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Say It Again:

A Case Study on Improving Communication in an Autistic Adolescent

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Abstract

Diagnoses of autism spectrum disorder (ASD) have increased significantly in recent years, necessitating a deeper understanding of its symptoms and how to improve on the resulting deficits in communication and social skills. This study examined the possibility of improving the communication of a thirteen-year-old boy with ASD. Within eight sessions, several methods of improving communication were tested, including using a computer to type messages, using pictures to guide conversations, and using simple, open-ended questions. Despite predictions that his communication would improve with the help of focused efforts to communicate and the implementation of these strategies, the participant's communication skills did not demonstrate much change over the course of the study. However, some methods were found to be more effective in encouraging him to communicate. This study adds to the available data on how autistic individuals communicate and provides information on which methods are more effective for improving the communication of adolescents with ASD.

Say It Again:

A Case Study on Improving Communication in an Autistic Adolescent

Introduction

Autism is a spectrum disorder that causes a range of deficits in social skills and communication. Individuals on the higher-functioning end of the spectrum can live without much trouble, but those on the lower-functioning end can experience many challenges throughout their lives. With one in 68 children diagnosed with autism spectrum disorder (Autism Speaks, 2017), autism is gaining attention from researchers who are seeking to understand its symptoms and how to improve them in order to give autistic individuals a higher quality of life. Since autism spectrum disorder is a relatively new diagnosis, researchers are testing a variety of different intervention methods. The purpose of this study is to observe the communication of a thirteen-year-old boy with autism spectrum disorder and attempt to hypothesize ways to improve his communication skills using several different methods.

Literature Review

Autism is a term coined by Dr. Leo Kanner in 1943 to describe children with certain types of social deficits (Olley & Gutentag, 1999). The current criteria for autism in the DSM-5 (2013) are “Persistent deficits in social communication and social interaction... [and] Restricted, repetitive patterns of behavior, interests, or activities...” (as cited in Grandin, 2013, p. 108). Because of these broad criteria, autism is classified as a spectrum disorder, where some high-functioning individuals are able to live with few adverse effects, while those on the lower-functioning end face a wide variety of challenges. Some of these challenges are language and communication difficulties, behavioral issues, trouble with motivation, and distractibility, which can cause potential problems with family, peers, and at school (Olley & Gutentag,

1999). Research is currently underway to gain a better understanding of why those along this spectrum have these difficulties and how to improve their communication and quality of life.

While researchers in the 1990s estimated that just one in 1,500 children had autism, as of 2017, one in 189 girls and one in 42 boys--or one in 68 children--have been diagnosed with autism spectrum disorder (Autism Speaks, 2017; Shannon, 2011). Such a substantial rise in diagnoses is due to more than just rising incidence. Grandin (2013) proposes that the remarkable increase could be due, in part, to a heightened awareness of autism spectrum disorder (ASD); and Shannon (2011) suggests that the changing diagnostic criteria for ASD could explain some of the rise in its prevalence. Heightened awareness of the symptoms is causing a rise specifically in cases of high-functioning autistic children because parents can understand that there is a reason for their children's unusual behavior (Grandin 2013). The rising prevalence of autism is making it a disorder that is hard to ignore.

Signs of ASD begin to appear even before a child's first birthday (Ducharme, 2016). According to Tantam (2013), some of these include:

- Gaze does not indicate expected emotional or social contact with carer.
- Fewer or no apparent bids to engage carer's attention to infant or to what infant is interested in.
- Infant vocalization does not seem to be a response to interaction with carer.
- Reduced or absent indication by infant that carer is recognized. (p. 295)

Infants with autism will seem more withdrawn and quiet than most young children (Ducharme, 2016, p. 41). As autistic children age, symptoms multiply and become more apparent. Shannon (2011) provides an extensive list of some possible symptoms:

A person with ASD might...

