5-2018

Perceptions of Applied Behavioral Analysis in Speech-therapy with Individuals with Autism

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PERCEPTIONS OF APPLIED BEHAVIORAL ANALYSIS IN SPEECH-THERAPY WITH

INDIVIDUALS WITH AUTISM

A Thesis

by

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Submitted to the Graduate College of
The University of Texas Rio Grande Valley
In partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

May 2018

Major Subject: Communication Sciences and Disorders

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May 2018

ABSTRACT

Cortez, Irene, <u>Perceptions of Applied Behavioral Analysis in Speech-Therapy with Individuals</u>

<u>with Autism</u>. Master of Science (MS), May 2018, 48 pp., 9 tables, references, 37 titles.

Speech language pathologists in the pediatric setting will typically find themselves

working with children with autism and implementing behavior management strategies in order to

implement the most effective therapy. Many of these behavior management strategies fall under

the category of applied behavioral analysis, however applied behavioral analysis is not widely

implemented as a whole in speech therapy. This thesis reviews current literature regarding

autism, behavior management, and Applied Behavioral Analysis in speech therapy; and how

speech language pathologists currently perceive applied behavioral analysis and its usefulness in

speech therapy. General findings of this thesis revealed that the majority of speech language

pathologists feel comfortable addressing repetitive behaviors, restlessness, and talking loudly to

themselves. However, speech language pathologists do not feel comfortable addressing children

with autism not being toilet trained and having aversions to food or drinks.

DEDICATION

Pursing my degree and educational goals would not have been possible without the support, love, and reassurance from my loved ones. To my parents, Lee and Dana, thank you for all that you have done and the constant support you have lent me over the course of my academic career. To Tony, my brother Phillip, and nephew Peyton, thank you for constantly pushing me and providing laughter in any situation. To Michael, thank you for your endless support, reassuring words, and constant optimism. To Roscoe, thank you for providing me with your constant comfort and pulling those late nights with me.

ACKNOWLEDGMENTS

I will be eternally grateful to Dr. Ruth Crutchfield, chair of my thesis committee, for all her mentoring and advice, as well as instilling a love for research in me. I am also grateful to my thesis committee members, Keri Gonzalez and Valerio Celedon, for their advice and feedback.

I would like to thank my professors at the University of Texas Rio Grande Valley who have inspired me to be the best that I can possibly be. I would also like to thank my cohort for their continuous support and advice.

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CHAPTER I

INTRODUCTION

When providing speech therapy (ST) to a child with autism, a variety of treatment

options can be utilized. According to the American-Speech-Language-Hearing Association

(ASHA) (2018), a treatment option speech-language pathologists (SLP) may choose is behavior

intervention to help reduce adverse behaviors and remodel the adverse behaviors into functional

behaviors. To address this, behavior management can be implemented.

The root of behavior management is determining the cause of the adverse behavior, what

purpose the behavior serves, and under what conditions the behavior manifests (ASHA, 2018).

Positive and negative reinforcement are typically used when managing adverse behaviors

(Applied Behavioral Strategies, 2018). Positive reinforcement occurs when a desired item or

activity is presented to an individual to increase the occurrence of a specific behavior (Applied

Behavioral Strategies, 2018). Negative reinforcement occurs when an undesired item or object is

removed in order to decrease the occurrence of an unwanted behavior and increase the targeted

behavior (Applied Behavioral Strategies, 2018). Negative reinforcement can include extinction

which is withholding a consequence that has typically been provided after an unwanted behavior

(Applied Behavioral Strategies, 2018). Negative reinforcement can also include punishment

which does not always include aversives or spankings and can include time out from a desirable

object or activity and response cost. (Applied Behavioral Strategies, 2018).

