). In order to encourage productive playing, additional interventions are often necessary.

Picture schedules are one intervention proven to improve play skills. Since children with autism typically experience language deficits, it follows that verbal instructions may not be an effective way to prompt appropriate play (Morrison et.al., 2002). Instead, visual directions are more helpful. In this case a child is shown how to play using a series of pictures depicting the correct actions, often in the format of a picture strip or book. The pictures appear sequentially so that the child can progress smoothly from one step to the next. Initially an adult provides prompts to help the child complete the actions depicted correctly, and over time the student will become more independent and be able to play with the toy set without the visual prompt. The picture schedule provides a non-intrusive, portable approach that can easily be incorporated in an inclusive classroom (Morrison et.al., 2002).

Some research suggests kids with autism can generalize the use of a picture schedule to new tasks. For example, Bryan and Gast (2000) taught four children with autism to use a picture schedule to teach on-task and on-schedule behavior. The kids were able to effectively generalize

the use of a picture schedule to novel situations. One could infer that a picture schedule used to teach play skills could then transfer to new play activities. For example, a teacher would teach their student how to play with a play set using a picture schedule. Then the teacher could introduce new play sets with picture schedules, and little to no teaching would be required. Ideally the child could transfer the use of a picture schedule from one play set to the next.

To take it one step further, the use of picture schedules may also help kids with social difficulties learn how to play with other children. Children with ASD are often identifiable by their awkward social interactions. They typically misread social cues, have trouble initiating interactions and do not understand how to build relationships. If kids with ASD can learn how to play alongside other children, they may be able to increase their positive social interactions with peers. This in turn can help them to build relationships. The ultimate goal of education is to give people the tools they need to have the most fulfilling life possible, and teaching kids with ASD to play appropriately with their peers will help them to become more independent.

Method

Subject

"Joe" was three years old at the time of the study and attended the Early Childhood Developmental Delay classroom at Perry Child Development Center in Ypsilanti, Michigan. He started in this classroom in September 2009. Joe presented as a happy, curious boy with good retention skills. He enjoyed physical play and music movement activities. However, he rarely displayed social interaction with peers and played alone when he had the option. He commonly displayed self stimulation behaviors. To help with these behaviors, as well as other sensory issues, he received brushing and joint compressions at the beginning of the day, used according

to the Wilbarger Protocol for Brushing. In addition, he wore a weighted vest during work time to improve focus, rotating at twenty minutes intervals between wearing the vest and taking it off.

Previous to his placement in his current classroom, he was diagnosed by doctors at the University of Michigan. They reported that he had deficits in multiple areas, such as communication and social habits. He had a severe language delay, and displayed limited verbal interactions. In addition, he was not able to communicate through sign language or Picture Exchange Communication Systems (PECS). Besides his language difficulties, he also displayed features of Attention Deficit Hyperactivity Disorder (ADHD), such as a short attention span. Socially, he had poor eye contact and difficulty interacting in general.

Procedure

Once the child had been identified for the project, the first step was to test his picture object correspondence. In order for the visual supports intervention to be effective, the child had to be able to match pictures to the objects they were supposed to play with; in this case, the toys in the picnic play set. Once it was established that he could identify the objects, the next step was to take baseline data. To do this the student was given the picnic toy set and the picture prompts. The researcher observed and recorded the number of appropriate play actions exhibited. Then the researcher taught Joe how to play with the picnic set using the picture prompts and modeling (see appendix A). The child was shown how to move the arrow from one step to the next as each were completed. Data was taken on the type of prompt needed for the subject to complete each step over the period of ten sessions (see graph 1). The prompts recorded fell into one of four categories: physical, gestural, verbal and independent. There were ten steps in the picture script. The picnic task was considered mastered when the student completed eight out of ten steps independently three sessions in a row.