- Not respond to his or her name by 12 months of age
- Not point to objects to show interest...by 14 months
- Not play pretend games...by 18 months
- Avoid eye contact and want to be alone
- Have trouble understanding other people's feelings or talking about his or her own feelings
- Have delayed speech and language skills
- Repeat words and phrases over and over (echolalia)
- Give unrelated answers to questions
- Get upset by minor changes
- Have obsessive interests
- Flap their hands, rock their bodies, or spin in circles
- Have unusual reactions to the way things sounds, smell, taste, look, or feel. (pp. 106-107)

Even though people with autism can learn some important life skills, most of them will continue to exhibit these symptoms throughout their lives, causing many of the social deficits that characterize ASD (Olley & Gutentag, 1999).

Language is one of the biggest barriers autistic children have. Approximately one third of individuals with autism remain nonverbal throughout their lives (Autism Speaks, 2017). Autistic children's deficit in language abilities is set apart from other nonverbal language disorders because of their restrictive/repetitive behaviors, interests, or activities--which means that the language barriers of ASD need to be studied separately (Cornoldi, Mammarella, & Fine, 2016). Common language patterns in those with autism include repetitive or rigid language,

narrow interests and exceptional abilities, uneven language development, and poor nonverbal conversation skills (Shannon, 2011). These communication patterns align with Tager-Flusberg's (1996) findings that the main source of language impairment in people with ASD is not related to semantics or computation, but to pragmatics, the use of language that is appropriate to a situation (as cited in Romanczyk, Weiner, Lockshin, & Ekdahl, 1999). In their 2015 study, Ellawadi & Weismer further confirmed that pragmatics is very difficult for autistic children to grasp when they found that 88 percent of the children they tested met criteria for the Prelinguistic group in pragmatics, while only 16 percent met criteria for the Prelinguistic group in phonology. Hallin, Garcia, and Reuterskiöld (2016) also found differences between the pragmatic abilities of children with high-functioning autism and those with typical development. A lack of knowledge of pragmatics causes many deviations from expected language use, which is why so many autistic individuals have trouble communicating.

One of the most common features of the language of autistic children is echolalia, the apparently meaningless repetition of words that they have heard from somewhere else. There are two main types of echolalia: immediate and delayed. Immediate is repeating back a word, phrase, or sentence that someone has just said, while delayed is quoting utterances heard sometime in the past. Through their studies, Sterponi & Shankey (2013) broke down delayed echolalia into three more specific categories: delayed self-echoes, delayed other-echoes, and delayed impersonal echoes. Echolalia can also be induced, caused by direct conversation--the more common strategy--or incidental, spoken in the background during the conversations of others (Grossi, Marcone, Cinquegrana, & Gallucci, 2012). This fits well with Foxx, Schreck, Garitio, Smith, and Weisenberger's (2004) description of echolalia as a communication strategy, and Sterponi and Shankey's (2013) further confirmation of echolalia's interactive nature. The

creativity that children will often use by adding different voice animations to go with these repetitions is additional proof that echolalia is a way of communicating, not meaningless babble (Sterponi & Shankey, 2013). In fact, some studies have found that autistic individuals use echolalia as a means of relationship building (Stiegler, 2015). However, not all researchers view this phenomenon in the same manner. While Sterponi and Shankey (2013) and Wetherby and Prizant (1999) propose that children with ASD are using echolalia to serve a variety of communicative functions, such as requesting, protesting, affirming, and declaring, Foxx, et al., (2004) describe it as “an inappropriate language strategy” (p. 307). However, no matter how researchers view it, the specific reasons children with ASD use echolalia remain somewhat of a mystery.

With all the differences in their language use, communication skills of children with autism do not follow expected patterns of development. For example, standing in stark contrast to Tantam’s (2013) list that demonstrates the reclusive nature of autistic children’s verbal and nonverbal communication patterns is Halliday’s (1975) proposal of seven possible communicative intents in the nonlinguistic and one-word utterances of his infant son (as cited in Hult & Howard, 2006). This disparity between the language aptitudes of those with autism and those without only continues as they age. While most preschool age children are mastering syntax, beginning to form narratives, and advancing their conversation skills, children with ASD are often struggling with short phrases, poor listening and attention skills, and appearing frustrated and withdrawn from conversation (Hult & Howard, 2006; Ducharme, 2016).