Autism Speaks (2018) states applied behavioral analysis (ABA) has been used since the early 1960's to target appropriate behaviors, play, communication, in addition to academic, social, and community skills in individuals with autism. Autism Speaks (2018) explains ABA has been backed by research and proven to be an effective treatment method when targeting cognition and language. Autism Speaks (2018) further explains that throughout the decade's different structures of ABA have emerged; however, they all contain three strategies based on Skinner's work. These three steps include: an antecedent which is a physical or verbal stimulus that occurs before a behavior, the resulting behavior which is the behavior in response or in lack of response to the antecedent, and the consequence which is the event that occurs after the resulting behavior and can include positive or negative reinforcement (Autism Speaks, 2018). The Centers for Disease Control and Prevention (CDC) (2015) indicate different types of ABA interventions can include Discrete Trial Training (DTT), Early Intensive Behavioral Intervention (EIBI), Pivotal Response Training (PRT), and Verbal Behavior Intervention (VBI).

Autism Speaks (2018) states ABA is utilized to target learning novel skills and reducing the amount of adverse behaviors displayed. Most ABA programs typically break down each skill into incremental steps and utilize prompts, which are gradually reduced as the skill is being mastered (Autism Speaks, 2018). Applied Behavioral Strategies (2018) elaborates that the most common types of prompts utilized are verbal, physical, positional, model, and gestural. Autism Speaks (2018) describes that the individual is typically given multiple opportunities to learn and practice each step, when the individual displays the skill positive reinforcement is utilized. Applied Behavioral Strategies (2018) further explains the most common types of prompting are most-to-least and least-to-most. Most-to-least is when the most intrusive prompt is utilized to obtain the desired behavior and is then decreased to less intrusive prompts throughout the

subsequent sessions (Applied Behavioral Strategies, 2018). Least-to-most prompting is when the least intrusive form of prompting is utilized to obtain the desired behavior and increasing the intrusiveness of the prompt in subsequent trials if the individual responds incorrectly (Applied Behavioral Strategies, 2018). Most-to-least prompting is typically utilized when an individual is learning a new skill, and least-to-most prompting is typically utilized when working on a skill that the individual has been successful at in the past (Applied Behavioral Strategies, 2018).

Autism Speaks (2018) expresses that in order for ABA to be effective it is important not to view it as a one size fits all method. They also went on to explain the importance of customizing the intervention to each individual's skills, needs, likes, and preferences (Autism Speaks, 2018). ABA programs have seven features in common (Autism Speaks, 2018) These seven features include: 1) Treatment goals developed from a detailed assessment of each learner 2) Treatment goals that are developmentally appropriate and target a variety of skill areas 3) Established goals that enable the individual to become independent and successful (Autism Speaks, 2018). These features also include: 4) Instruction broken down into manageable steps to be taught from simplest to more complex 5) Intervention as an ongoing objective measurement of the individual's progress 6) Progress that is frequently reviewed to adjust instruction and goals as needed and 7) Regular meetings between the clinician and the family members in order to plan, review, and adjust (Autism Speaks, 2018). ABA therapy also includes the following commonalities: utilizing a variety of behavior analytic procedures, providing training to family and caregivers to support learning and practice, providing a variety of opportunities to the individual in order to acquire and practice skills, utilizing positive reinforcement when demonstrating socially appropriate behaviors and targeted skills, and withholding reinforcement for aversive behaviors (Autism Speaks, 2018).

ABA session are typically 2 to 3 hours in length for a total of 25-40 hours a week and consists of short periods, three to five minutes, of structured time; breaks which are 10-15 minutes and are taken every hour; and free play for 10 to 15-minutes (Autism Speaks, 2018). Autism Speaks (2018) further explains that free play and breaks are typically utilized for incidental teaching or practicing skills in novel environments. In ABA skills are broken down and built upon in order for the individual to learn in a natural environment such as facilitated play with peers (Autism Speaks, 2018). Moreover, Autism Speaks (2018) states therapists measure success of ABA by direct observation, data collection, and analysis; if the individual is not making satisfactory gains adjustments are made in order to better serve the child.

