

# **Teaching Manding Through Signing to Developmentally Delayed Individuals**

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We examined the process of teaching manding through sign language to developmentally delayed individuals. Participants in this study had not had success using other communication methods and in most cases were non-verbal. We examined acquisition of sign language as a communication method and rate at which signs were learned and retention. We will also examine how well the learned signs generalized to environments outside of the 1-1 sessions they were taught in.

## **Method**

### **Participants and Setting**

There were four participants in this study. Their ages ranged from 12 years 2 months to 18 years 4 months old. There were two females and two males. All four participants were non-verbal and are diagnosed with autism. All four participants attended school at the Judge Rotenberg Center and lived in one of JRC's group homes. Two of the four participants were chosen due to not having any other success with communication, but were able to identify through facial expressions and gestures. The other two participants have acquired some signs but over years of service.

Participants worked on manding in a quiet, one to one room with a staff that was specifically trained to deliver one to one instruction in manding.

### **Measures and Instruction**

The participants were chosen, and then observed to determine a list of 3-5 reinforcers that appealed to them.

#### **Participant 1**

1. Nail Polish
2. Banana
3. Apple
4. Magazine
5. Brush

#### Participant 2

1. Candy
2. Token
3. Juice
4. Cookie

#### Participant 3

1. Teething Ring
2. Cracker
3. Drink
4. Chip
5. Cereal

#### Participant 4

1. Tortilla Chip
2. Candy
3. Cracker
4. Lotion
5. Drink

Participants learned manding skills through sessions that took place multiple times throughout the day. The sessions occurred three times a ranging from four to fifteen minutes in a quiet one to one setting with their trained staff.

The participants had two or more reinforcers in front of them during the sessions. They were asked, “what would you like”, and through gestures, pointing, or facial reactions the participants would identify which preferred item they would like and then they would have to perform the sign to ask for the item. Prompting was given using the least to most method. If the participant did not perform the sign when they saw the item, the staff would say the name of the item. If they did not perform the sign, the staff would demonstrate the sign. If they did not perform the sign, a light or partial physical prompt was given. If they still did not perform the sign, a full physical or hand over hand prompt was given. They would immediately be given the item they signed for (or approximated). No matter what type of prompt was used, the participant would be given the item after they manded for the item. Depending on what the item was, if they manded with less than previously required prompting, they might receive more of the item.

Data was collected using Dr. Patrick McGreevy’s ABA- Verbal Behavior- Probe Data Sheet (Exhibit 1) that collected various types of data which included using the commonly recognized sign approximation to the original sign, full prompting, partial prompting etc. Also if the participant could mand independently, with the object in front of them, with gestural or a demonstrational prompt, or with partial of full physical prompting. Each mand has its own set of data to show progress.

# ABA-Verbal Behavior -- Probe Data Sheet \_\_: Sign Mands

Patrick McGreevy, Ph.D., P.A. and Associates – www.behaviorchange.com

Learner: \_\_\_\_\_ Program(s): \_\_\_\_\_

Objective: \_\_\_\_\_

Sign(s)	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Maintenance					
	I O/A G(D) P M	S SA   	I O/A G(D) P M	S SA   	I O/A G(D) P M	S SA   	I O/A G(D) P M	S SA   					
	I O/A G(D) P M	S SA   	I O/A G(D) P M	S SA   	I O/A G(D) P M	S SA   	I O/A G(D) P M	S SA   					
	I O/A G(D) P M	S SA   	I O/A G(D) P M	S SA   	I O/A G(D) P M	S SA   	I O/A G(D) P M	S SA   					
	I O/A G(D) P M	S SA   	I O/A G(D) P M	S SA   	I O/A G(D) P M	S SA   	I O/A G(D) P M	S SA   					
	I O/A G(D) P M	S SA   	I O/A G(D) P M	S SA   	I O/A G(D) P M	S SA   	I O/A G(D) P M	S SA   					
	I O/A G(D) P M	S SA   	I O/A G(D) P M	S SA   	I O/A G(D) P M	S SA   	I O/A G(D) P M	S SA   					

S: learner exhibits a correct sign mand...

SA: learner exhibits a sign mand approximation...

I: ...without a prompt

O/A: ...with an object or activity prompt

G(D): ...with a gestural or demonstration prompt

P: ...with a partial-physical prompt

M: ...with a full physical prompt

Exhibit 1

Data was also recorded if the participant used their mands outside of the sessions and randomly request their preferred item.