Since autism is a spectrum disorder and each individual with it is different, many methods have had positive results in improving communication, but there is also no agreement on which of these methods is best (Brignell, Song, Zhu, & Morgan, 2016). One basic reminder

for researchers is to remain flexible throughout the process, thus reducing frustrations for both the participants and the researchers. Harrington, Foster, Rodger, and Ashburner (2013) suggest that interviewers extend this flexibility further by adjusting their communication style to accommodate the communicative abilities of the participants and using creative and flexible strategies. Since no two people are the same, researchers cannot get locked into certain methods that do not help those with whom they are working, as this could do more harm than good.

One important skill for individuals with ASD to hone is initiating interactions instead of relying on others to approach them. Stieger (2015) urges researchers to facilitate verbal initiations by structuring interventions in a way that allows participants to initiate rather than just respond to questions and prompts. Another method of improving this skill is the Pivotal Response Treatment, “a naturalistic intervention designed to target pivotal behaviors, such as motivation, and produce widespread gain in other areas” (Koegel, Bradshaw, Ashbaugh, Koegel, 2013, p. 817). Interventionists cannot expect these methods to cause a rapid change in initiating communication, but they can be used to make gradual progress.

Another priority for researchers is reducing autistic children’s use of echolalia. One way to avoid receiving echolalic answers is to use simple, closed-ended questions (Harrington, et al., 2013, p. 155). These give participants a more of a focused prompt to answer, lessening the likelihood of receiving an echo. However, interventionists should also be careful not to ask too many questions or give too many commands, as this will often elicit echolalic responses (Stiegler, 2015). Finally, researchers should be careful not to become too frustrated when participants continue to use echolalia, because autistic children often use it to perform a variety of communicative functions.

There are several tools that interventionists can use to encourage communication in adolescents with ASD, especially those who are nonverbal or low-communicative. These include technology and the use of pictures. Technology can provide adolescents a way of speaking without having to use their voice. Ido Kedar, an autistic teenager, describes it as a means of, “helping [him] find a place in the world,” (Kedar, 2012). The Visual Immersion System, outlined extensively in *Enhancing Communication for Individuals with Autism*, provides a combination of pictures and symbols to facilitate communication and can include the use of technology (Shane, Laubscher, Schlosser, Fadie, Source, Abramson, Flynn, & Corley, 2015). A less intense intervention that involves pictures is the stimulus relations probes, six trials of increasing difficulty that move from matching a dictated name to a corresponding picture to matching texts to pictures (Rosales & Rehfeldt, 2009). With their more-tangible nature, both technology and pictures can work well as additions to language-based strategies and on their own.

In addition to typical research protocol and known strategies for improving communication, some more considerations need to be made when working with autistic adolescents. First, researchers need to make sure that they are engaging the young people rather than just using them as test subjects (Raymaker & Nicolaidis, 2013). One way for researchers to do this is by carefully listening to exactly what their participants are saying (Harrington, et al., 2013). Second, working with young people with ASD can be rather difficult. Harrington, et al., (2013) stipulate the importance of the researcher’s remaining flexible and creative in order to better understand participants and to reduce the researcher’s frustrations. Finally, improving autistic adolescents’ communication should be done not just by teaching them memorized ways of doing things, but by encouraging a better awareness of the importance of communication

(Wetherby & Prizant, 1999). Comprehensively, researchers need to be sensitive to their participants and careful to use methods that help the participants rather than just the community around them.