Applied Behavioral Analysis in speech therapy is a controversial topic. ASHA states that there are a variety of different treatment options to utilize when working with a client diagnosed with autism (ASHA, 2017). ABA is one option that can be found under the behavioral intervention branch (ASHA, 2018). ASHA (2017) describes ABA as a treatment approach, which utilizes the principles of learning theory to bring about meaningful and positive changes to behavior. ABA can be used to develop and generalize a variety of skills such as communication, social skills, self-control, and self-monitoring (ASHA, 2017).

ASHA (2018) states speech-language pathologists (SLP's) may choose to use a strict approach, such as discrete trials, or more naturalistic approaches, such as the milieu method, of ABA. Furthermore, ASHA (n.d.) explains that while ABA therapists work on specific behaviors of an individual with autism, SLPs use ABA to focus on the comprehension and utilization of pragmatic communication, speech and language production, augmentative and alternative communication (AAC), as well as literacy. However, ASHA (2018) states that ABA should not be the only treatment method employed when treating children with autism, and SLPs who

utilize more traditional approaches of ABA should be cautious in order to avoid problems such as prompt dependency and generalization.

CHAPTER II

TERMINOLOGY

A new set of vocabulary ought to be learned when working with children with autism. In this section, we can find a general definition of the vocabulary used in this thesis. These terms can also be found in alphabetical order in Appendix B.

When one receives *speech therapy* as a child it is most commonly used to target and correct a language disorder or a speech disorder (ASHA, 2018). When a child has a *speech disorder*, it typically means that they have difficulty producing a specific sound or set of sounds correctly, *speech sound disorder*, have problems utilizing their voice properly and effectively, *voice disorder,* or *stutter* which affects the fluency of speech due to disfluencies such as prolongations, repetitions, and interjections (ASHA, 2018). When a child presents with a *language disorder* it can be due to either *receptive language*, trouble with understanding spoken language, or *expressive language*, difficulty in expressing their thoughts, feeling, and ideas (ASHA, 2018).

When a child is diagnosed with *autism* it typically means that the child presents with a range of conditions characterized by difficulties with social skills, behaviors, speech, and nonverbal communication (Autism Speaks, 2018). However, there is no single defining set of characteristics of autism since it can occur by different combinations of environmental influences and genetic makeup (Autism Speaks, 2018). A child with autism can display language characteristics such as telegraphic speech, echolalia, and language or global regression (Jones &

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Campbell, 2009). *Telegraphic speech* is when a sentence contains mostly nouns and verbs and all other words are omitted making the sentence grammatically incorrect such as "Kitty sleep" (Speech Science, 2018). *Echolalia* is when a child repetitively repeats words or phrases they heard earlier that day or in previous weeks (ASHA, 2018). *Language regression* is when language skills that have been acquired are gradually lost (Jones and Campbell, 2009). *Global regression* is when previous interests or pragmatic skills are lost (Jones and Campbell, 2009). Regression typically occurs in children before the age of three who have limited vocabulary and auditory comprehension (Jones and Campbell, 2009). *Adverse behaviors*, or challenging behaviors, can typically be seen in this population and may include self-injury, aggressiveness, and tantrums (Autism Research Institute, 2018). However, through the use of *behavior management*, strategies that encourage functional behavior and reduce the occurrence of adverse behaviors, the adverse behaviors can then be molded into functional behavior (Department of Education, 2009).

Behavior management focuses on changing the behavior by looking at the *antecedent*, an event that occurs before the behavior that causes the environment to change (Kaplan & Carter, 1995). The antecedent therefore causes the behavior to stay the same or change (Kaplan & Carter, 1995). An example of an antecedent would be asking a question or handing someone a napkin (Kaplan & Carter, 1995). Behavior management also focuses on the *consequence*, the response or change in behavior to an antecedent (Kaplan & Carter, 1995). An example of a consequence would be talking when being asked a question or wiping your hands when being given a napkin (Kaplan & Carter,1995). Consequences can be altered based on the type of reinforcement they receive, such as positive reinforcement, negative reinforcement, and extinction (Kaplan & Carter,1995).

