

**THE EFFECTS OF USING FUNCTIONAL COMMUNICATION TRAINING AND VERBAL  
IMITATION TO TEACH TWO PRESCHOOL STUDENTS WITH DEVELOPMENTAL DELAYS  
THE WORD “HELP”**

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**Abstract:** *The purpose of this study was to examine the effects of Functional Communication Training (FCT) and verbal imitation with two preschool students who have been diagnosed with autism or characteristics of autism. The word “help” was the focus for this study. The two different interventions were chosen based on the participants’ current levels of communication skills. An ABC single case design was employed to evaluate each intervention. The results of this study revealed very different results for our two participants. The outcomes suggest the need for further research on communication training for preschool students with autism.*

**Keywords:** *FCT, verbal imitation, communication skills, ABC single case design*

### **Introduction**

Children with autism have very restricted means by which to indicate their needs and desires to others; this is likely to dramatically reduce their effectiveness as communicators when compared to their age peers (Heward, 2012; Landa, 2007). Without the ability to communicate, it can be difficult for individuals to get their desires, wants and needs met on a daily basis. Communication is also essential for success in school and later in life. The course of language and communication development in individuals with autism varies greatly. The results of early studies suggest that up to 50% of individuals with autism fail to develop functional language (Lovaas, 1987; Smith, Mirenda, & Zaidman-Zait, 2007).

One of the primary diagnostic criteria for the diagnosis of autism spectrum disorders (ASD) is the presence of a language delay or impairment (Luyster, Kadlec, Carter, & Tager-Flusberg, 2008). Children with delayed onset of expressive language have more frequent academic problems, more behavioral and psychiatric problems, and an increased frequency of later problems in speech and language (Fischel, Whitehurst, Caulfield, & DeBaryshe, 1989). For the children with delayed onset of expressive language, it is necessary to teach and present an alternate way of communicating those wants, needs, and desires.

## Review of Literature

Many methods of instruction are available in order to increase expressive language and communication. Learning does not happen in the same manner for all students; it can be through visual, physical, and/or auditory means (Heward, 2012; Park, Weber, & McLaughlin, 2007). One effective method of increasing behaviors is through observational learning and then imitation. People can learn many behaviors, thought patterns, and skills vicariously through observing other people (Horner, 2004). Imitation is intimately related to communication learning (Landa, 2007). In addition, it provides a vehicle for communicative reciprocity. For example, an imitation of another's behavior serves to acknowledge their act, confirming attention and responsivity in a reciprocal, meaningfully contingent way (Landa, 2009; B. Williams & R. Williams, 2011).

Another alternative way to communicate is through the use of functional communication training, or FCT. Several studies have demonstrated that functional communication training (FCT) is an effective treatment in reducing severe behaviors while simultaneously shaping an alternative communication response (Armstrong, McLaughlin, Clark, & Neyman, in press; Talkington, McLaughlin, Derby, & Clark, 2012; Mann & Mueller, 2009).

The first purpose of this study was to evaluate the effects of using functional communication training on a preschool student with developmental delays and characteristics of autism. This participant had such limited communication skills and that this form of training was chosen in order to increase her ability to communicate when she needed help instead of pulling adults around or screaming when frustrated. The second purpose of this study was to evaluate the effects of verbal imitation on a preschool student with developmental delays and characteristics of autism. Both participants were being taught the word "help." The interventions, for each participant, were chosen based on the participants' strengths prior to the study, as identified by the classroom teacher.

## Methodology

### Participants and Setting

The participants in the study were two preschool students who were attending a preschool for children diagnosed with autism or characteristics of autism. Participant 1 was a two-year-old male that had some but very limited verbal skills and also received special services in the areas of speech, motor skills, feeding, cognitive, social/emotional/adaptive skills along with one-on-one intensive therapy. He attended class two times a week and received an additional two home visits a week. Participant 2 was a four-year-old female that had limited overall communication

skills and received special services in the areas of speech, social/emotional/adaptive, cognitive, and motor skills. She received one-on-one intensive therapy five times a week.