A final consideration for working with the Autistic community is how to accurately represent them. Kristina Chew (2013) raises the idea that, since it can be very difficult to know the meaning behind messages from “nonverbal” and “minimally verbal” individuals, it is easy “to displace autistic voices with our own” (pp. 306-307). Because of this, researchers must be careful to avoid assigning definitive interpretations to both verbal and nonverbal messages. One way of doing this is by listening and supporting what these young people have to say (Harrington, et al., 2014). Because this is a vulnerable population with communication patterns that are harder to understand, researchers must be careful to interpret data in a sensitive and non-definitive way.

Autism spectrum disorder is rising in prevalence and will continue to grab researchers’ attention as more and more insight is needed for autistic individuals to obtain better communication and social skills. Recent studies have focused on methods to improve communication, particularly in the areas of initiating conversations and lowering the use of echolalia. Unfortunately, the causes of certain symptoms and how to improve them remain somewhat of a mystery to researchers, and they cannot agree on which method is best to use, particularly with the varying levels of ability that autistic individuals have. However, ASD is a recent enough diagnosis that there is still much to be discovered about it. Ideally, future studies could be conducted to test the success of known methods of improving communication, and expand awareness of which types of intervention work best.

Method

Participant

The participant for this case study was chosen due to a close connection with the researcher. E, a thirteen-year-old boy from a white middle-class family, was the subject. E was diagnosed with autism spectrum disorder at age four and has a great deal of trouble with communication, especially with initiating. His mother estimates that E initiates 30% of conversations, usually using one-word utterances to do so. She describes his communication as “cutting out the ‘unimportant’ words,” and says that most full sentences or longer phrases he uses are rehearsed utterances that his teachers in his special education classrooms have helped him to learn. She also estimates that 80% of the time he repeats back questions, except those with which he is familiar. For example, he has little trouble with rehearsed questions, such as his name and the names of his family, or with ones he is often asked--for example, regarding dinner the next day. He also uses delayed echolalia extensively, often quoting long portions of overheard passages. He does this both with others and when he is alone.

Tools

Paper and a pen and the video camera on a cell phone were used to record data. Since E would try to pick up the phone and make faces at the camera, the only reason for using it was the ability to find certain sections in a video faster than in a voice recording. The pen and paper were used to make notes on what was happening in the environment and to write transcriptions for whispered utterances that the camera might not have picked up.

Sessions also included the use of cell phones and computers. The cell phones were to show E pictures to talk about, while the computers were used to type messages so that he could communicate without having to speak. For these instances, the researcher would have a

document open on her computer that E could also see on his. This gave each the ability to read what the other person was typing, then respond in the same document.

Design

Sessions with E used a variety of different methods found in the literature. Technology was used most extensively to give him the chance to communicate without speaking, since this had such drastic results in Ido Kedar (2012). Sessions with technology used google docs to let E and the researcher have conversations on their own computers that the other could read while they were happening. When typing and when speaking, all the questions asked were simple and open-ended to avoid receiving echolalic responses and to avoid overwhelming E (Harrington, et al., 2013, p. 155). These questions were also about things with which he was familiar, such as family, activities he has participated in, and movies, his favorite hobby; and one session included the presence of his movies. Pictures were also used in order to foster communication with E, as he was asked questions about the people in the picture and what they were doing. This method was adapted from Rosales and Rehfeldt's (2009) method of identifying objects from pictures to build communication. In this study, pictures of people and things E with which E was familiar were used. One session also included the actual objects discussed, in order to provide E with object permanence to guide discussion, an approach proposed by E's mother.

Procedure

E participated in a total of eight interactive sessions, each lasting approximately 30 minutes, as well as one final time of observing his communication with family to look for changes after completing the study. Each observation took place in his home, usually in the evening. The location in his home varied among the living room, the kitchen, and the great room. Five sessions were held in the kitchen, two in the living room, and one in the great

room. The sessions in the kitchen included technology because the table provided a surface for the computers. His mother was present for each session and helped coax him into talking more by offering him a lot of encouragement. His father was there for several of the meetings and would help with encouraging E to communicate as well. His older sister was also present for portions of some sessions. She provided much assistance in getting him to answer and communicate, especially with nonverbals, since he holds her in high esteem. The family's presence was not suggested in the literature; but to make E feel more at ease and so that his family knew what was happening during the sessions, they stayed with him.