## **Results**

Participant 1 had a total of 3 modified signs prior to beginning the Manding Program. These signs were adequate in the sense that she was able mand for items she wanted but during the Manding Program at JRC we were able to shape those signs to the correct form, through a mean (average) of 60 sessions, which were 10 minutes long. During those sessions she also learned 2 additional signs, giving her a total of 5. Previous reports indicate that it took her over 2 years to develop the 3 modified signs had in her repertoire. Reports from her teacher indicated that these signs have generalized and she is signing banana, apple, hair brush, magazine and nail polish independently outside of her one to one sessions.

Participant 2 did not have any signs prior to the beginning of the Manding Program. This participant participated in a mean (average) of 60 sessions lasting 4 minutes each. He was able with physical prompting to sign for the reinforcing item (token) through the use of a sign approximation as well as the reinforcing item being placed in front of him. Reports from his teacher indicate that he is not yet using the sign outside of his one to one sessions.

Participant 3 did not have any signs prior to the beginning of the Manding Program. He participated in a mean (average) of 60 sessions lasting 10 minutes each. During these sessions he was able to acquire 3 sign approximations for teething ring, cereal and drink using them independently. In addition he was able with partial prompting and the object in front of him to sign for 2 additional items; chip and cracker by using sign approximations. Participant 3 learned a total of 5 signs, 3 independently and 2 with some partial prompts. Teacher reports indicate that 3 signs have generalized and that he is independently signing teething ring, cereal and drink outside of his one to one sessions.

Participant 4 had one sign (bathroom) prior to beginning the Manding Program. This participant participated in a mean (average) of 60 sessions lasting 15 minutes each. During these sessions she was able to acquire 5 signs using them independently and either in the presence or absence of the reinforcer. Reports from her teacher indicate that these signs have generalized and she is independently signing; chip, candy, cracker, lotion and drink outside of the one to one sessions.

## **Discussion**

The Manding Program has shown that it is an effective approach to help increase communication skills in nonverbal students. Three out of the four students were

able to develop some type of sign or approximation in order to mand for items that they wanted.

In six hours (across sessions), Participant 1 was able to acquire three new signs and shape the other two signs approximations she previously learned into the correct form, compared to the two years that it took to acquire the two approximations. In addition these signs were generalized across environments. Previous reports indicated she had a Picture Exchange Communication System (PECS) book prior to admittance to JRC, but had limited success with increasing her communication skills as she did not like to use her PECS book. She would often point to or take staff to what she wanted.

In four hours (across sessions), Participant 2 was able to decrease the amount of physical prompting needed in order to sign for the item he wanted. He was less resistant to the prompting than he was initially and we were able to continue to fade the hand over hand prompting of staff and use a partial prompt with the item present. With more trials we feel he will be able to mand independently. Prior to the start of the Manding Program he had a Picture Exchange Communication System (PECS) book and a 2 picture communication device. He did not respond well to the training for both communication approaches and did not show any signs of progress with using the PECS book or communication device.

In six hours (across sessions), Participant 3 was able to acquire three new sign approximations that he can use independently and two sign approximations that require partial prompting and the item to be present. Prior to the start of the Manding Program he had a Picture Exchange Communication System (PECS) book, but had minimal success with this communication system.

In 13 hours and 20 minutes (across sessions), Participant 4 was able to acquire five signs using them all independently across all environments. Prior to the start of the Manding Program she initially responded well to the Picture Exchange Communication System (PECS) book that she had, however, as more pages were added the more difficult it became for her and the less effective it was. In addition she would forget to bring it with her and would often lose this book making it difficult for her to communicate with others.

Participant 1 and 4 had a combined total of four signs, three of which were approximations prior to the start of the manding program. At the conclusion of the sessions, 3 out of the 4 participants had learned a total of 11 signs that were either true signs or approximations and could be used independently across all environments. (Exhibit 2) Two participants were in the process of acquiring 3 additional signs using only partial prompting and one student was able to shape 2 previously learned signs approximations into the correct form. Overall each participant enhanced their manding skills, but further practice and data collection is needed to ensure that the participants are retaining what they learned, generalizing the signs and acquiring new signs.

	<b>Number of Signs Known Before Participating in Manding Program</b>	<b>Time Worked on Communication Before Participating in Manding Program</b>	<b>Number of Signs Acquired While Participating in Manding Program</b>	<b>Time Worked on Signs in Manding Program</b>
<b>Participant One</b>	<b>3</b>	<b>2 years</b>	<b>2</b>	<b>600 minutes</b>
<b>Participant Two</b>	<b>0</b>	<b>4.5 years</b>	<b>1</b>	<b>240 minutes</b>
<b>Participant Three</b>	<b>0</b>	<b>6 years</b>	<b>5</b>	<b>600 minutes</b>
<b>Participant Four</b>	<b>1</b>	<b>4 years</b>	<b>5</b>	<b>900 minutes</b>