The intervention took place in a preschool classroom at both students' work station. This was in the corner of the room and included a table and rifton chair along with the materials used during their work times. The students faced the researcher, with their backs toward the other children in the classroom to minimize distractions and maintain their attention on the instruction provided. There were between two and four other students in the classroom during each session. The adults in the classroom included the classroom teacher and two educational aides as well as the first author. This classroom has been the setting for several research projects (Armstrong et al., in press; Talkington et al., 2012) to document the ability of teacher education candidates in special education to successfully teach students with disabilities social important behaviors (McLaughlin, B. Williams, R. Williams, Peck, Derby, Bjordahl, & Weber, 1999).

### **Materials**

A variety of materials were used for this study. A clear jar with a lid, preferred toys, a single switch device, picture icon for "help", data collection sheets, pencils, and educational aides to prompt the children were used as part of this study. The preferred toys were already known prior to the study by the lead teacher in the classroom. Both students preferred toys that made noises and flashed lights.

### **Dependent Variables and Measurement Procedures**

The dependent variables for this study were the total number of verbal responses given and the use of the single switch device to communicate the word "help". For Participant 1, the focus was on the verbal imitation of the word "help." A correct response was counted for the complete or partial imitation of the word "help." Then a second intervention was presented, which paired the sign for help with the verbal response. A correct response was counted for the complete or partial physical motion of the sign for "help" as well as the complete or partial verbal imitation of the word "help."

For Participant 2, the sign for help was first presented and then the use of a single switch device was used as a second intervention. A correct response was counted for the complete or partial physical motion of the sign for help. A correct response was counted for the device if the participant physical touched the device independently. Physical prompts by the educational assistants and the classroom teacher were scored as well. Once the participant had mastered the use of the single switch device, then the researcher had the participant hand over the jar after pushing the device. A correct response was marked for this task when the participant lifted the jar off the table and pushed it toward the researcher.

## **Experimental Design and Conditions**

An ABC single case design across participants (Kazdin, 2011) was employed. For Participant 1, the intervention was to increase verbal imitation through physical prompting and verbally expressing the word “help” as the participant made eye contact. The second intervention for this participant involved physically prompting the sign for “help” while verbally expressing the word “help.” The researcher also included a model of the sign for “help” while pairing it with a verbal response. For Participant 2, the initial intervention was the sign for “help” but was then changed to FCT with the use of a single switch device for “help”. Once the participant mastered the use of the switch, then the researcher paired that task with handing the jar to the researcher.

### **Baseline.**

Both participants were presented with a variety of preferred toys which were put into a clear jar and closed with a lid. This clear jar was placed in front of the participants with no verbal or physical prompt. Their responses were recorded on the data sheets. Each participant’s baseline data were taken over 10 trials.

### **Verbal imitation.**

For Participant 1, verbal imitation was chosen for the intervention. His imitation skills were emerging strong prior to the study. Verbal imitation was then paired with the sign for “help” as the second intervention.

### **Functional Communication Training**

The sign for “help” was introduced as intervention for Participant 2 prior to the device but the participant did not attempt to use the sign during those sessions. For Participant 1, the single switch device paired with the visual icon for “help” were used because the participant had prior experience with communication devices and limited verbal imitation skills.

### **Reliability of Measurement for the Dependent and Independent Variables**

These data were collected based on observations during each session. Reliability was collected by the lead teacher in the classroom or the educational aide. Physical prompts were also marked on the data collection sheet for Participant 1 as “+” and any verbal imitations were marked as “V.” Physical prompts were marked on the data collection sheet as a “+” and any independent responses by Participant 2 were marked as “I”. Independent responses were recorded when Participant 2 touched the switch and/or handed the jar to the researcher without any prompting. The number of agreements was divided by the number of agreements and disagreements and

multiplied by 100. The reliability for interobserver agreement in baseline for Participant 1 was 80%. During intervention, interobserver agreement was collected on five out of 12 sessions, 42%. The mean interobserver agreement during intervention was 82% (range: 60% -100%). The reliability for interobserver agreement for Participant 2 during baseline was 60%. During intervention, interobserver agreement was collected 100% of the sessions. The mean interobserver agreement during intervention was 77% (range: 0% - 100%).

## Findings

### Baseline

For baseline, both participants had 0% for the word or sign for “help”. Participant 1 did use the sign for “more” instead of “help” during baseline. This sign was mastered prior to the start of this study. Both participants showed no sign of clearly communicating that they needed help opening the jar in order to get the toy that was inside during baseline.