Data

In the beginning, E responded with one-word utterances, unless it was a memorized phrase, such as, "I ate mac and cheese," or "good night, [sister's name]." Sometimes he would answer with longer utterances, but these would repeat back the prompt or several words from it. For example, when his mother asked if he wanted more Goldfish, he answered with, "more Goldfish," or when she asked, "is [brother's name] here?" he responded with, "[brother's name]'s here. Yes." He would also respond to questions about something he did or enjoyed with just one word, even if he had some assistance from his mother in answering. By the end, he was continuing to use just one-word utterances, repeated phrases, and memorized phrases without much change.

E almost never spoke in the typical volume range for conversation. He would usually whisper his responses to questions, often covering his mouth while doing so. If asked to speak a bit louder, he would yell his answer in a monotone voice. The times that he spoke in a typical volume level were when he was saying rehearsed phrases, such as greeting someone or telling a family member good-night. He would also generally speak in a louder voice when echoing,

whether when alone or when talking with others. When he was reciting the same passage repeatedly, he would vary the volume level, quality, and pitch of his voice. However, the majority of his utterances during the sessions were whispered.

At the beginning, E would take quite a bit of time to respond, sometimes as long as two minutes. The actual time varied quite a bit and was not consistent over the course of the sessions. In these pauses, he would get distracted and look around, sing to himself, or hold his mother's face in his hands. As the sessions went on, he took about a minute on average to respond, usually with some encouragement from his mom. He responded more quickly to questions about things that he knew well, such as the names of family members, what he ate for lunch, or his favorite things, but more slowly to things that were more complex or open-ended, such as what he did on vacation. He responded most quickly in the seventh session, when he showed his favorite movies and answered questions about the titles. He also gave rapid answers to questions about the names of a line of statues he had by the TV. However, even if he knew the subjects of the conversations well, his response times still varied throughout the sessions.

E's parents suggested the two strategies that usually yielded a response from him. These were giving him two options and giving him a sentence with a blank to fill. For example, when he did not respond immediately, switching from "What's your favorite food?" to "Is it chili or pizza?" or "On vacation, we..." then, "On vacation, we rode..." to help him narrow it down to something simpler with which he could respond. Using one of these phrases helped him to respond eventually to the prompt; but neither one did much with helping him to respond more quickly.

E made extensive use of echolalia during the sessions. His parents said that E goes through phases of using echoes more and less frequently, and he had not been using them as

often before the sessions and when they started. At the beginning, he usually sat quietly, only giving short answers, sometimes repeating back the question. However, as he progressed, E began using echolalia more and more—repeating back more questions, and increasing his use of delayed echolalia. By the end of the sessions, he would often break into quoting long passages from videos he had seen, sometimes when asked a question and sometimes when there was quiet. Sometimes he repeated these memorized passages while looking at the researcher or his mother or while holding his mother's face.

His most frequent responses to prompts were “yes” and “no,” even if in response to questions like, “How was school?” He was also more likely to answer “yes” to a yes/no question, even if the response was no. For example, in response to a question about if his father was home, E responded with, “yes,” even though his father was at work. However, because of his frequent use of these responses, he responded more rapidly to yes/no questions than he did to almost any other type of question.

For the five sessions that used typing, the researcher would type the question and let him read it. After a few seconds, she would read aloud it to him as well. Hearing the question made him respond verbally before typing a response—he never typed without also speaking what he had to say. He usually typed just one word at a time or rehearsed phrases, such as the name of the university his sister attends, when asked where she was or the city and state that he visited on vacation. However, he used a longer phrase once: with some help from his mother, he typed, “ride on bike,” in response to a question about what he did on vacation. He also typed a full sentence twice. Answering about where his brother was, he typed, with some prompting, “He was is here.” With no help, he responded about what he was eating with, “Thes are

goldfish.” Each of these longer utterances happened in the second and third sessions, but, overall, he spoke more when he was able to type than he did when just speaking.

