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## Coaching and Training Paraprofessionals to Implement Communication Strategies in the Classroom with Students with Disabilities

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COACHING AND TRAINING PARAPROFESSIONALS TO IMPLEMENT  
COMMUNICATION STRATEGIES IN THE CLASSROOM WITH STUDENTS  
WITH DISABILITIES

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THESIS

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A thesis submitted in partial fulfillment of the  
requirements for the degree of Master of Science in Education in the College of  
Education  
at the University of Kentucky

By  
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Lexington, Kentucky  
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2022

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## ABSTRACT OF THESIS

### COACHING AND TRAINING PARAPROFESSIONALS TO IMPLEMENT COMMUNICATION STRATEGIES IN THE CLASSROOM WITH STUDENTS WITH DISABILITIES

The purpose of this project was to evaluate the effects of a training and coaching intervention on increasing paraprofessionals use of communication strategies to increase the participation between students with disabilities and paraprofessionals. Students with CCN struggle to interact with peers and communicate appropriately, and therefore need guided instruction by adults. To encourage interactions across contexts, paraprofessionals must first learn how to use communication strategies. This skill also was chosen to extend our knowledge on coaching paraprofessionals to use different communication strategies to promote communication with students with ESN and CCN.

KEYWORDS: Communication, coaching, training, paraprofessional,

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12/01/2022

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Date

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## SECTION 1: INTRODUCTION

Communication is a basic human right for all people. The Communication Bill of Rights states that people with a disability, no matter the extent of the disability, have the right to share about the conditions of their life with others (Brady et al., 2016). Communication is the foundation for all social organization, fundamental for social processes, and a basic human need. Communication is an essential part of development and education, as well as a system for public information (Calabrese, 2017).

For most individuals, communication develops naturally within typical developmental milestones. For example, most children can wave, say “dada” and “mama”, and understand the meaning of the word “no” at 1 year of age and can answer “where” questions by pointing or using gestures, and speak by putting two or more words together at 2 years of age (Centers for Disease Control and Prevention, 2022). However, for young children with developmental disabilities, delays in speech and language development can affect communication development. Children with extensive support needs (ESN) often have concomitant complex communication needs and their receptive and expressive communication skills develop slower than typically developing children (DeVeney et al., 2012) including their use of oral speech. For some children with ESN and complex communication needs (CCN), modes of communication may include prelinguistic gestures and vocalizations that may look like refusing objects by pushing them away, pointing to items of interest, or asking an adult or parent for help by giving them the item (Brady et al., 2005).

Therefore, professionals recommend the use of augmentative and alternative communication (AAC) to assist with communication for these individuals. According to

the American Speech-Language-Hearing Association, augmentative in relation to communication, can be defined as adding something to a person's speech, while alternative means something used instead of speech (2022). AAC is a form of communication using different means, such as a speech generating device (SGD), that supplements or at times, may replace oral speech (Beukelman & Mirenda, 2005). The use of AAC can promote the growth and development of communication and language skills and meet the communication needs of an individual with disabilities and CCN (Kaiser et al., 2001), thus having the potential to improve a student's quality of life (Light & McNaughton 2012). AAC can be divided into two categories: (a) unaided AAC, or (b) aided AAC (Beukelman & Mirenda 2013). According to Loncke (2022), "unaided communication refers to the communication that is entirely established without aids, such as natural speech, sign language, or gesturing" (p. 5). while "aided communication refers to the use of aids external to the communicator's body; for example, symbol cards, a notebook, or a speech-generating communication device" (p. 5). Aided AAC can be categorized by high or low technology-based communication devices. Single message switches, picture symbols, tactile symbols, and vocabulary apps for tablets are some examples of aided language systems. When choosing an AAC device, family members, therapists, and teachers need to consider the student's physical needs, motor skills, visual abilities, and cognitive skills. These considerations can be made through assessments and surveys that are agreed upon by the team to best match the features of the system with the characteristics of the student, resulting in the best possible outcome (Downing et al., 2015). These assessments, surveys, and team meetings are beneficial because AAC

devices are often expensive and require extensive training and cooperation by all members, including paraprofessionals (Downing et al., 2015).

Regardless of the mode of communication used by a student, researchers have identified a set of naturalistic language interventions to increase child responding. Naturalistic language interventions refer to instruction with a specific focus on communication that occurs naturally during age-appropriate activities and materials with specific communication goals (Lane et al., 2016). Naturalistic language strategies have been shown to be beneficial for improving social skills and communication with students with disabilities. Some of these strategies include expanding and recasting language, asking open-ended questions, commenting on student play, and prompting communication. Expansion happens when adults restate a child's one-to-two-word phrase and add one to two additional meaningful words to it. Expansion does not require the child to repeat the new phrase, but to provide them with added language. An example of expansion may be if the child were to say "block," and the adult responded by saying, "You are stacking blocks". Expansion is a form of future teaching by giving the child new information without expectation of them using it right away (Ledford et al., 2019). Recasting is defined as repeating and enunciating what the child communicates in the correct form. An example of recasting might be if the child said, "I write that" and the adult responds by saying, "Oh, you WROTE that". By asking open-ended questions, the adult is promoting responsiveness in conversation. It also helps to target specific vocabulary. When using this technique, the adult can ask a question such as, "What are you playing with?" and then wait for the child to respond. If the child does not respond after providing a wait time, the adult can provide a model of a correct answer, such as,

“You are playing with a teddy bear.” Prompting communication is defined as providing an amount of assistance a child needs to engage in a communicative behavior and then later removing that assistance. Using a combination of prompting and environmental arrangement strategies has been successful in teaching communication to students with CCN and ESN (Zimmerman & Ledford, 2016). These language strategies promote communication, engagement, initiations, and responses (Downing et al., 2015), and are most often implemented with individuals who serve as the child’s communication partner in the natural environment, including parents and school personnel.

Children, who use AAC devices to communicate, learn by observing communication partners model language (O’Neill et al., 2018). Parents or caregivers are most frequently the child’s communication partners in the home setting and are often taught communication strategies because they spend the most time with their child during the day. Training communication partners is beneficial to increase more interactions by AAC users during their daily life and improve language skills. The AAC user’s communication skills depends on the skills of the communication partner for successful social interactions. Parent training refers to programs made to give parents information and provide them with skills to help their children. Many parents of children with disabilities and CCN have successfully shown their ability to carry out language intervention and have positive outcomes by participating in parent training programs (Senner et al., 2019).

At school, children with CCN’s communicative partners include their teachers, paraprofessionals, and peers. Just like parents, school personnel require training to use effective strategies to improve communication of their students with CCN and ESN.

Communication is a critical domain that requires all involved parties to provide support within and across the school environment. Interdisciplinary team collaboration is critical for achieving such a goal but requires that all professionals have adequate support to effectively teach students (Downing et al., 2015). Paraprofessionals are one member of the team that serve as frequent communication partners. They require training, practice, and coaching with common instructional practices, to help students with disabilities succeed (Kashinath et al., 2021). Training paraprofessionals to be responsive communication partners and to use students' AAC devices will ensure students with severe disabilities receive direct instruction using their device in and out of the special education classroom, provide more social interaction opportunities with typically developing peers, and promote independence. Without knowledge of how to use a student's AAC device, paraprofessional can inadvertently restrict or limit the AAC user's communication.