According to Kaplan and Carter (1995), *positive reinforcement* is when a behavior is strengthened by promptly rewarding the behavior with a reward that the child finds desirable. *Negative reinforcement* strengthens a targeted behavior by promptly avoiding or removing something the child finds to be aversive, such as *response cost* which is when a child will have to return tokens after displaying an adverse behavior when using a token system (Kaplan & Carter,1995). A *token system* is a behavior management system in which a student is rewarded with a token when displaying targeted behaviors that can be cashed in for desired rewards or taken away for adverse behaviors (Kaplan & Carter, 1995). Kaplan and Carter (1995) explain *extinction* weakens a behavior by denying a positive reinforcer which, decreases the behavior from reoccurring.

Applied behavioral analysis is typically used while treating children with autism, and it is an evidence-based approach that focuses on increasing functional behaviors while decreasing adverse behaviors and in turn increases language and communication skills (Autism Speaks, n.d.). This can be done by use of *prompts*, which is a stimulus that encourages or supports a child to display a functional behavior that typically is not displayed by the child (BBB Autism, 2012). A prompt is typically used when a previous antecedent does not warrant behavior that is the targeted behavior (BBB Autism, 2012). A child can be prompted with either the most-to-least intrusive prompts or the least-to-most intrusive prompts (BBB Autism, 2012). *Most-to-least* is typically used when a child is acquiring a new skill and needs the strongest type of prompt to exhibit the functional behavior being targeted (BBB Autism, 2012). *Least-to-most* is typically used once the child has already acquired the targeted behavior and prompts that are less invasive are utilized (BBB Autism, 2012). Once a behavior becomes generalized it is faded out (BBB Autism, 2012). *Fading* is when a prompt is slowly taken away from a child and replaced with a

weaker or less intrusive prompt such as pointing to ball rather than utilizing hand-over-hand assistance (BBB Autism, 2012).

The following are prompts that can be utilized in order from most-to-least invasive. *Physical* prompt is when physical assistance is needed in order to achieve the desired behavior, such as hand-over-hand assistance (BBB Autism, 2012). *Model* prompts are when the clinician models the targeted behavior that the child is supposed to imitate, such as clapping while telling the child to clap (BBB Autism, 2012). *Gestural* prompt is when the clinician utilizes a gesture in order for the client to achieve the targeted behavior, such as making a sweeping gesture when asking what you clean the floors (BBB Autism, 2012). A *positional* prompt is when the clinician is teaching the word cup the clinician would place a cup close to the child (BBB Autism, 2012). Functional behaviors can also be increased through use of Discrete Trial Training, Early Intensive Behavioral Training, Pivotal Response Training, and Verbal Behavior Intervention. According to Autism Speaks (2018), *Discrete Trial Training* (DTT) is when a targeted behavior or skill is broken down into "small discrete components" which are taught successively and reinforced through use of tangible objects. Autism Speaks (2018) defines *Early Intensive Behavioral Training* (EIBT) as a program that targets a range of skills from self-care to sociability before the age of four for 25-40 hours a week for a range of one to three years. *Pivotal Response Training* (PRT) is when a clinician does not target a specific behavior but rather pivotal areas in development that can range from communication to positive social behaviors (Autism Speaks, 2018). PRT is supposed to improve broad areas of development by use of natural reinforcement such as objects that the child finds meaningful (Autism Speaks, 2018). Autism Speaks (2018) states *Verbal Behavior Intervention* (VBI) motivates a child to learn

language by "connecting words with their purposes" and avoids utilizing words to only label

objects but rather utilize language to request objects or explain ideas.