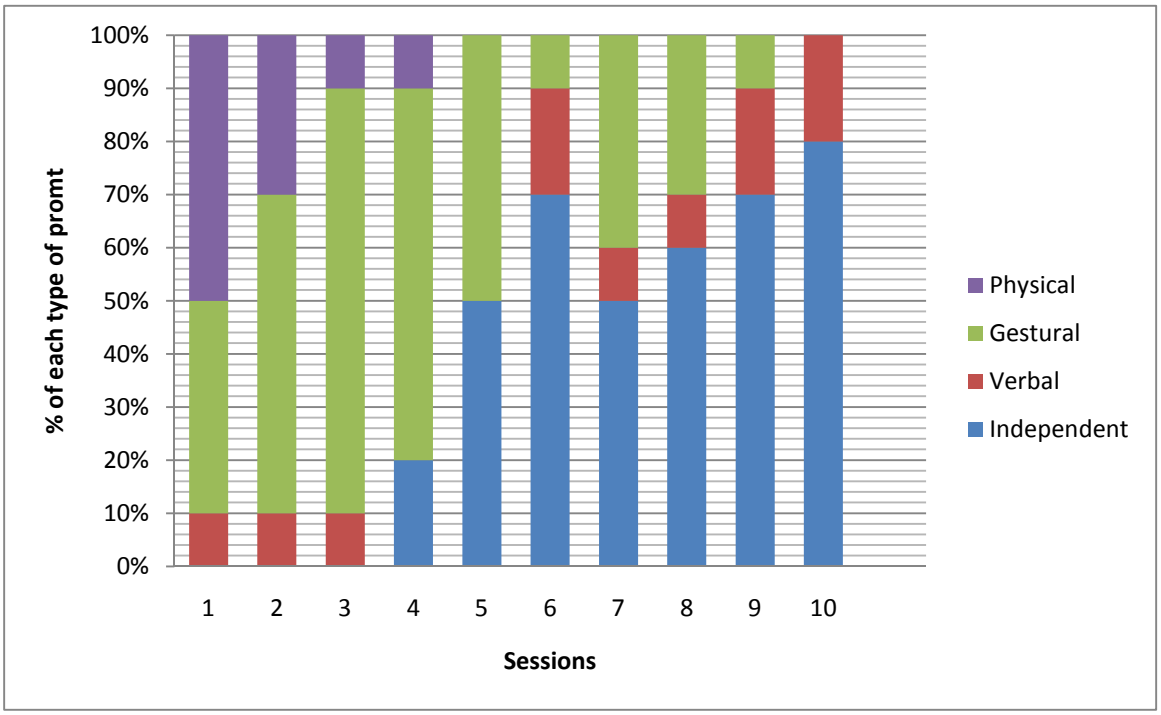
After that a new play set was given to the child. The goal was to see if the child could generalize the use of a picture script to a new set of toys. To gather baseline data, the subject was given the new play set, a fishing play set, and the picture prompts. The researcher observed and recorded the number of steps completed correctly previous to any teaching. After that the child was taught to use the picture prompts the same way as the previous play set, in order to determine if the child picked up the skill quicker based on the previous exposure to the picture prompts (see graph 3).

In addition to the two play sets, data was collected to see if the play skill generalized to a different environment. Four free-play probes were conducted throughout the study. In these probes the child was given the picnic play set and picture prompts in the classroom setting, and the researcher observed the number of steps they completed, the prompts required and the number of times the child had to be returned to the play area (see graph 2).

The final aspect of the study targeted the question: can picture prompts help a child learn how to play with another child? To test this, the subject and a typically developing peer were given the picnic play set and picture strip together. The researcher then observed them to see the number of steps each child completed, the number of appropriate initiations and the number of responses the subject exhibited towards their playmate (see table 1).