Providing paraprofessionals with opportunities for professional development and training opportunities is essential for the growth of students in a special education classroom. Mason et al. (2020) found that paraprofessionals and special educators have identified opportunities for paraprofessional training and development as high priority in the effectiveness of teaching students with disabilities in the classroom. Paraprofessionals are not always prepared to address the complex needs of students (Mason et. al., 2020). Coaching is a type of professional development that is crucial to implementation of best practices and interventions in the classroom setting (Brock & Carter, 2013). Coaching is considered an appropriate intervention for advancing one's knowledge, providing access for more opportunities for learning, and gaining constructive feedback on one's

implementation of the practice (Snyder et al., 2018). Preparing paraprofessionals for such intervention practices will ultimately be in the best interest of students with severe disabilities to enhance student outcomes and learning environments (Walker et al., 2021). While there are a growing number of available professional development opportunities for paraeducators, most training paraprofessionals receive happens during the school day by the special education teacher (Brock & Carter 2013). AAC devices and applications can be complex and require practice and training for users to effectively teach individuals with disabilities to use them correctly. When being a communication partner for students with disabilities, it is important that paraprofessionals are well versed in AAC use and practices for each student's communication system (Walker et al., 2021).

Researchers have conducted paraprofessional trainings regarding communication. For example, Kashinath et al. (2021) trained four paraprofessionals on the use of aided language modeling (ALM) through coaching and training in nonpublic and public schools across an urban area of the United States. This research study measured the instances of ALM used in structured activities that matched the student's communication goal on their AAC device (i.e., selecting one, two, or three or more words on the SGD related to the activity). The results of this study showed an immediate increase in the use of ALM in comparison to the baseline levels. Three out of the four paraprofessionals maintained a steady increase in using ALM, while one paraprofessional showed the initial increase, but slowly returned to baseline levels after the first few sessions. Overall, these results show coaching and training were an effective intervention to teach paraprofessionals communication strategies.

Another study that focused on the impact of coaching paraprofessionals was Walker et al. (2021). This study focused on training and coaching three paraprofessionals from different schools on using functional communication with students with disabilities. Training included instruction, modeling, rehearsal, and feedback on implementing functional communication training for the students with disabilities who used a challenging behavior as a form of communication. The paraprofessionals from this study found that the intervention was effective and practical for their needs. Paraprofessionals quickly reached mastery using this strategy, and one paraprofessional generalized the skill in other settings. Other benefits that occurred from the implementation of this intervention was the decrease of challenging behaviors from students. Overall, this study showed the use of coaching and training conducted by special education teachers to paraprofessionals was effective in teaching communication strategies.

## SECTION 2: RESEARCH QUESTIONS

The research question is as follows: What are the effects of training and coaching on paraprofessionals to use communication strategies during child directed activities with students with moderate to severe disabilities and complex communication needs?



## SECTION 3: METHOD

### **3.1 Participants**

The pre-tests, post-tests, training, and coaching took place in a self-contained classroom serving students with MSD. This classroom was in an elementary school located in a rural area of a southeastern state of the United States. The classroom consisted of one classroom teacher, three paraprofessionals, a certified nursing assistant, and 10 students with disabilities. Students in this classroom received special education services under the categories of autism, developmental delay, functional mental disability, and multiple disabilities. Students' grade levels included a range from kindergarten to third grade. There were three students who were non-ambulatory and were wheelchair users. One student required a one-on-one certified nursing assistant due to being medically fragile and having an extensive medicine and feeding schedule.

#### ***Students***

Three students participated in play-based communication sessions. The three students ranged from 5-9 years of age and had diagnoses of autism and developmental delays. Two out of the three students used SGDs in the form of an iPad to communicate. The communication application that they use is called Proloquo2go. The vocabulary application they used was called Proloquo2go (<https://www.assistiveware.com/products/proloquo2go>). The remaining student used oral speech to communicate and participate in the sessions. At the beginning of the project, the teacher assigned one paraprofessional to a specific child and these dyads (paraprofessional/child) worked together throughout the project. Each student had participated in preference assessments and had identified preferred activities. The activities were selected by using a multiple stimulus without replacement preference

assessment (<https://ebip.vkcsites.org/multiple-stimulus-without-replacement/>) based on a questionnaire given to the students' parents at the beginning of the school year where they indicated items and activities of interest to their child. The items chosen on the preference assessment were taken from a parent survey of their child's interests before the start of the school year.

### ***Paraprofessionals***

Three paraprofessionals that were employed in the MSD classroom participated in the training and coaching sessions. All paraprofessionals were female between 30-42 years of age. All three paraprofessionals had been working in special education for 4-5 years. All three paraprofessionals had been working in special education for 4 years or more. None of the paraprofessionals had received formal training on communication strategies.

### ***Intervention Team***

The classroom teacher served as the primary interventionist in this project. The teacher had 4 years of experience in teaching students with moderate to severe disabilities and 8 years of experience working with individuals with disabilities. The teacher, Ms. Andrea, had a bachelor's degree in special education with an emphasis in moderate to severe disabilities and a teaching certificate in the same area. She was currently pursuing a teacher leader special education master's degree.

## **3.2 Instructional Setting and Arrangement**

Sessions were conducted in the MSD classroom which contained 10 students, three paraprofessionals, and one classroom teacher (i.e., Ms. Andrea). The classroom was

5.5 x 6.7 m. Coaching sessions were held during three different 5-min student break time in the classroom that was held around 8:15 a.m., 9:15 a.m., and 10:15 a.m. During break time, the teacher placed a different preferred activity on each of three tables. When cued by the teacher, the identified students moved to the table with the activity of their choice. Each table was 91 x 91 cm long and contained four child-sized chairs at each table. Activities included were building blocks, puzzles, Mr. Potato Head, dry-erase boards markers, and Play-Doh. Once moving to the table of their choice, the child was joined by one paraprofessional that had been assigned to them. Training sessions were held in the classroom at one of the student tables during school hours.

### **3.3 Materials**

Paraprofessionals received training and participated in coaching sessions. Coaching took place during the 5 min break time session with children. Materials needed to complete the training included Microsoft PowerPoint slides made by the special education teacher (as shown in Appendix A), to present background information to the participants on how to use different communication strategies. The coaching sessions included reinforcing activities that interest the students, that are age appropriate and provide opportunities for interaction, that were previously selected from preference assessments. The Mr. Potato head activity included four potato bodies, six pairs of shoes, 6 different eyes, two pairs of glasses, six different mouths, one purse, three different hats, six pairs of arms, six different noses, and six pairs of different ears. The dry-erase board activity included three dry-erase boards and five dry erase markers, which included two black markers, one red marker, one green marker, and one blue marker. The play-doh activity included five different color play-dohs (red, pink, green, blue, and yellow), a pair

of scissors, a rolling pin, and seven different shaped cookie cutters. The building block activity included different colored small cube blocks, The puzzle activity included a wooden construction puzzle, a wooden animal puzzle, an insect puzzle, and a foam alphabet puzzle. An SGD was used as dictated by the student's current educational program. The SGD was an iPad that included the vocabulary software, ProloQuo2go and folders in the program that correspond with the activities. This study also required a MotivAider (i.e., behavior timer or habit changer), timer, pen/pencil, and corresponding data sheets will be needed during all sessions.