CHAPTER III

LITERATURE REVIEW

A literature review was conducted to provide further insight to this thesis. Literature was found by searching a variety of online databases such as ComDisDome, CINAHL Plus with Full Text, Science Direct, and ERIC. The search terms used in these databases were the following: applied behavioral analysis, speech therapy, speech, autism, children, perceptions, school age, autism spectrum disorders. Only scholarly peer-reviewed journals were chosen. Because of the limited information found, there was no specific time span for literature established. Once all literature was found and reviewed, it was categorized by its commonalities.

Autism

Over the past few years, the prevalence of autism has been rapidly increasing in developing countries and the United States (Schieve et al., 2011). Schieve et al. (2012) argues that the prevalence has increased due to the following three factors: change in measuring prevalence; change in diagnostic measures; placement in special education and autism awareness; and change in non-genetic and sensitivity of genetic risk factors. Due to these factors, Schieve et al. (2012) found that autism prevalence doubled between 2003 and 2007 in children four years and older.

Autism is typically characterized with the following behaviors before the age of three: delayed language development, deficits in pragmatic skills, and repetitive behaviors (Chan, Cheung, Leung, Cheung, & Cheung, 2005). Cheung et al. (2005) stated that among the children

with autism who present with language deficits, 30-40% will not acquire functional language skills in their lifetime. These children's language is typically characterized by telegraphic speech, echolalia, ritualistic language, and difficulty in inferencing (Cheung et al., 2005). Cheung et al. (2005) found that while 21% of children with autism have functional comprehension, children with autism have impaired verbal expression and auditory comprehension. Some children with autism may also display language or global regression (Jones & Campbell, 2009). Jones and Campbell (2009) found that of their 318 participants 29.8% displayed with language regression at an average age of 19.5 months.

Applied Behavioral Analysis

Because of autisms rising prevalence, it is imperative to have evidenced-based practice treatments, such as ABA, available in order to obtain insurance coverage (Roane, Fisher, & Carr, 2016). According to Roane et al. (2016) ABA rose from B.F. Skinner's research that claims behavior is increased by the outcome of favorable reactions or decreased by reactions that do not produce favorable outcomes. Leaf et al. (2015) stated that ABA can be implemented in a variety of settings such as one-to-one and large groups; however ABA is most commonly implemented in one-to-one settings. One of the main components of ABA is the use of reinforcers to increase the occurrence of a targeted behavior (Leaf et al., 2015). The types of reinforcers used in ABA therapy can range in type and in schedule, for example, in-the-moment reinforcers have been found to be more effective (Leaf et al., 2015) An example of in-the-moment reinforcers would be reinforcing the behavior of sitting as soon as the child sits (Leaf et al., 2015). Data collection differentiates ABA from other types of behavior modification techniques because of its reliance on collecting data and implementing a variety of data collection techniques to ensure that is

appropriate for each client (Leaf et al., 2015). Because of these key components, ABA has been found to be one of the most effective methods when treating autism (Matson et al., 2011).

Applied Behavioral Analysis in Speech Therapy

Due to the prevalence of autism rising and the effects autism has on language and pragmatic development, SLPs should be utilizing ABA techniques since they are evidenced-based (Donaldson & Stahmer, 2014). According to Donaldson and Stahmer (2014), SLP's and ABA therapists should work alongside each other in order to help increase the occurrence of functional behaviors as well as increase language and pragmatic skills through the use of evidence-based practices.

Mohammadzaheri, Koegel, Rezaee, and Rafiee (2014) study consisted of thirty participants, eighteen males and twelve females, divided into two groups. Inclusion criteria for Mohammadzaheri et al. (2014) was a diagnosis of autism by a child psychiatrist, a mean length utterance (MLU) of a minimum of two words, monolingual, a minimum Intelligence Quotient (IQ) score of 50, and no hearing or vision loss as well as other co-morbid disorders. Before treatment began, each participant was asked to describe six pictures in order to obtain a language sample (Mohammadzaheri et al., 2014). The participants MLU was obtained by dividing the total number of words elicited, when the child was describing the pictures, by the number of total utterances (Mohammadzaheri et al., 2014). The participants then received treatment twice a week for an hour per session for three months (Mohammadzaheri et al., 2014). Procedures specific to the participants in the ABA group were materials selected by the clinician implementing therapy, only targeted behaviors were addressed, food and objects the participant found desirable were used as reinforcers, and reinforcement was provided on shaping the utterance into longer responses (Mohammadzaheri et al., 2014). After three months of treatment,

Mohammadzaheri et al. (2014) obtained post-intervention data with the same procedures used to collect pre-intervention data and found that through use of a structured ABA program the participants MLU increased from 2.77 to 2.79.