When E had pictures to look at to guide the conversation, he spoke the same amount that he did without them. In fact, he would sometimes take even longer to respond to questions about what he was doing or who was in the picture, instead just staring at it. Because the pictures were on his mother’s phone, he would also get distracted frequently, grabbing the phone and flipping through pictures quickly. Overall, there was not much of a difference between spoken communication with pictures and spoken communication without them.

E did very well with sitting still and responding during most of the sessions, and his focus improved as the sessions progressed. However, he had a lot of trouble during the sixth session. The difficulties were severe enough that the session could not be completed. From the beginning, he was very hesitant to speak, and around four minutes in, he began hitting himself and yelling. After that, he would only respond with “no” and sighed quite a bit, which is what his parents said that he does when he does not want to be somewhere or do something. His dad took him aside and tried to coax him into going back and focusing, but E just continued to yell “no,” cry, and hit himself. Working with the autistic community often entails challenges like this, but it should be noted that these challenges were not present the entirety of this study. E behaved like this only once throughout the entire time of working with him, and he was usually very congenial.

The seventh session was a bit different from the others, which elicited some different forms of communication from E. It was held in the living room, where the family’s movie collection, one of E’s favorite subjects, was stored. Having the session there gave him the opportunity to see what he was talking about, then share it with the researcher. He responded

much faster in this session, reading all the movie titles that he pulled and quickly responding to any questions about them. However, he also spoke less than in other sessions because he spent a lot of the time in the session searching for specific movies to share.

Discussion

During this study, the most effective way for communicating with E was using his family's movie collection and statues of his favorite characters as the basis of the conversation. Since the subject of the session was two of his favorite hobbies, he responded quickly to any prompts. Having the physical objects present also kept him grounded in the conversation. Surprisingly, even though this was not a method proposed by the literature, it was the most effective way of getting E to respond. However, the use of it needs to be firmly structured to keep him from being distracted by interacting with the objects.

Using the computer to type instead of just speaking was the next most effective method for communicating with E. Reading the prompts on his screen as well as hearing them from the researcher seemed to keep him more focused. The keyboard also gave him a tactile way to express himself, which had a positive effect both in his verbal and his written communication. Unexpectedly, the verbal responses he provided before typing were even faster than those that he gave when the prompt was only spoken. Even if he did not use it immediately, simply having the ability to communicate through typing appeared to help greatly with his levels of communication.

Using simple, closed-ended questions, such as "who is that in the picture?" and "where is your dad right now?" seemed to keep E on track. Because he uses so few words, he responded well when he was not required to give long responses. However, Harrington, et al.'s (2014) approach seemed to be more of a communication strategy than a method. Furthermore, this

strategy cannot yield much growth in communication skills when used alone because it is simply a way of speaking to participants. Rather, this method is best when combined with others, such as the use of technology.

Using pictures as a means of guiding communication did more harm than good. Seeing the subject of the conversations was useful in giving permanence, and E seemed to enjoy looking at them during conversations. However, the pictures' being on his mother's phone was a source of quite a bit of distraction, as he continually tried to grab the phone away to look through the pictures at his own rapid pace. This method had a fair bit of potential as a way of improving E's communication; but it would have to be more structured and have the pictures printed out, an option that was difficult to access before the sessions.

One of the most discouraging results was the increase in E's use of echolalia. None of the strategies made much progress in reducing it, and the times that he would use echolalia were unpredictable. However, repeating back portions of questions was one way of answering them, so that was part of how he tried to communicate. Furthermore, holding his mother's face or looking at people while reciting was possibly an additional way of attempting to communicate, even if the reason why he does so is unknown.