### **3.4 Dependent Variable and Measurement System**

The dependent variable was (a) percent of intervals in which responsive communication strategies were used by a paraprofessional when interacting with a student with MSD and CCN and (b) the percent of intervals in which the student was engaged in the play-based communicative activity. The observation period was divided into twenty 15-s intervals. The teacher used a MotivAider (<https://habitchange.com/motivaider.php>) to signal the beginning of each 15 s interval. During each interval, the teacher observed whether the paraprofessional engaged in any communication strategy at any time during the 10 s, as well as observed if the student emitted communicative behaviors. During the remaining 5 s of the interval, the teacher marked the data collection sheet. When the timer went off, the teacher told tell the paraprofessional time was up and work on redirecting the student to the next activity. For the paraprofessional, responsive communication strategies included the use of four communication strategies: expanding or recasting language, using open-ended questions, commenting on students' play or actions, and prompting and cueing a student's

communication. Expanding or recasting language was defined as restating a child's verbalizations or communication made with their SGD and adding 1-2 words. Recasting was defined as repeating and enunciating a child's mispronunciation of a word or repeating a child's verbalization using correct grammar. An example of expanding language was if the student said "bear" and the paraprofessional says or activates the key words on the SGD, "You hugged the bear." An example of expanding language using an SGD was if a student is holding a bear and activates the word "bear" on the SGD, the paraprofessional could have said "You have a bear" while selecting key words on the SGD such as "you" and "bear". An example of recasting was if the student said "bog" when playing with a frog toy, the paraprofessional could have said "Oh, Frog" or activate the keyword on the SGD "Oh, frog" while emphasizing the pronunciation. An example of recasting using an SGD was if a student activates the words "red more" on the SGD, the paraprofessional could have said, "You want more red" while activating those keywords on the SGD.

Using open-ended questions was defined as the paraprofessional interacting with the student's item of interest and asking a non-yes/no question about what the child is engaged with. An example of using open-ended questions was when the student was playing with play-doh, paraprofessional could have said "What are you making?" or activated keywords on the SGD such as "what" and "make". Commenting on play was defined as narrating what the student's actions or making contextually relevant noises that are appropriate to the situation. For example, if a student is playing with a train, the paraprofessional would say, "You're pushing the train" or saying, "choo-choo." An example of commenting on student play using an SGD is if the child was playing with a car, the paraprofessional could say, "car goes fast" while activating key words on the

SGD. Prompting was defined as the paraprofessional directing the student to say a word(s) verbally or to activate a word(s) on their device by pointing to it. An example of prompting would be if the student is coloring with red, the paraprofessional would say, “Say red”, or would gesture toward the red symbol on the SGD while saying, “Say red.”

For the student, participation was measured by recording the child engaging in one of three behaviors: orienting toward the materials or the paraprofessional, emitting vocal or non-vocal communicative behaviors, and engaging in the activity. Orienting toward the materials or paraprofessional was defined as the student looking toward play materials, looking toward the paraprofessional, or looking at the SGD. An example is the student sitting at the table and looking at the puzzle. Emitting communicative behavior, either orally or using an SGD, was defined as saying contextually relevant words or sounds to the activity or activating contextually relevant words on the SGD. An example of emitting communicative behavior orally is a student holding a train and saying the word “train”. An example of emitting communicative behavior through an SGD was a student holding a train and activating the word “train” on the SGD. Engaging in the activity was defined as the student touching or physically manipulating the materials. An example is the student picks up a puzzle piece and moves it from one spot to another.

### **3.5 Evaluation of Training and Coaching**

A pre- and post-test was selected to evaluate the effects of training and coaching paraprofessionals on their use of different communication strategies and on child participation. Pretests were conducted prior to any training and coaching with paraprofessionals. Then identical post-test assessments were conducted after all training and coaching has been conducted. Data collected was put into mean, median, and range

format. Mean was calculated by adding up all the percentage of intervals and dividing by 4. The median was calculated by identifying the middle two numbers and measuring the average of the two numbers. The range was calculated by identifying the difference between the lowest and the highest number in a set of numbers.

### 3.6 General Procedures

Prior to any training, the teacher collected 4 days of pretest data on each paraprofessional's use of communication strategies and on each child's participation behavior during 1 week of school. Following pretest data collection, the teacher conducted a training on one communication strategy with all paraprofessionals on Monday. Coaching procedures took place Tuesday through Friday on the second week of the project. During the third week, the teacher reviewed strategy one and taught a new communication strategy on Monday. Coaching procedures took place Tuesday through Friday on the third week of the project. During the fourth week, the teacher reviewed strategy three and taught a new communication strategy on Monday. Coaching procedures took place Tuesday through Friday on the fourth week of the project. During the fifth week, the teacher reviewed strategy four and taught a new communication strategy on Monday. Coaching procedures took place Tuesday through Friday on the fifth week of the project. Following the fifth week, the teacher collected 4 days of post-test data. Table 1 shows the order of implementation.

*Table 1*  
*Coaching and Training Schedule*

Week	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	Pre-test	Pre-test	Pre-test	Pre-test	Pre-test

Week 2	Training 1: Expanding and Recasting	Coaching	Coaching	Coaching	Coaching
Week 3	Training 2: Asking-open ended questions	Coaching	Coaching	Coaching	Coaching
Week 4	Training 3: Commenting on play	Coaching	Coaching	Coaching	Coaching
Week 5	Training 4: Prompting Communication	Coaching	Coaching	Coaching	Coaching
Week 6	Post-test	Post-test	Post-test	Post-test	Post-test

### 3.7 Pre-test/Post Test Data Collection

The teacher collected pre and post test data using partial interval data recording (Ledford et al., 2018). The pre-test and post-test data sheet can be found in Appendix-B. Each session was 5 min in length and occurred during an unstructured play activity or student break time. The teacher collected data on one paraprofessional at a time. That is, three unstructured play times were scheduled during the day with data collected on one paraprofessional/child dyad at a time.

During these sessions, the teacher put out three different preferred activities at three different tables. The teacher told the paraprofessional to tell the child, “Pick what you want to play with.” Once the student went to the activity of their choice, the rest of the materials from the remaining two tables were removed and placed next to the table where the student sat, next to the paraprofessional. The left-over activities that were removed and placed next to the paraprofessional, were used to keep the student interested in the entirety of the session in case the student lost interest with first activity. After the student chose an activity, the teacher started the timer and told the paraprofessional, “Play with the child for 5 mins.”