In a similar study with the same amount of participants, number of participants of each gender, inclusion criteria, and procedures, Mohammadzaheri, Koegel, Rezaei, and Bakhshi (2015) investigated the amount of disruptive behaviors displayed by children with autism. Mohammadzaheri et al. (2015) defined disruptive behavior as "any behavior that caused a disruption" such as "crying, yelling, echolalia or repetitive verbal vocalizations" (p.2903). In this study Mohammadzaheri et al. (2015) found that ABA techniques reduced the occurrence of adverse behaviors from 9.6 minutes per session to 8.4 minutes per session.

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Other Behavioral Interventions

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While ABA is one of the most common behavioral interventions when treating children with autism, there are other methods of behavioral interventions such a PRT (Mohammadzaheri, et al., 2015). PRT was developed by using the basic principles of ABA (Mohammadzaheri, et al., 2015). PRT aims to improve motivation and is measured by "responsiveness, rate of responding, and positive affect with improvements in untargeted areas" (Mohammadzaheri, et al., 2015, p. 2900). Because of this, Mohammadzaheri, et al. (2015) argue that PRT is more reinforcing than ABA.

Another behavioral intervention that is utilized is DTT, which has 5 main principles (Donaldson & Stahmer, 2014). DTT's main principles are as follows: acquiring the client's attention, presenting an antecedent that causes a specific behavior, the client acknowledging the antecedent, the clinician providing the client with the appropriate consequence, and allowing a pause before targeting another trial (Donaldson & Stahmer, 2014). Another interesting

component of DDT is that the clinician's consequence is not derived specifically from the targeted behavior (Donaldson & Stahmer, 2014).

A behavioral intervention approach typically utilized for young children is EIBI (Smith, Klorman, & Mruzek, 2015). Smith et al. (2015) explained that EIBI is utilized in children age 5 and under and typically runs for at least two years. Smith et al. (2015) continued to explain that EIBI consists of 15-40 hours of individual treatment per week. Smith et al. (2015) discussed that EIBI is a highly intensive and individualized treatment approach based off operant conditioning and ABA principles. Smith et al. (2015) argue that EIBI can lead to growth in cognitive and academic areas, however results vary greatly across children who are in EIBI programs.

CHAPTER IV

METHODOLOGY

Survey

To gain an understanding of speech language pathologist's perceptions of ABA in speech therapy with individuals with autism, a survey was created on Qualtrics. This survey was created by a thorough search of existing surveys and modifying Ray's (2010) survey entitled *Knowledge and Confidence of Speech-Language Pathologists Regarding Autism* in order to make the survey relevant to this study. The survey consisted of 21 questions, which could be found in Appendix A, and took 10-15 minutes to complete. Question one of the survey provided a summary of the survey and required participants to select if they would like to participate in the survey or decline from participating in the survey.

Questions two through five of the survey pertained to the participant's experience with children who are diagnosed with autism, the type of setting in which they treat children with autism, the total number of years they have been practicing as a speech language pathologist, and the number of children with autism that they treat annually. These questions warranted multiple choice options in which the participant was able to choose the answer that was most relevant to them. Question six asked the participants to select common ABA techniques that they implement throughout their sessions with children diagnosed with autism. This question allowed the participant to make multiple selections and select as many of the techniques that they typically implement.