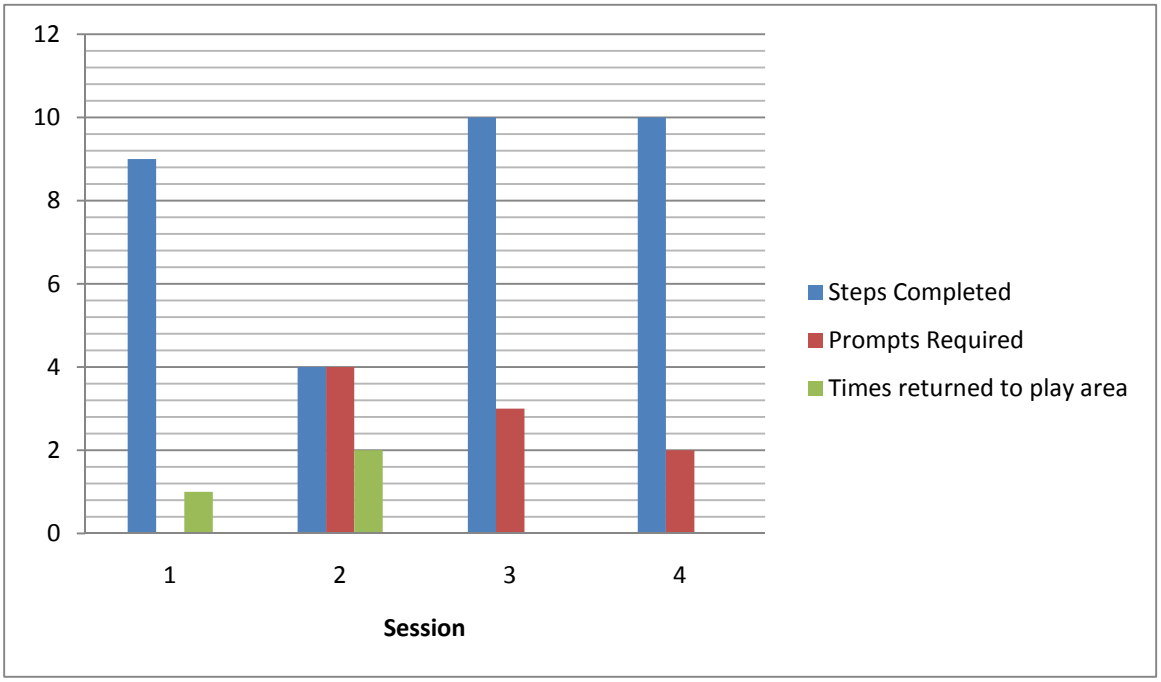
Results

Graph 1: Picnic Data- Prompts required



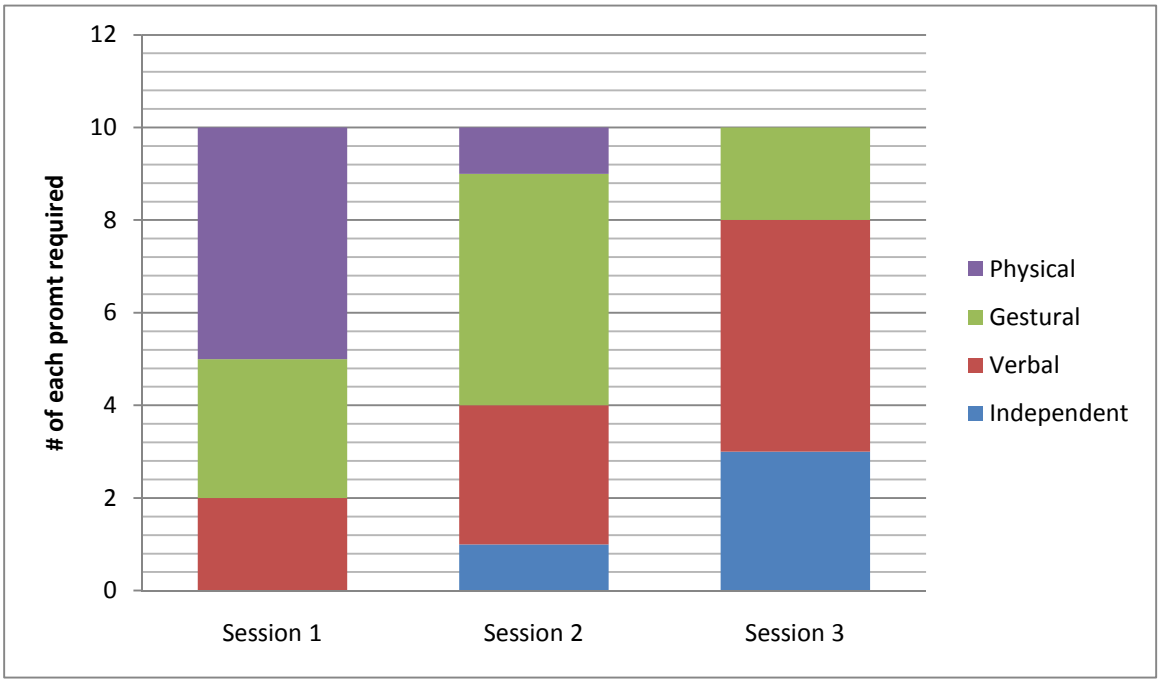
The number of physical prompts were faded out by the fifth session because they were no longer needed. The child began to complete steps independently in the fourth session, and increased over the sessions. There was a decrease in steps completed independently from the sixth to the seventh step, but it climbed back up and reached mastery level by the tenth session.

Graph 2: Free Play Probes-Steps Completed, Prompts Required and Times the Child Was Returned to the Play Area



The subject was given the picnic play set in the classroom environment, and the number of steps completed, the prompts required, and the times they needed to be returned to the play area. During three out of four of the play sessions the subject was able to complete at least nine of the steps in the classroom environment. He needed few prompts, four or less, to complete the task.

Graph 3: Generalization to Fishing Data- Prompts Required



The number of physical prompts the subject needed began at five and reduced to zero by the third and final session. The number of gestural prompts also fell to two by the final sessions, and was replaced by verbal and independent prompts. By the final session the number of steps completed independently rose to three. The trend exhibited in this graph suggests that the subject would likely have reached mastery of the fishing play set more quickly than the initial set, which indicates the picture strip skills likely generalized.