### **3.8 Instructional Procedures**

#### ***3.8.1 Training Sessions***

After the pre-test was completed, the first round of training began. All paraprofessionals attended the same training sessions that occurred on Monday of each week. Training sessions for each strategy consisted of reviewing the strategy presented the previous week, showing a PowerPoint that named the new communication strategy, provided examples, provided time for answering questions and opportunities for role play to practice the skill. The PowerPoint slides used in the training are shown in Appendix-A. During the review of previous week's strategy, the teacher asked the paraprofessional to explain what strategy they learned last week. During role play, the teacher acted in the role of the paraprofessional for an example and then as a student, while each paraprofessional took a turn to practice using the strategy. Paraprofessionals demonstrated that they were able to correctly use the skill by successfully role playing the strategy two times. The training sessions lasted approximately 10-20 min.

#### ***3.8.2 Coaching Sessions***

Coaching took place on days 2-5 of the week, as training sessions were conducted each Monday. The teacher observed the play-based session and when an occurrence of a communication strategy that was being taught that week occurred, the teacher offered immediate positive feedback to the paraprofessional (e.g., "Great use of expanding") on every occurrence. When the session was over, the teacher let the paraprofessional know the time was up and provide the paraprofessional with more feedback. The teacher provided feedback on how the paraprofessional could improve on the strategy that was taught that week for the next session, an example of a communication strategy that was

not used correctly, or a missed opportunity to use a communication strategy and how it could have been used.

## SECTION 4: RESULTS

### *Dyad 1*

During the pre-test, Paraprofessional 1 displayed low levels of using the communication strategies being targeted during the play-based sessions. The use of expanding and recasting in terms of the mean were 0%, in terms of median were 0%, and in terms of range was 0%. The use of asking open-ended questions during the pre-test in terms of mean were 0%, in terms of median were 0%, and in terms of range was 0%. The use of commenting on play in terms of the mean were 0%, in terms of median were 0%, and in terms of range was 0%. The use of prompting communication in terms of the mean were 10%, in terms of median were 10%, and in terms of range was 20. After the training and coaching took place, post-test data showed significantly higher percentages in three communication strategies, asking open-ended questions (mean = 27.5%, median = 27.5%, range = 15%), commenting on play (mean = 36.25%, median = 35%, range = 5%), and prompting communication (mean = 25%, median = 25%, range = 15%) and a small change in percentage in expanding and recasting (mean = 3.75%, median = 2.5%, range = 10%).

Paraprofessional 1 was paired with Student 1. Student 1 was oriented towards the adult and engaged in the activity through the entirety of the pre-test sessions with 100% accuracy. However, Student 1 communicated using an SGD and did not have many communication attempts in the activity. During the pre-test, Student 1's data when communicating via SGD in terms of mean was 5%, in terms of median as 2.5%, and in terms of range 15%. After the training and coaching with paraprofessional 1, Student 1 showed immediate growth in communicating verbally using an SGD. Post-test data

showed Student 1's use of communication via SGD in terms of mean was 47.5%, in terms of median 47.5%, and range 15%.

### *Dyad 2*

Dyad 2 included Paraprofessional 2 and Student 2. During pre-test data, paraprofessional 2 did not produce any expanding and recasting behaviors or asking open-ended question behaviors. Paraprofessional 2 did comment on student play and prompt communication with low levels. Paraprofessional 2's pre-test data for commenting on play in terms of mean was 10%, in terms of median was 10%, and in terms of range is 10%. Regarding prompting communication, Paraprofessional 2's use in terms of mean 3.75%, in terms of median 0%, in terms of range it was 15%. After the training and coaching took place, post-test data showed a small positive change in expanding and recasting (mean = 10%, median = 10%, range = 10%) and significant positive changes of percentage in three communication strategies, asking open-ended questions (mean = 34.25%, median = 36%, range = 35%), commenting on play (mean = 36.25%, median = 35%, range = 5%), and prompting communication (mean = 25%, median = 25%, range = 10%).

During pre-test sessions, Student 2 was always able to be oriented toward the adult and always be engaged in the activity with 100% accuracy. However, Student 2 had very low levels of communicating verbally. Pre-test data showed that Student 2's mean was 2.5%, median was 0%, and range was 10%. After training and coaching Paraprofessional 2, Student 2 had immediate growth from pre-test data in communicating verbally during the play-based activity. Post-test data showed Student 2 communicating verbally with the mean of 52.5%, median of 50%, and range of 5%. There was no change

in levels for Student 2 for the behaviors of being oriented toward the adult and being engaged in the activity from pre-test data to post-test data.

### ***Dyad 3***

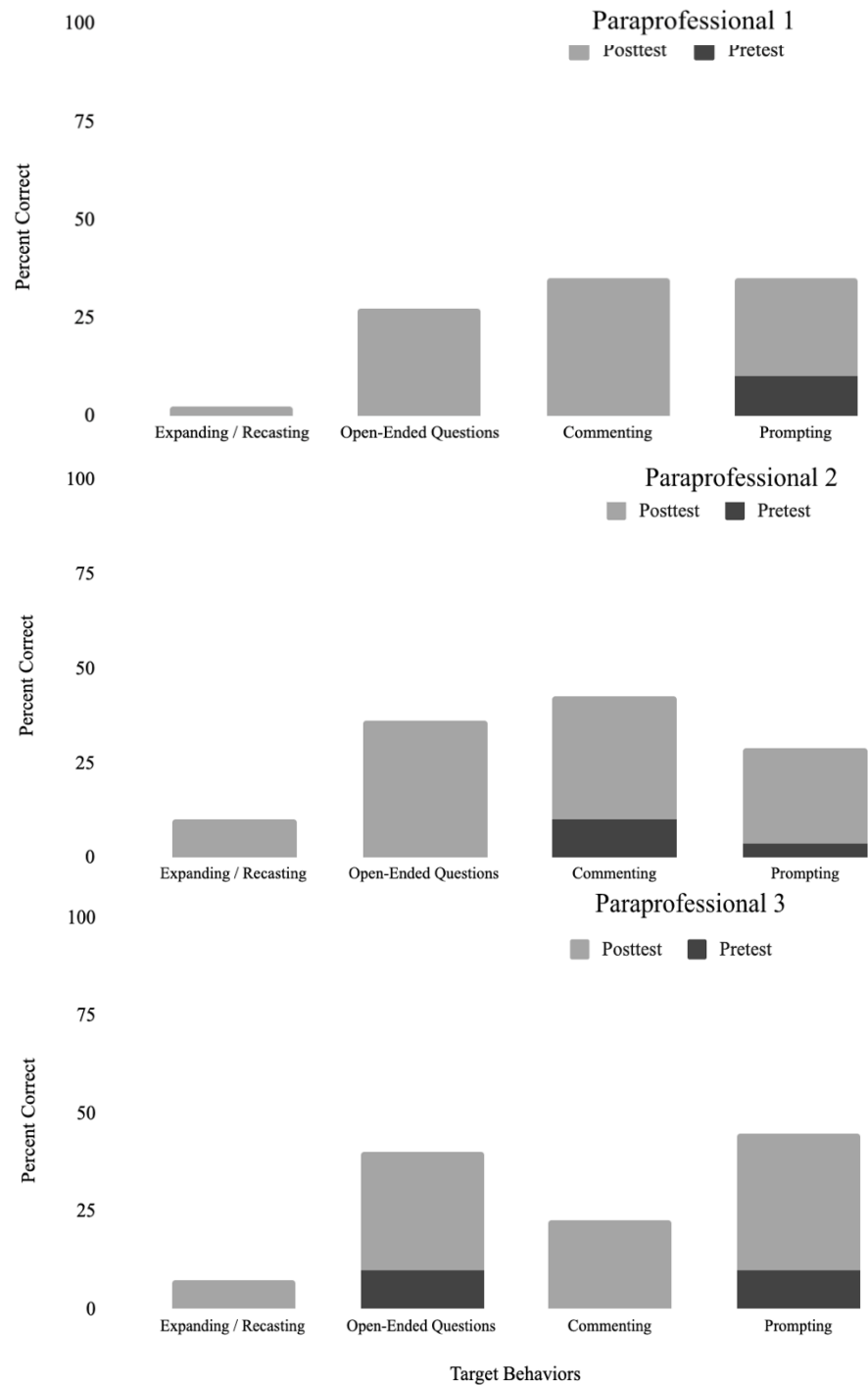
Dyad 3 included Paraprofessional 3 and Student 3. During pre-test sessions, data showed that Paraprofessional 3 had no uses of expanding and recasting behaviors or commenting on play behaviors. Paraprofessional 3 did have few uses of asking open-ended questions and prompting communication. Paraprofessional 3's data for asking open-ended questions during the pre-test sessions in terms of mean were 11.25%, in terms of median were 10%, and in terms of range were 15%. Regarding prompting communication pre-test data in terms of mean were 8.75%, in terms of median were 10%, and in terms of range were 10%. After training and coaching sessions took place, Paraprofessional 3's post-test data showed significantly higher percentages in three communication strategies, asking open-ended questions (mean = 28.25%, median = 30%, range = 15%), commenting on play (mean = 21.25%, median = 22.5%, range = 30%), and prompting communication (mean = 32.5%, median = 35%, range = 10%). There was a slight increase in expanding and recasting (mean = 7.5%, median = 7.5%, range = %).