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Questions seven through seventeen of the survey asked the participants if they were comfortable addressing stereotypical characteristics displayed with their clients diagnosed with autism. These questions were measured by a 5-point Likert scale, in which the participants could choose from strongly disagree, disagree, neither agree or disagree, agree, and strongly agree. The characteristics included in this survey were self-injurious behavior, repetitive behaviors, aggressive behaviors towards others, restlessness, and inattentiveness. Other characteristics in this survey included frequent crying or screaming, needing to be held in order to remain still, talking loudly to themselves, not being toilet trained, aversions to foods or drinks, and lack of motivation.

Questions eighteen through twenty-one were also measured by a 5-point Likert scale and pertained to the participant's attitude toward ABA. The participants were asked if they would like to know more about ABA and if they believed ABA is useful when treating children with autism. They were also asked if they would like to receive ABA certification and if they believed it would be beneficial to have the option to gain ABA certification while pursuing a master's degree in Communication Sciences and Disorders.

Participants

Participants were administered this survey via email. Email addresses of previous students that graduated with their master's degrees in Communication Sciences and Disorders at the University of Texas Rio Grande Valley (UTRGV) which was previously the University of Texas-Pan American (UTPA) were obtained. Email addresses of school-based speech language pathologists that were found on public school websites were also used. Inclusion criteria to participate in this survey were 1) participants must be at least 18 years of age or older, 2)

participants must have a master's degree in Communication Sciences and Disorders, 3)

participants must have experience with children with autism.

If the participants met the inclusion criteria, an invitation was distributed via e-mail with

a link to the survey attached. If the participants wished to participate in the survey they needed to

click on the link provided in the invitation email. When the participant clicked the link, they

were redirected to the survey in which they were presented with a consent page. If the participant

wished to continue and proceed with the survey they would acknowledge that they agree to

participate and be allowed to continue. If the participant did not wish to partake in the survey

they could either exit the survey link or would indicate that they did not wish to participate in

which case Qualtrics would exit them from the survey.

Data Collection

Once the participants completed the survey it was then submitted anonymously on

Qualtrics. Through use of descriptive statistics, the participant's frequency of responses and

central tendencies such as mean, median, and mode were analyzed. The data collected was

analyzed through use of quantitative analysis on Qualtrics and Microsoft Excel.

CHAPTER V

RESULTS

Experience with Children with Autism

Of the 95 surveys emailed, a total of 4 participants took part in this study, a 4% return

rate. The participants of this study all had previous experience providing speech therapy services

to a child with autism, seen in table 1, (n=4, 100%) and were equally divided in the setting they

provided speech therapy services to a child with autism. Half of the participants indicated they

work in public schools (n=2, 50%) and half indicated they work in private clinics (n=2, 50%),

which can be seen in Table 2. All the participants had varying amount of years providing speech

therapy, seen in Table 3. One to five, six to ten, eleven to twenty, and over twenty-one years of

providing speech therapy services were reported by each participant, respectively. The majority

of the participants provided speech services to 1-5 children with autism annually (n=2, 50%).

While the other participants provided speech services to 6-10 children with autism annually

(n=1, 25%) and 11-20 children with autism annually (n=1, 25%). These results can be seen in

Table 4. When asked for the specific techniques utilized in sessions half of the participants

indicated that they utilized total communication (n=2, 50%) while the other participants utilized

functional communication training (n=1, 25%) and speech and language evaluation of students

with autism using standardized assessments (n=1, 25%), seen in Table 5.

