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The Use of One-Part Directives in Developing Play Skills in Children With Autism During Trial-Based Instructions

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Abstract: Play is one of the core deficits in autism. Children with autism have very different play behavior. The current study examines the of using a one-part directive during trial-based instructions on developing play skills in young children with autism. With the use of Single-subject research as an in-depth type of quantitative study of the response of an individual or a group of individuals to intervention. Participants were five children diagnosed with autism ages three to five years old. The task was introduced in a single case design across all sessions in both generalization settings. The participants seemed to have no apparent intervention effects, and one showed a decrease in play following the intervention. The possible reasons for the variability across participants and suggestions for improving methods in developing play skills are discussed. Acquisition and generalization of play skills may be affected not only by which play skills are taught but also by how play skills are taught. The careful selection of play activities may develop spontaneous play among children with autism and their peers.

Keywords: Autism, one-part directive, trial-based instruction, play.

Introduction:

According to Maria Montessori, play is the work of the child. Play is essential in a child's development as it allows a child to learn and practice new skills in a safe and secure environment. During play the child develops not only his motor skills but his cognitive and social skills. Play has developmental steps regarding cognitive development in a manner of manipulative, functional, symbolic or representational play.

Play is one of the core deficits in autism. Developing play for children with autism is essential. First, play behaviors are exploratory and functional, and developing exploratory and functional play in children with autism may facilitate their cognitive development. Another reason is that play is a precursor to language development. We all know that children with autism also show marked deficits in speech and language; developing play has been shown to facilitate language. The third reason is joint attention it is the ability to share focus on an object or area with another person. It is an essential social behavior, and another precursor to language has been taught through play. Research has shown that play deficit in children with autism's repertories could be associated with the diagnosis or prognosis in the intervention outcome.

Autism affects one out of 160 children worldwide (Vousden et al., 2019). Autism spectrum disorder manifests in the child's first three years of life and is marked by repetitive behaviors and social isolation (American Psychiatric Association, 2013). The social limitations are slow language development, difficulty conducting a conversation, repetitive or atypical language, and play unsuitable for the child's development (Ulke-Kurkcuoglua et al., 2015). Fixed desires, repeated and concrete behaviors, diminished symbolism quality, lack of variety, and impaired social skills are characteristics of a child with autism play styles (Kent et al., 2021). Turn-taking,

reorienting behaviors away from desirable aims, a decline in symbolic consistency, and losing control over favored play activities are all challenges with components of play for autistic children, according to MacDonald et al. (2009). Children with autism improve play skills, have more beneficial social encounters, and engage in less inappropriate activities (Jung & Sainato 2013). Given these potential challenges, providing children with autism in inclusive situations with the opportunity to interact with children who have well-developed play and social skills can be very useful (Hampshire & Hourcade, 2014). Other researchers have noted that children with autism tend to be more focused on objects than directing their attention to parents (Kasari et al., 2010) or peers (Kasari et al., 2011). Just as Kanner (1943) first observed, research has found that play in children with autism often tends to be repetitive (Atlas 1990; William, Reddy, & Costall 2001), includes an intense focus on detailed or sensory aspects of objects (Freeman et al. 1984), and often lacks both pretense and play partners (Kasari et al., 2010). These findings emphasize early intervention's importance in engaging children in higher quality and frequency play acts.

The study aims to examine the use of a one-part directive in developing play skills in children with autism during trial-based instructions. The participants were children ages 3 to 5 years old with a clinical diagnosis of autism attending a one-on-one session at St. Dymphna Sped Center and will be observed 3 days a week for a period of 6 weeks.

Method:

Single-subject research is an in-depth type of quantitative study of the response of an individual or a group of individuals to intervention to the withdrawal of that intervention (Szymanski, 1993). It involves studying in detail the behavior of each of a small number of participants.

The central features of single-subject research include collecting repeated measures of behavior through direct observation across several sessions, comparing rates or amount of behavior between baseline or typical conditions to an intervention condition, and repeating baseline and intervention phases to note a functional relationship between the introduction and withdrawal of the intervention or independent variable (IV) and the subject's behavior or dependent variable (DV). The baseline condition is during the free play observation where children will be observed in a pre-determined time of engagement with a particular toy or object in manipulative, functional, or symbolic play to the intervention condition which is the use of a play directive.

Procedure:

The researcher conducted free-play observations before and after the instruction. The duration of each observation was 30 minutes play session during which the child had free access to all toys in the play area. The researcher sat next to the child and responded to the child's requests but did not initiate any interactions or provide guidance to the child. A total of three or four target activities were presented in a random order in each instructional session. Each activity has been given a total of five times. Therefore, a session contained 15 to 20 instructional trials. One instructional session was conducted per day.