Paraprofessional 3 was paired with Student 3. During pre-test sessions, Student 3 was almost always able to be oriented toward the adult and be engaged in the activity. Student 3 communicated using an SGD but made minimal attempts to communicate with Paraprofessional 3. Pre-test data shows Student 3 made minimal attempts to communicate verbally during the play-based activity (mean = 6.25%, median = 7.5%, and range = 10%). After training and coaching Paraprofessional 3 to use the communication strategies, Student 3's verbal communication showed immediate growth. Post-test data

showed Student 3 communicated verbally with the mean of 40%, median of 42.5%, and range of 15%. Student 3 had little change in levels in being oriented to the adult and remaining engaged in the activity, yet still showed a higher percentage.

**Figure 1**

*Percent of Intervals Paraprofessional's Use of Communication Strategies with Students with ESN and CCN during Leisure Activities (Median)*



**Table 2**

*Percent of Intervals Paraprofessional's Use of Communication Strategies with Students with ESN and CCN during Leisure Activities (Mean, Median, Range)*

Paraprofessiona l	Sessio n	Expanding / Recasting	Asking Open-ended Questions	Commentin g on Play	Prompting Communicatio n
1	Pre- test	Mean: 0 Median: 0 Range: 0	Mean: 0 Median: 0 Range: 0	Mean: 0 Median: 0 Range: 0	Mean: 10 Median: 10 Range: 0-20
	Post- test	Mean: 3.75 Median: 2.5 Range: 0- 10	Mean: 27.5 Median: 27.5 Range: 20- 35	Mean: 36.25 Median: 35 Range: 35- 40	Mean: 25 Median: 25 Range: 15-30
2	Pre- test	Mean: 0 Median: 0 Range: 0	Mean: 0 Median: 0 Range: 0	Mean: 10 Median: 10 Range: 5-15	Mean: 3.75 Median: 0 Range: 0-15
	Post- test	Mean: 10 Median: 10 Range: 5- 15	Mean: 34.25 Median: 36 Range: 15- 50	Mean: 35 Median: 32.5 Range: 30- 45	Mean: 25 Median: 25 Range: 20-30
3	Pre- test	Mean: 0 Median: 0 Range: 0	Mean: 11.2 5 Median: 10 Range: 5-20	Mean: 0 Median: 0 Range: 0	Mean: 8.57 Median: 10 Range: 0-15
	Post- test	Mean: 7.5 Median: 7.5 Range: 5- 10	Mean: 28.75 Median: 30 Range: 20- 35	Mean: 21.25 Median: 22.5 Range: 5-35	Mean: 32.5 Median: 35 Range: 25-35