E's continued use of one-word utterances was also discouraging. One possible explanation is that he is accustomed to giving only the required information. Since he responds best to having options and filling in the blanks of sentences, that is usually how his family speaks with him. Thus, he usually does not need to use longer phrases. It would be beneficial for him to have opportunities where he had to use full sentences rather than only needing to give the smallest possible amount of information.

Even though E did not show much improvement in verbal communication, the sessions gave him more practice communicating than he normally has during the day. His family will speak to him and ask him questions throughout the day, but they do not usually have dedicated times for talking with him. These sessions gave E the experience of having focused times where he had to communicate in his own home, not a speech therapist's office or school. The more relaxed context made communicating less removed from his daily routine, which will, it is hoped, encourage better communication in other less-structured contexts. Additionally, it should be a good pattern for him to follow in communicating more with his family. His mother intends to continue having focused sessions of communication with E, with just his parents, as well as more with the researcher.

E's ability to focus throughout the sessions was also surprising. Even though he was distracted often, he always stayed and listened to what his mother and the researcher said to him. Only in the beginning did he try to stand up and leave, and he returned when asked. Furthermore, two of his diversion tactics were some form of communication, even if they were unrelated to the prompt. For example, putting his hands on his mother's face was a nonverbal way of communicating his affection for her. Simply his continual presence during the sessions was great to observe.

A final achievement of this study was the growth of E's relationship with me. When working with adolescents with autism, being able to connect and form ties is crucial in being able to foster communication and cooperation. These developments lead to trust and more of a desire to communicate, which can bring more progress. Working with a vulnerable population like the autistic community makes connections and trust such as this crucial. However, improvements in communication are not the only reason that forming connections is special to

researchers. It was wonderful to watch E move from being reserved to giving me hugs and lovingly putting his hands on my face while I spoke with him as his relationship with me developed.

Over the course of the study, E's communication skills did not show much improvement. Overall, his response rate, level of concentration, and the amount of echolalia seemed to depend quite a bit on his mood, since they varied from session to session. Some days he was faster at responding and better at focusing, but these days appeared to be random, rather than a progression. By the end of the sessions, most of the features of his language remained the same, and he was not communicating more or responding more quickly. Furthermore, his use of echolalia increased, rather than diminishing. However, except for one challenging session, E would respond to almost all the prompts during the conversations, so the study was successful in finding methods that encouraged him to speak. It also provided the field of research within the autistic community with more data in understanding how low-communicative autistic adolescents respond when they have to speak.

Conclusion

The results of this study give some insight into the communication of an autistic adolescent. Even though E's communication did not show much improvement over the course of the time with him, the study still provided him with conversational experience, and his family with a framework for practicing communication with him. The results also provide further data on how individuals with ASD communicate and respond to current methods, which can lead to future research on which strategies are the most effective for encouraging communication.

Limitations of This Study

Due to the small size of this study, it cannot provide much conclusive evidence; rather, it can only provide a small glimpse into the subject of how autistic adolescents communicate. Because of this limitation, all analyses of research are from a perspective that is less generalized, even though the results can be beneficial and provide insight into other situations and studies.

The shorter time frame also limited the scope of this study. A longer amount of time would have provided more space for improvement in E's communication, since not much progress can occur in such a short time. Unfortunately, there was no way to provide more time for the research.

A final concern was E's close connection to the researcher. Since he has known her for a few years, whether he would take the sessions seriously or be able to focus was a concern; but having structured sessions at similar times of the day helped to lessen this effect. How it would affect relations with his family was also a concern. If they were dissatisfied with the methods or rate of progress, it could cause some tensions. To counteract this, the strategies for working with E were non-intrusive, and the parents were aware that the study might yield inconclusive results.

Further Research

Continuing sessions with E would be beneficial to both him and his family. More sessions could be scheduled in the future to continue testing which of the methods in this study are most effective with him. With more time, additional strategies could also be implemented to test their effectiveness compared with those used in this study. In addition, a longer time frame for the study would, it is hoped, yield more improvement.

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