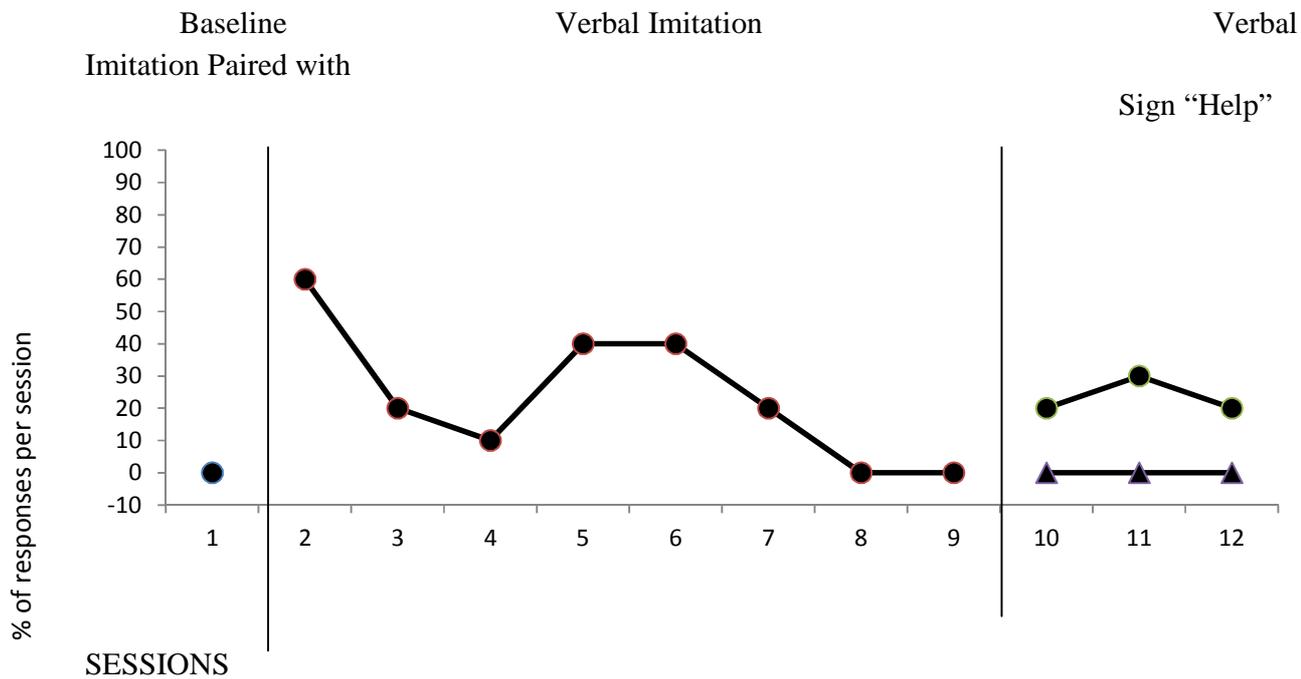
### Verbal Imitation

The results for Participant 1 indicated that he started to imitate after the third session, however, it started to decrease after that session and was not consistent throughout the rest of the study. According to the results, the mean percent of attempts to imitate was 24% per session (range: 0% - 60%). The second intervention which paired the verbal imitation with the sign showed no significant changes in the participant’s response. The mean for the attempts to imitate the sign for help was 0% per session.