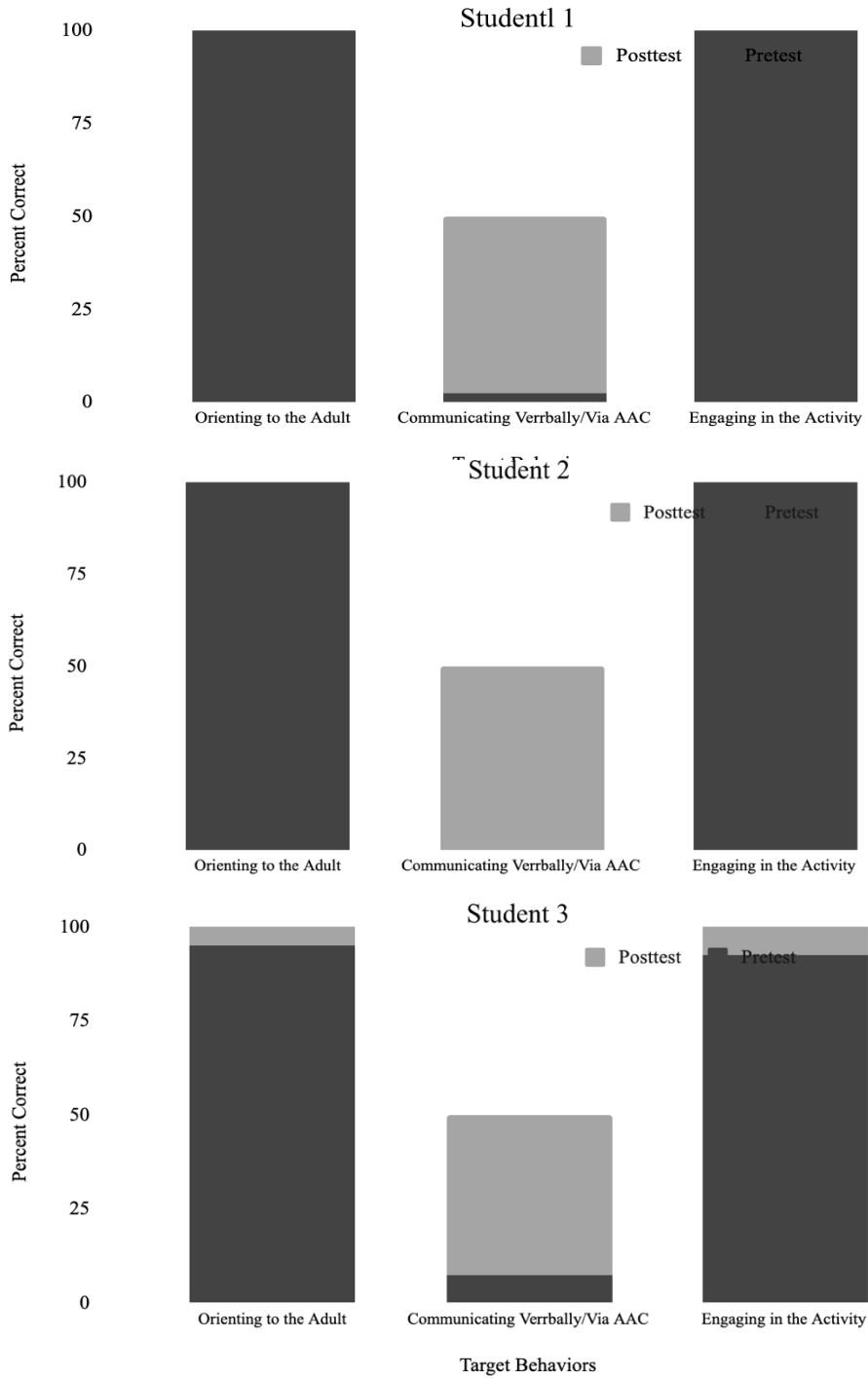
Overall	Pre-	Mean: 0	Mean: 3.75	Mean: 3.33	Mean: 7.5
	test	Median: 0	Median: 0	Median: 0	Median: 7.5
		Range: 0	Range: 0-20	Range: 0-15	Range: 0-20
	Post-	Mean: 7.08	Mean: 30.16	Mean: 30.83	Mean: 27.5
	test	Median: 7.5	Median: 30	Median: 35	Median: 27.5
		Range: 0-15	Range: 15-50	Range: 5-45	Range: 15-35

---

**Figure 2**

*Percent of Intervals Student Participation in Leisure Activities with Paraprofessionals*

*(Median)*



**Table 3***Percent of Intervals Student Participation in Leisure Activities with Paraprofessionals**(Mean, Median, Range)*

Student	Session	Orienting to the Adult	Communicating Verbally/Via AAC	Engaged in the Activity
1	Pre-test	Mean: 97.5 Median: 100 Range: 90-100	Mean: 5 Median: 2.5 Range: 0-15	Mean: 100 Median: 100 Range: 0
	Post-test	Mean: 100 Median: 100 Range: 0	Mean: 47.5 Median: 47.5 Range: 40-55	Mean: 100 Median: 100 Range: 0
2	Pre-test	Mean: 100 Median: 100 Range: 0	Mean: 2.5 Median: 0 Range: 0-10	Mean: 100 Median: 100 Range: 0
	Post-test	Mean: 100 Median: 100 Range: 0	Mean: 52.5 Median: 50 Range: 50-55	Mean: 100 Median: 100 Range: 0
3	Pre-test	Mean: 92.5 Median: 95 Range: 80-100	Mean: 6.25 Median: 7.5 Range: 0-10	Mean: 92.5 Median: 92.5 Range: 85-100
	Post-test	Mean: 100 Median: 100 Range: 0	Mean: 40 Median: 42.5 Range: 30-45	Mean: 100 Median: 100 Range: 0
Overall	Pre-test	Mean: 96.66 Median: 100 Range: 80-100	Mean: 4.58 Median: 2.5 Range: 0-15	Mean: 97.5 Median: 100 Range: 85-100
	Post-test	Mean: 100 Median: 100 Range: 0	Mean: 46.66 Median: 47.5 Range: 30-55	Mean: 100 Median: 100 Range: 0

## SECTION 5: DISCUSSION

This study was conducted to evaluate the effectiveness of a training and coaching intervention for paraprofessionals to use communication strategies with students with ESN and CCN. Over the course of a 6-week period, all dyads demonstrated increases in the adults' use of communication strategies for the adults and child participation behaviors between pre-test and post-test. Anecdotally, the classroom teacher noted that paraprofessionals used the communication strategy during other times of the school day with students with ESN and CCN. Other positive benefits include, paraprofessionals using these communication strategies outside the classroom, paraprofessionals becoming more familiar with students' SGDs, and students receiving more practice using their SGDs during leisure activities. Findings like the results found in this project show that training and coaching are an effective means to teach paraprofessionals communication strategies (Walker et al. 2021; Kashinath et al. 2021).

### **5.1 Limitations**

For future projects, a limitation from this study was using the pre-test and post-test design. Pre-test and post-test designs do not directly control for extraneous variables that might provide an alternative explanation of outcomes. More rigorous experimental designs can be used to evaluate the intervention, as well as control and detect potential confounds. Examples include group designs and single case designs. Another limitation for this research includes the use of partial interval recording because it was used to estimate count but was reported as a percentage. This limited the data to show if certain behaviors were used more than once. Final limitations are that maintenance and generalization data were not collected.

## **5.2 Conclusion**

Children, who have limited communication skills, learn by observing communication partners model language (O'Neill et al., 2018). At school, these children's communicative partners include paraprofessionals (Kashinath et al., 2021). Even though previous research suggests that special educators implementing training and coaching for paraprofessionals is effective (Kashinath et al. 202; Walker et al. 2021;), the research is still limited. This project's findings of this project yielded promising data; paraprofessionals may benefit from training and coaching

