



JOURNAL OF STUDENT AND EDUCATION (JSE)

VOLUME 1 ISSUE 1 (2023)



PUBLISHED BY
E-PALLI PUBLISHERS, DELAWARE, USA

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

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Article Information

Received: March 20, 2023

Accepted: April 08, 2023

Published: April 12, 2023

Keywords

Autism, One-Part Directive, Trial-Based Instruction, Play

ABSTRACT

Play is one of the core deficits in autism. Children with autism have very different play behavior. The current study examines the use of a one-part directive during trial-based instructions on developing play skills in young children with autism. Single-subject research is an in-depth 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 by which play skills are taught and how plays skills are taught. Carefully selecting play activities may develop spontaneous play among children with autism and their peers.

INTRODUCTION

According to Maria Montessori, play is the work of the child. Play is essential in the child's development as the allows them to practice new skills in a safe and secure environment. During play the child develops his motor and cognitive and social skills. Play has developmental steps regarding cognitive development in the manner of manipulative, functional, and 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 which is the ability to share a 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 repertoires could be associated with the diagnosis or prognosis in the intervention outcome.

Autism is described as a group of neurodevelopmental conditions in which the individuals face challenges with social engagement and age-appropriate play and fail to develop appropriate peer relationships according to their developmental level, (Diagnostic and Statistical Manual of Mental Disorders-TR, 2000).

This estimate represents an average figure and reported prevalence varies substantially across studies. Children with autism often struggle to acquire appropriate play behaviors, which may hinder their integration within natural settings. Children with autism require more

systematic instruction and support to develop play skills. Among interventions that teach play skills to children with autism, involved typically developing peers as interventionists or play partners, which promotes the generalization of play behaviors in natural environments (Lory, RRispoli,& Gregori, 2018). Children with autism often struggle to acquire appropriate play behaviors, hindering their integration within natural settings. Children with autism have difficulties with appropriate play skills, such as turn-taking skills, conventionally using toys, and engaging in symbolic play (Barry et al., 2003; Ganz & Flores, 2008; Goldstein & Cisar, 1992; Jahr et al., 2000; Jung & Saito, 2013; Lang et al., 2009; Stahmer, 1995). Developing play skills is commonly taught to and practiced with adults in a controlled setting (Jung & Saito, 2013). Even though children with autism learn to develop play skills in a structured setting, these behaviors seldom generalize to the natural environment (Jarrod, 2003).

Typically developing children are trained to use the prompt and/or reinforce approach to elicit the child with autism's target play behavior through prompting (e.g., "watch me", "come play", or both) or through the use of reinforcement to maintain the target behavior or both could be used (Odom & Strain, 1984).

One example cited by Ganz and Flores (2008) is the use of prompt/reinforcement intervention, in which typically developing children were instructed to increase play dialogue with three preschool children with autism using visual prompts (e.g., cue cards or picture cards). The typically developing children were not responsible for delivering the visual prompts. However, they were trained through direct instructions and role-playing to encourage interaction with the participants (e.g., give the participant a toy or play with the toy the participant is playing with) during each intervention session. Following

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the intervention, all participants showed an increase in the percentage of intervals in which play dialogues were observed. They were also able to generalize the acquired skills across different play themes. 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 with a clinical diagnosis of autism attending a one-on-one session at St. Dymphna Sped Center and will be observed three days a week for a period of six weeks.

METHODOLOGY

Single-subject research is an in-depth type of quantitative study of the response of an individual or a group of individuals to intervention and 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 amounts of behavior between baseline or typical conditions and 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 free play observation, where children will be observed during a pre-determined time of engagement with a particular toy or object in manipulative, functional, or symbolic play, compared to the intervention condition, which is using play directives.

Procedure

The researcher conducted free-play observations before and after the instruction. The duration of each observation was a 30-minute 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 is 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.

RESULT AND DISCUSSION

Each participant 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 skills. 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, Child 2, and Child 5 demonstrated at least one skill using a one-part directive during trial-based teaching sessions, Child 3 could not demonstrate the skills using the directive during the baseline phase of the one-part direction. He was then introduced to only a one-part directive during the intervention period. The directive was presented to him 98 times before he demonstrated the skill. While child 4 demonstrated the skill of using a one-part directive during the intervention period (described in 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
Child 2	push car	Yes	25
	feed dolly	Yes	50
Child 3	talk on the telephone	No	
	blocks in the bucket	No	
Child 4	hug dolly	No	
	push car	Yes	1
Child 5	feed dolly	No	
	talk on the telephone	Yes	1
	blocks in the bucket	Yes	
	push car	Yes	10
Child 5	feed dolly	Yes	15
	hug 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 %		Functional %		Symbolic%	
	Baseline 1-6	Intervention 7-18	Baseline 1-6	Intervention 7-18	Baseline 1-6	Intervention 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 (described in 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 averaged 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 playing with toys during the sessions. 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 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 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

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 (Kasari, 2002). Developmental readiness is essential 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. The results of the study do not support 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.

RECOMMENDATIONS

This research needs to be replicated in a larger group of children with autism and other developmental disabilities to examine the long-term effects of play on children in using developmentally appropriate play skills on the development of academics, social communication, or functional skills in children with autism and other developmental disabilities. Future researchers should examine the differential effects of play skills instructions by focusing on specific skills and outcomes for an individual child 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 of play skills should be examined.

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