The researcher needed to stop or restrict the participant from any potential adverse, inappropriate, or aggressive behaviors manifested during the sessions. The researcher stopped the participant if they engaged in self-stimulatory behaviors like hand flapping, twirling, rocking back and forth, tiptoeing, and vocal stimming, mainly if the behavior didn't involve any purposeful use or interaction with the toys or objects presented. But if the participant/s engaged in self-stimulatory behavior like the banging of a spoon on the table, shaking a rattle or spinning the wheels of the toy cars repeatedly, or lining up blocks, these behaviors were not restricted but considered as part of the observation of how the participant engaged with the toys or objects during the free operant play sessions.

During these sessions, the researcher recorded the child's performance on each trial, showing the number of prompts required, the frequency and duration of time the participant engaged with the toy/object, and the accuracy of the child's response when given play directives. During trial-

based teaching sessions, the participants were taught to follow a series of one-part directives. These instructions required the subjects to engage in simple play responses. The instructions selected were associated with simple play activities that could be performed with standard toys presented during free play session time. For example, using one directive required the child to "roll the car." If the child did not respond to the verbal prompt, the researcher would show the correct response by modeling how to roll the car. If there is no appropriate response from the child, even if the action has been modeled, a physical prompt was used to guide the child to a proper answer. Inter-observer agreement was obtained for each target behavior for an average of twenty-six percent of sampled free-operant play sessions across scoring categories. The selection of sessions to be scored for the inter-observer agreement was random.

Results:

Each of the participants enrolled in the program met the criteria for participating in this study. Table 1 summarizes the one-part directives used to teach each participant, whether the skill is demonstrated or not for that one-part directive, and the number of teaching trials required to demonstrate the skill. Participants were able to demonstrate the skill between 0 and 4 directives. The number of trials that it took for the skill to be demonstrated in the one-part directive ranged from 15 to 50 teaching trials.

Child 1, 2, and 5 demonstrated at least one skill using a one-part directive during trial-based teaching sessions. Child 3 was not able to demonstrate the skills using the directive during the initial introduction of the one-part direction. He was then introduced to only one one-part directive during the intervention period. The directive was presented to him 98 times before he demonstrated the skills.

While child 4 demonstrated the skill of using a one-part directive during the intervention period (see Table 1). At the same time, he was presented with two other directives during the same teaching session from the beginning of the intervention. Throughout the intervention, he was given four different one-part directives. The protocol was changed because he had previously demonstrated improved performance on discrimination tasks when more than one instruction was taught within a session.

Table 1. ***Directive Used and Data Acquisition***

Participant	Directive Used	Does the child demonstrate the skill?	If yes, number of trials until the skills are demonstrated?
Child 1	push car	Yes	39
	blocks in the bucket	Yes	25
	push car	Yes	25
Child 2	feed dolly	Yes	50
	talk on the telephone	No	
Child 3	blocks in the bucket	No	
	hug dolly	No	
Child 4	push car	Yes	1
	feed dolly	No	
	talk on the telephone	Yes	1
	blocks in the bucket	Yes	10
Child 5	push car	Yes	15
	feed dolly	Yes	25
	hug dolly	Yes	20

Changes in Play Engagement Following the Intervention

The duration of play engagement is summarized in Table 2. This table shows each participant's manipulative, functional, and symbolic play engagement before and during the intervention.

Table 2. ***Average Engaged Time in Manipulative, Functional, and Symbolic Play Before and During the Intervention Each Participant***

Participant	Manipulative % Baseline Intervention 1-6 7-18		Functional % Baseline Intervention 1-6 7-18		Symbolic % Baseline Intervention 1-6 7-18	
Child 1	85	92	0	0	0	0
Child 2	72	52	6	2	0	0
Child 3	68	89	0	0	0	0
Child 4	41	30	35	30	2	0
Child 5	21	54	1	5	5	14

During the free play session, Child 1 spent most of his time engaged in manipulative play, with an average of 92% of the observed time in all sessions (See Table 2). His functional play was significantly low, and he did not engage in symbolic play during any of the sessions. No significant changes were observed in terms of toy use following the intervention. Child 2 engaged very low during free play. He engaged very low in functional and symbolic play. His engagement with the manipulative play was observed at an average of 72% and followed by decreasing of 42% during the intervention. The decrease was observed after three play sessions during the introduction of the intervention. His manipulative play was not replaced with any other play category. It was not observed if there was a change in toy use related to the intervention. Child 3 spent much of his time during the sessions playing with the toys. His toy use involved manipulative play use only. No functional or symbolic play was observed during any of the sessions. It was observed that the engaged time he spent in manipulative play increased from 68% before the intervention to 89% during the intervention There were no significant changes in toy use noted. Child 4 spends most of the session playing with toys across all free play sessions. Manipulative and functional play were predominated. And his play engagement varied inversely. When he engaged longer with functional play, he was observed that he engages less with manipulative play and vice versa. His engagement with the symbolic play was very short during any of the sessions. The overall duration of his engagement time with toys was relatively stable, especially during the first ten sessions. During the intervention, a low decrease in play engagement was observed with his engagement with manipulative play from 41% to 30% and from 35% to 30% in functional play. The use of specific toys did not change due to the intervention. The manipulative, functional, and symbolic play of Child 5 increased immediately following the intervention. Her manipulative play increased the most from 21% before the intervention to 54% during the intervention. A slight improvement occurred in functional and symbolic play (1% to 5%, and 5% to 14%, respectively).