# APPENDICES

## APPENDIX 1. PRE-TEST AND POST-TEST DATA COLLECTION SHEET

### Pre-Test/Post-Test

PARA: \_\_\_\_\_ Student: \_\_\_\_\_ Date: \_\_\_\_\_ Pre-Test/Post-Test

Target Behavior: \_\_\_\_\_

Int #:	Was the paraprofessional was engaged in:				Was the child:		
1 S: 1-15	Expanding/recasting	Yes	No	Oriented to the adult?	Yes	No	
	Asking open-ended q's?	Yes	No	Communicating verbally/non-verbally?	Yes	No	
	Commenting on play?	Yes	No	Engaging in the same activity?	Yes	No	
	Prompting communication	Yes	No				
2 S:15 -30	Expanding/recasting	Yes	No	Oriented to the adult?	Yes	No	
	Asking open-ended q's?	Yes	No	Communicating verbally/non-verbally?	Yes	No	
	Commenting on play?	Yes	No	Engaging in the same activity?	Yes	No	
	Prompting communication	Yes	No				
3 S:30 -45	Expanding/recasting	Yes	No	Oriented to the adult?	Yes	No	
	Asking open-ended q's?	Yes	No	Communicating verbally/non-verbally?	Yes	No	
	Commenting on play?	Yes	No	Engaging in the same activity?	Yes	No	
	Prompting communication	Yes	No				
4 S:45 -1:00	Expanding/recasting	Yes	No	Oriented to the adult?	Yes	No	
	Asking open-ended q's?	Yes	No	Communicating verbally/non-verbally?	Yes	No	
	Commenting on play?	Yes	No	Engaging in the same activity?	Yes	No	
	Prompting communication	Yes	No				
5 S: 1:00- 1:15	Expanding/recasting	Yes	No	Oriented to the adult?	Yes	No	
	Asking open-ended q's?	Yes	No	Communicating verbally/non-verbally?	Yes	No	
	Commenting on play?	Yes	No	Engaging in the same activity?	Yes	No	
	Prompting communication	Yes	No				
6 S: 1:15- 1:30	Expanding/recasting	Yes	No	Oriented to the adult?	Yes	No	
	Asking open-ended q's?	Yes	No	Communicating verbally/non-verbally?	Yes	No	
	Commenting on play?	Yes	No	Engaging in the same activity?	Yes	No	
	Prompting communication	Yes	No				
7 S: 1:30- 1:45	Expanding/recasting	Yes	No	Oriented to the adult?	Yes	No	
	Asking open-ended q's?	Yes	No	Communicating verbally/non-verbally?	Yes	No	
	Commenting on play?	Yes	No	Engaging in the same activity?	Yes	No	
	Prompting communication	Yes	No				
8 S: 1:45- 2:00	Expanding/recasting	Yes	No	Oriented to the adult?	Yes	No	
	Asking open-ended q's?	Yes	No	Communicating verbally/non-verbally?	Yes	No	
	Commenting on play?	Yes	No	Engaging in the same activity?	Yes	No	
	Prompting communication	Yes	No				
9 S: 2:00- 2:15	Expanding/recasting	Yes	No	Oriented to the adult?	Yes	No	
	Asking open-ended q's?	Yes	No	Communicating verbally/non-verbally?	Yes	No	
	Commenting on play?	Yes	No	Engaging in the same activity?	Yes	No	
	Prompting communication	Yes	No				
10 S: 2:15- 2:30	Expanding/recasting	Yes	No	Oriented to the adult?	Yes	No	
	Asking open-ended q's?	Yes	No	Communicating verbally/non-verbally?	Yes	No	
	Commenting on play?	Yes	No	Engaging in the same activity?	Yes	No	
	Prompting communication	Yes	No				
11 S: 2:30- 2:45	Expanding/recasting	Yes	No	Oriented to the adult?	Yes	No	
	Asking open-ended q's?	Yes	No	Communicating verbally/non-verbally?	Yes	No	
	Commenting on play?	Yes	No	Engaging in the same activity?	Yes	No	
	Prompting communication	Yes	No				

12 S: 2:45- 3:00	Expanding/recasting Asking open-ended q's? Commenting on play? Prompting communication	Yes Yes Yes Yes	No No No No	Oriented to the adult? Communicating verbally/non-verbally? Engaging in the same activity?	Yes Yes Yes	No No No
13 S: 3:00- 3:15	Expanding/recasting Asking open-ended q's? Commenting on play? Prompting communication	Yes Yes Yes Yes	No No No No	Oriented to the adult? Communicating verbally/non-verbally? Engaging in the same activity?	Yes Yes Yes	No No No
14 S: 3:15- 3:30	Expanding/recasting Asking open-ended q's? Commenting on play? Prompting communication	Yes Yes Yes Yes	No No No No	Oriented to the adult? Communicating verbally/non-verbally? Engaging in the same activity?	Yes Yes Yes	No No No
15 S: 3:30- 3:45	Expanding/recasting Asking open-ended q's? Commenting on play? Prompting communication	Yes Yes Yes Yes	No No No No	Oriented to the adult? Communicating verbally/non-verbally? Engaging in the same activity?	Yes Yes Yes	No No No
16 S: 3:45- 4:00	Expanding/recasting Asking open-ended q's? Commenting on play? Prompting communication	Yes Yes Yes Yes	No No No No	Oriented to the adult? Communicating verbally/non-verbally? Engaging in the same activity?	Yes Yes Yes	No No No
17 S: 4:00- 4:15	Expanding/recasting Asking open-ended q's? Commenting on play? Prompting communication	Yes Yes Yes Yes	No No No No	Oriented to the adult? Communicating verbally/non-verbally? Engaging in the same activity?	Yes Yes Yes	No No No
18 S: 4:15- 4:30	Expanding/recasting Asking open-ended q's? Commenting on play? Prompting communication	Yes Yes Yes Yes	No No No No	Oriented to the adult? Communicating verbally/non-verbally? Engaging in the same activity?	Yes Yes Yes	No No No
19 S: 4:30- 4:45	Expanding/recasting Asking open-ended q's? Commenting on play? Prompting communication	Yes Yes Yes Yes	No No No No	Oriented to the adult? Communicating verbally/non-verbally? Engaging in the same activity?	Yes Yes Yes	No No No
20 S: 4:45- 5:00	Expanding/recasting Asking open-ended q's? Commenting on play? Prompting communication	Yes Yes Yes Yes	No No No No	Oriented to the adult? Communicating verbally/non-verbally? Engaging in the same activity?	Yes Yes Yes	No No No

Paraprofessional was engaged in expanding and recasting: ___/20x100	=	Student was oriented to the adult: ___/20x100	=
Paraprofessional was engaged in asking open-ended questions: ___/20x100	=	Student was communicating verbally/non-verbally: ___/20x100	=
Paraprofessional was engaged in commenting on play: ___/20x100	=	Student was engaged in the same activity: ___/20x100	=
Paraprofessional was engaged in prompting communication: ___/20x100	=		

# Using Different Communication Strategies with Students with Disabilities and Complex Communication Needs

By; Andrea Antoniewicz

## Purpose:

The purpose of this training is to increase your knowledge on different communication strategies to use with students with disabilities, to promote and increase their communication skills.

Providing you with opportunities for professional development and training opportunities is essential for the growth of students in a special education classroom.



## Communication

- Communication is based on having a message sender and message receiver. You can not have one without the other.
- Communication is also based on expressive communication and receptive communication.

Different communication strategies implemented by communication partners can help students with disabilities increase their communication skills, whether its verbal, non-verbal, etc.

## Week 1:Expanding/Recasting Language

Andrea Antoniewicz

## Expanding Language

### Definition:

expanding or recasting language, using open-ended questions, commenting on students' play or actions, and prompting and cueing a student's communication. Expanding language is defined as restating a child's verbalizations or communication made with their device and adding 1-2 words.

### Examples:

An example of expanding language is if the student said "bear" and the paraprofessional says or activates the key words on the SGD, "You hugged the bear." An example of expanding language using an SGD is if a student is holding a bear and activates the word "bear" on the SGD, the paraprofessional could say "You have a bear" while selecting key words on the SGD.

## Recasting Language

### Definition:

repeating and enunciating a child's mispronunciation of a word or repeating a child's verbalization using correct grammar.