Table 1: Peer Play

Steps Completed	Initiations	Appropriate Responses
• Subject completed 5 of 10 steps. • Peer Completed 3 of 10 steps.	• Got out pitcher • 'ate' the food • Handed the peer the cup to take a drink	• Smiles and nods when peer pours juice • Sits appropriately for entirety of session • Does not grab objects from peer • Imitates drinking out of cup • Attempts to clean up toys when he thinks activity is done.

After the subject reached mastery level with the picnic play set, a typically developing peer was brought in. The peer was instructed to play with the toys and the subject as they would in a natural setting. During that time the peer completed three of the steps while the subject completed five. The subject initiated some interactions with the peer, such as getting out the pitcher, pretend eating the food, and handing a cup to the peer. In addition the subject exhibited several appropriate responses to the peer, such as smiling and nodding, sitting for the whole play time, keeping his hands to himself, imitating drinking out of the cup and helping to clean up.

Discussion

A picture schedule was a helpful tool to teach Joe how to play appropriately with a picnic play set. As the teaching sessions progressed he needed fewer physical prompts, and by the tenth session he reached mastery level. This means he could complete at least eight of the ten steps on his own utilizing the picture schedule. In addition, he was able to complete most of the steps in the play set in the classroom setting. During three out of four of the free play probes he completed at least nine out of ten steps. He was able to do this because he generalized the use of a picture schedule to the classroom setting. There are many benefits to Joe learning how to use a picture schedule to aid play skills, and then to his ability to generalize those play skills to the classroom setting. Some of the many positives of independent play are: more helpful and efficient learning opportunities as well as a greater amount of time spent in instruction (Dunlap, Dunlap, Keogel & Keogel, 1991). Independent play skills will be especially important when he transitions from Smith's classroom to a regular education preschool or kindergarten setting.

The picture schedule was an effective tool for Joe. He responded well to the visual aid and with some teaching was able to do what was pictured independently. At first he struggled to focus on the picnic play set, and would get up several times during the session to play with something else in the room or to leave the room entirely. Over time he stayed focused on the play set longer and was able to complete the steps without leaving the play area. While most steps he completed independently, he consistently struggled with opening the picnic blanket. It was large and tended to stick together, which made it difficult to manage. It is possible that he would have benefitted from a smaller blanket made of cloth rather than plastic.

The experimenter had to implement a change in the program during the procedure. Initially the picture schedule was designed to teach the subject how to make a play hamburger. However, when the subject was given the hamburger play set materials and probed, he was able to complete at least eight of the ten steps. Therefore, the program was re-evaluated and a more complex play activity was chosen: the picnic set. When the subject was probed for that, he only completed one of the steps, and his play was unorganized and nonfunctional. The new play set was a better fit for his abilities at the time of the study, and it was play appropriate. It also lent itself to parallel play with a peer.

After the subject reached mastery with the picnic play set, they were given the opportunity to play with the toys alongside a typically developing peer. The peer was informed that she would be given a picnic toy set and that Joe would be there to play with her. Then she was asked to play as she normally would with the toys and a friend. The results of this session were significant. Between Joe and the peer eight of the ten steps were completed, and Joe showed appropriate social behaviors throughout the session. He initiated activities, such as giving the peer a cup to drink from, and he responded appropriately to her initiations by doing

things like smiling and imitating her play behaviors. These results support the idea that a child with social difficulties can be taught how to play alongside a peer using a picture strip.

Another aspect of the study looked at the issue of generalization. The subject was given the play set and picture schedule in the classroom setting four different times after he reached mastery. He was able to complete at least nine steps the majority of the time, and needed few prompts to complete the steps or return to the play area. In addition, when the subject was given a new play set and picture strip it took less time for him to learn how to use it. It can be inferred that he began to generalize the use of a picture strip from one toy set to the next. Therefore, it is recommended that picture strips for other play sets in the classroom be made available during play times so Joe can play independently with those toys as well. On top of that, it should encourage parallel play, when a child is playing alongside others using the same materials but rarely interacting, and eventually cooperatively, with his peers.

The next step should be to deliberately teach Joe to play cooperatively with other kids. One method to do this would be another picture schedule that involves interacting with another child while playing with the toy set. Since Joe has begun to work on verbal skills, the script can involve basic appropriate phrases and responses to teach verbal interaction during play. Teaching cooperative play through scripted picture schedules has been proven to be an effective strategy by studies such as the one conducted by Gold (2004). In that study two children with autism were taught to play together using multiple scripts, and as a result the number of social initiations emitted by the children increased dramatically. The hope is that eventually Joe will be able to engage in suitable and spontaneous play with his peers in a regular education setting. The picture strip play intervention utilized here is one of the steps on the path to appropriate social interaction and development of rewarding peer relationships.

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