Conclusion

The results do not lead to strong support for this intervention to develop play skills in children with autism. Despite the lack of apparent intervention effects, these results could have implications for future research.

This intervention may be helpful to introduce appropriate play activities during teaching sessions. The directions used during the teaching trials have little effect on functional or adaptive responses.

The one-part directives introduced during the intervention were easily incorporated into the teaching trials and prompted behaviors that had potentially become functional responses to play

materials.

During this study, the particular one-part directions used were not developmentally appropriate for the individual child. It is consistent with the behavioral literature, which shows that it is often possible to teach particular target skills using behavioral techniques without considering developmental level. Recent research, however, reported that children with autism might learn play activities that are matched with their developmental age more readily than those compared to chronological age (Frey & Kaizer, 2011; Kasari, 2002). Developmental readiness is an essential consideration for identifying target play skills to help children with autism learn the skills more quickly, engage more spontaneously and generalize these skills to new materials or objects (Lifter et al., 2005). Therefore, play activities need to be chosen that focus on the strengths of children with autism, incorporating their interests and providing opportunities for experiencing play as their typically developing peers in a natural setting.

For children who engage more in stereotyped play, it is necessary to interrupt stereotyped play during play sessions to observe increased engagement in play. Supporting stereotyped play may have yielded more appropriate play activities. Research on the effects of response competition during free play upon the development of play is needed. Other researchers found that appropriate play behavior increased when intervention decreased self-stimulatory behavior.

Acquisition and generalization of play skills may be affected not only by which play skills are taught but also by how play skills are taught. The careful selection of play activities may develop spontaneous play among children with autism and their peers (Stasky & Konstantareal, 2007).

There is no consensus regarding an underlying theory that may account for play differences observed in children with Autism (Jarrold, 2003; Rutherford, Young, Hepburn, & Rogers, 2007; Williams, Reddy, & Costall, 2001). Results of research into the early development of play in children with Autism show differences in exploratory behaviors, especially in unusual visual inspection of objects. In addition, there is evidence of significant differences in several types of functional and symbolic actions directed toward others and age-appropriate play with objects in children with autism. Despite this promising emerging work examining play in young children with Autism, research in this area remains limited. These findings need to be replicated and expanded to larger groups of participants. There is, therefore, a clear need for more information related to the early development of play skills in children with Autism, especially with infants and toddlers under the age of two years. A better understanding of the early developmental skills of play behavior in Autism based upon a detailed examination of these behaviors in a large group of children may help inform our understanding of the disorder's progression and may have important implications for earlier diagnosis and early diagnosis treatment of children with autism.

Research demonstrates that improvements in play can facilitate social interaction and language skills and decrease the self-stimulatory behavior of children with autism (Baker, 2000; Stahmer, 1995; Throp et al., 1995). Although it is suggested that play is critical for a child’s development, there are few studies on the long-term effects of play on children with autism. Further studies are needed to examine the long-term impact of developmentally appropriate play skills on the development of academics, social communication, or functional skills in children with autism.

Recommendation:

Practitioners should consider play as a critical development skill area rather than view play as merely a context to teach other skills. Intervention should incorporate play skills instructions into classroom activities and individual education play (IEP).

It is recommended that when developing a play intervention, practitioners should strongly consider including the common standard components of play intervention.

Future researchers should examine the differential effects of play skills instructions by focusing

on specific skills and outcomes for individual children to enhance the effectiveness and efficacy of interventions. Researchers should also examine what play skills could be effective and efficient when targeting instructional strategies. In addition, identify what prerequisite skills are required to teach certain play skills and implement specific instructional strategies. Furthermore, how the intensity of the play skills instructions can affect the pace of acquisition and maintenance and generalization should be examined.

Lastly, although it is suggested that play is critical for a child's development, there are few studies on the long-term effects of play on children with autism. Further studies are needed to examine the long-term impact of developmentally appropriate play skills on the development of academics, social communication, or functional skills in children with autism.

Children with autism, like any other child, learn through their play experiences. However, these play experiences may appear more rote or repetitive. Our duty as educators and parents is to encourage and enable children with autism to continue developing new play skills and enhance learning across all developmental domains. In this way, play is an enjoyable experience in which young children with autism can engage and a meaningful and valuable learning opportunity.

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