### Examples:

An example of recasting is if the student say "bog" when playing with a frog toy, the paraprofessional would say or activate the keyword on the SGD "Oh, frog" and emphasize the pronunciation. An example of recasting using an SGD is if a student activates the words "red more" on the SGD, the paraprofessional would say "you want MORE RED" while activating those keywords on the SGD.

## Expanding/Recasting Language Video

Expanding: <https://www.youtube.com/watch?v=kRxHHrTXQcs>

Recasting: <https://www.youtube.com/watch?v=rAQwKRWrXrA>

Both: <https://www.youtube.com/watch?v=wD9TTtA3wKE>

# Questions?

# Week 2: Asking Open-Ended Questions

Andrea Antoniewicz

## Asking Open-Ended Questions

Definition: adult interacting with the student's item of interest and asking a non-yes/no question about what the child is engaged with. When the student is playing with play-doh, adult would say or activate keywords on the SGD, "What are you making?"

Ex: When using this technique, the adult can ask a question such as, "What are you playing with?" and then wait for the child to respond.

- If the child does not respond after providing wait time (at least 5 seconds), the adult can provide a model of a correct answer, such as "you are playing with a teddy bear."
  - Using verbal communication, that can be paired with communication via iPad depending on the how the student communicates.

## Review on last week

Recasting language: repeating and enunciating what the child asks for in the correct form

- Ex: if the child said, "I write that" and the adult would respond by saying "oh, you WROTE that"

Expanding language: restating a child's 1-2 word phrase and add 1-2 meaningful words to it.

- does not require the child to repeat the new phrase, but to provide them with added language.
- Ex: if the child were to say "block" and the adult responded by saying " Big, yellow, blocks".

## Asking Open-Ended Questions

Definition: adult interacting with the student's item of interest and asking a non-yes/no question about what the child is engaged with. When the student is playing with play-doh, adult would say or activate keywords on the SGD, "What are you making?"

Ex: When using this technique, the adult can ask a question such as, "What are you playing with?" and then wait for the child to respond.

- If the child does not respond after providing wait time (at least 5 seconds), the adult can provide a model of a correct answer, such as "you are playing with a teddy bear."
  - Using verbal communication, that can be paired with communication via iPad depending on the how the student communicates.

## Asking Open-Ended Questions Video

Play video at 1:40

[https://www.youtube.com/watch?v=fHcnalF1\\_8A](https://www.youtube.com/watch?v=fHcnalF1_8A)

# Questions?

# Week 3: Commenting on Student Play

Andrea Antoniewicz

## Review on the last 2 weeks:

Recasting language: repeating and enunciating what the child asks for in the correct form

- Ex: if the child said, "I write that" and the adult would respond by saying "oh, you WROTE that"

Expanding language: restating a child's 1-2 word phrase and add 1-2 meaningful words to it.

- does not require the child to repeat the new phrase, but to provide them with added language.
- Ex: if the child were to say "block" and the adult responded by saying "Big, yellow, blocks".

Asking Open-Ended Questions: Asking a student with CCN non-yes/no questions to promote responsiveness in conversation and target specific communication.

- Ex: When using this technique, the adult can ask a question such as, "What are you playing with?" and then wait for the child to respond.
  - If the child does not respond after providing wait time (at least 5 seconds), the adult can provide a model of a correct answer, such as "you are playing with a teddy bear."

## Commenting on Student Play:

Commenting on play is defined as narrating what the student's actions or making contextually relevant noises that are appropriate to the situation.

For example, if a student is playing with a train, the paraprofessional would say, "You're pushing the train" or saying "choo-choo."

An example of commenting on student play using an SGD is if the child were playing with a car, the paraprofessional could say "car goes fast" while activating key words on the SGD.

## Commenting on Student Play Video:

<https://www.youtube.com/watch?v=P2rLv-vjSOs>

<https://www.youtube.com/watch?v=ISN318WaJzA>



# Questions?

## Week 4: Prompting Communication

Andrea Antoniewicz

## Review on the last 3 weeks:

Recasting language:repeating and enunciating what the child asks for in the correct form

- Ex: if the child said, "I write that" and the adult would respond by saying "oh, you WROTE that"

Expanding language:restating a child's 1-2 word phrase and add 1-2 meaningful words to it.

- does not require the child to repeat the new phrase, but to provide them with added language.
- Ex: if the child were to say "block" and the adult responded by saying " Big, yellow, blocks"..

Asking Open-Ended Questions: Asking a student with CCN non-yes/no questions to promote responsiveness in conversation and target specific communication.

- Ex: When using this technique, the adult can ask a question such as, "What are you playing with?" and then wait for the child to respond.
  - If the child does not respond after providing wait time (at least 5 seconds), the adult can provide a model of a correct answer, such as "you are playing with a teddy bear."

Commenting on student play:narrating what the student's actions or making contextually relevant noises that are appropriate to the situation.

- Ex: if a student is playing with a train, the paraprofessional would say, "You're pushing the train" or saying "choo-choo."

## Prompting Communication:

Prompting is defined as the paraprofessional directing the student to say a word(s) verbally or to activate a word(s) on their device by pointing to it.

An example of prompting would be if the student is coloring with red, the paraprofessional would say, "Say red"

or would gesture toward the red symbol on the SGD while saying, "Say red."

Prompting Communication Video:

<https://www.youtube.com/watch?v=OnODdH1kJss>

Questions?

Thank you for participating!

APPENDIX 3. MULTIPLE STIMULUS WITHOUT REPLACEMENT DATA  
COLLECTION SHEET

**MSWO for 5 items**

Item A: \_\_\_\_\_  
 Item B: \_\_\_\_\_  
 Item C: \_\_\_\_\_  
 Item D: \_\_\_\_\_  
 Item E: \_\_\_\_\_

Sum of trial #s for A: \_\_\_\_\_  
 Sum of trial #s for B: \_\_\_\_\_  
 Sum of trial #s for C: \_\_\_\_\_  
 Sum of trial #s for D: \_\_\_\_\_  
 Sum of trial #s for E: \_\_\_\_\_

Date:		
Child name:		
Teacher name:		
Trial #	Item selected	Placement of item selected
1		x x x x x
2		x x x x
3		x x x
4		x x
5		x

Date:		
Child name:		
Teacher name:		
Trial #	Item selected	Placement of item selected
1		x x x x x
2		x x x x
3		x x x
4		x x
5		x

Date:		
Child name:		
Teacher name:		
Trial #	Item selected	Placement of item selected
1		x x x x x
2		x x x x
3		x x x
4		x x
5		x

Date:		
Child name:		
Teacher name:		
Trial #	Item selected	Placement of item selected
1		x x x x x
2		x x x x
3		x x x
4		x x
5		x

Date:		
Child name:		
Teacher name:		
Trial #	Item selected	Placement of item selected
1		x x x x x
2		x x x x
3		x x x
4		x x
5		x

**Highest preferred items** (lowest summed trial #s):

**Moderately preferred items** (moderate summed trial #s):

**Lowest preferred items** (highest summed trial #s):

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