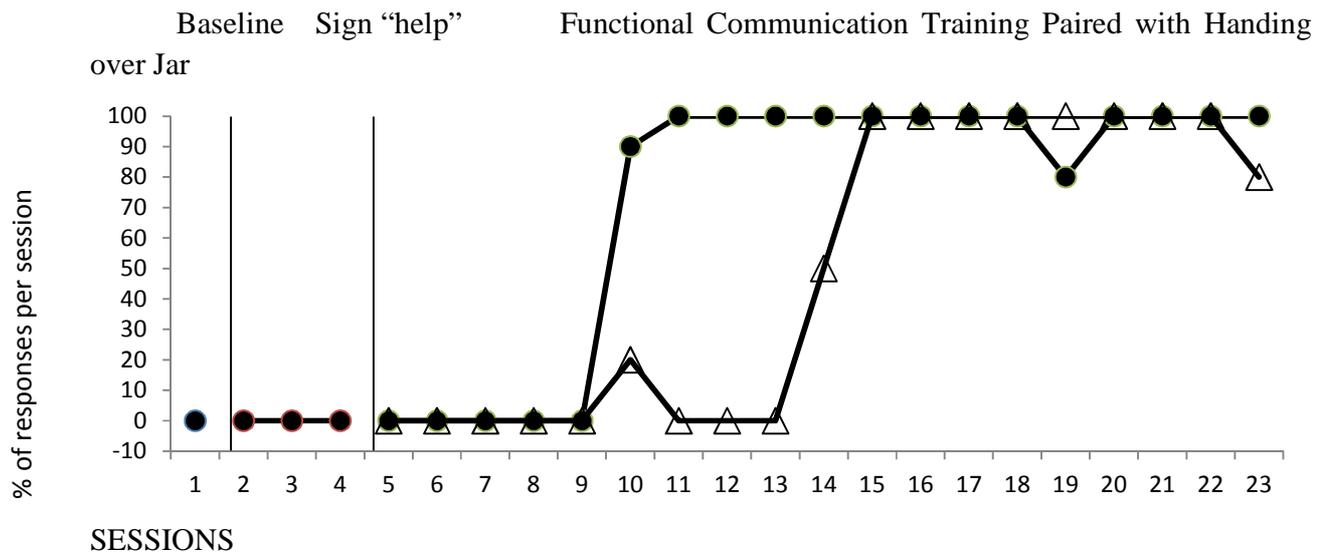
### Functional Communication Training

The results for Participant 2 with the first intervention (sign for help) showed no results, 0% of attempts for all three sessions. There was a steady increasing trend for the second intervention after it was implemented. The mean percent of independent uses of the switch was 77% per session (range: 0% - 100%). The mean percent of attempts at handing over the jar after using the switch was 55% (range: 0% - 100%).

**Figure 1.** The percent correct for Participant 1 during baseline, verbal imitation, and verbal imitation with a “help” sign. The dots on the graph represent the verbal imitation and the triangles represent the attempts to imitate the “sign for help”.



**Figure 2.** The percent correct for Participant 2 during baseline, verbal imitation, and verbal imitation with a “help” sign. The dots on the graph represent the responses with the sign for help and then the use of Functional Communication Training. The triangles represent the number of times the jar was handed over by the participant after a single switch device was pushed.



## Conclusions

The purpose of this study was to increase the use of the word “help” through imitation and Functional Communication Training. One of the goals of many interventions for children with developmental disabilities is to enhance communication (Meadan, Halle, Ostrosky, & DeStefano, 2008). Many children with developmental disabilities rely on prelinguistic gestures and vocalizations as their primary means of communication well into the toddler and preschool years (Brady, Steeples, & Fleming, 2005). For example, they may request help opening an object by giving it to an adult, they may reject an object by pushing it away when it is offered, and they often point to objects that are of interest to them (Brady et. al., 2005). For Participant 2, the physical action of handing over the jar after pushing the single switch device was taught together in order to help connect the word with the action. The purpose was to provide a functional use of the word after it was heard. The Participant immediately received the toy after the jar was handed to the researcher. After the study, it was suggested to the classroom staff and therapists to continue using the single switch devices in as many situations as possible.

For Participant 1, the intervention did not seem as effective as it did for Participant 2. The imitation skills were strong prior to the study but it was hard to determine if it was the word or the way the need for help was presented that affected the outcome of the results. Despite the results from this study, it was suggested to continue working with the verbal imitation along with the sign for help for Participant 1.

Participant 2 had more sessions because the first author was able to work with her more than Participant 1. Participant 2 attended the preschool everyday whereas Participant 1 was there only two times a week. The researcher was able to have a session or two outside of his normal schedule, but it was very limited. With more opportunities to practice, the results might have been different with Participant 1.

There were some other challenges. The reliability for this study appeared to be quite low. The reason for that after comparing the data sheets was just how the data was collected. The “+” to the researcher was counted as a trial or time that the researcher presented the jar within the session which did not indicate what the participants did in each session. There were two people for reliability throughout the study, which may have been a factor.

## Suggestions and Recommendations

Despite the challenges in the study, it provides a strong case for the effectiveness of Functional Communication Training. Participant 2 was able to independently use the switch and then independently hand over the jar by the end of the study. The results were not as strong for verbal

imitation and the sign for Participant 1; however, it does not rule out that it could be an effective intervention with more practice.

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