Addressing Challenging Behavior

A five-point Likert scale ranging from *1=strongly agree*, *2=agree*, *3=neither agree nor disagree*, *4=disagree,* to *5=strongly disagree* was utilized to assess the participants' comfortableness when addressing a variety of challenging behaviors displayed by children with autism. Results from these findings can be seen in Table 6 and Table 7. Most participants agreed (*n*=3, 75%) while the other participant neither agreed nor disagreed (*n*=1, 25%) when asked if they felt comfortable with managing self-injurious behavior. Seventy-five percent of the participants agreed while twenty-five percent neither disagreed nor agreed when asked if they felt comfortable with managing behaviors that demonstrate aggression with other children. All of the participants agreed (*n*=4, 100%) when asked if they felt comfortable with challenging behaviors displayed by students with autism such as stereotypical and repetitive behaviors, restlessness, not appearing to pay attention, frequent crying and screaming, frequently running around the room, and talking loudly to themselves. When asked if they felt comfortable with challenging behavior of children with autism who are not toilet trained half of the participants agreed (*n*=2, 50%) and half disagreed (*n*=2, 50%). Seventy-five percent of the participants neither agreed nor disagreed that they felt comfortable with challenging behaviors of children with autism who have aversions to foods or liquids. Twenty-five percent of the participants agreed that they felt comfortable with children with autism refusing to eat foods or drink liquids. The majority of the participants agreed (*n*=3, 75%) and the other participant neither agreed or disagreed (*n*=1, 25%) when asked if they felt comfortable with challenging behaviors of children with autism who are not motivated with objects or activities or are difficult to engaged.

Perceptions of ABA

A five-point Likert scale ranging from *1=strongly agree*, *2=agree*, *3=neither agree nor disagree*, *4=disagree,* to *5=strongly disagree* was also utilized to assess the varying levels of how the participants felt about ABA. Results from these findings can be seen in Table 8 and Table 9. The majority of the participants agreed that they would like to know more about ABA and felt ABA could be useful when treating a child diagnosed with autism (*n*=3, 75%) while some participants neither agreed nor disagreed (*n*=1, 25%). Fifty percent of the participants agreed they would like to obtain ABA certification to utilize it when treating children with autism while twenty-five percent of the participants neither agreed nor disagreed, and twenty-five percent of the participants disagreed. When asked if they thought it would be beneficial for universities to offer ABA certification when obtaining a master's of science in Communication Sciences and Disorders half of the participants agreed (*n*=2, 50%) while the other participants neither agreed nor disagreed (*n*=1, 25%) and strongly agreed (*n*=1, 25%).

CHAPTER VI

DISCUSSION

This study revealed that speech language pathologist's feel relatively comfortable addressing stereotypical behaviors exhibited by children with autism. Of the stereotypical behaviors addressed in this study all the participants agree that they feel comfortable addressing repetitive behaviors, restlessness, inattentiveness, frequent crying and screaming, frequently running around the room, and talking loudly to themselves. However, the majority of participants did not feel comfortable addressing stereotypical behaviors exhibited in children with autism such as not being toilet trained and having aversions to food or drinks.

An interesting finding in this study is in regard to speech language pathologists' perspective of ABA. Most of the participants in this study revealed that they feel ABA is useful when treating children with autism and it would be beneficial for universities to offer certification in applied behavioral analysis when pursing a master's degree in Communication and Science Disorders. However, half of the participants did not find it would be beneficial to gain certification in applied behavioral analysis. Another interesting find in this study was that the while participants were encouraged to select all of the ABA techniques they typically implement in therapy, all participants only selected one ABA technique.

These are intriguing findings because the CDC (2018) recently reported that the prevalence of autism is currently 1 in 59 children, 4 times more likely in males, and affects all socioeconomic groups, races, and ethnicities. Since the prevalence of autism is rising, which in

turn affects language development, speech language pathologists should be utilizing evidenced-based practices as mandated by ASHA (ASHA, 2018). According to Autism Speaks (2018), ABA is one of the most researched evidenced-based practices currently used when treating children with autism; therefore, it is interesting to see the correlations regarding ABA in this study. However, these discrepancies could be due to the differing terminology utilized by speech language pathologists and ABA therapists (Frost & Bondy, 2009).

While this study provided a useful insight into speech language pathologists perceptions of ABA in speech therapy with children with autism, there were limitations. Limitations of this study included delayed Institutional Review Board (IRB) approval, which in turn decreased the length of time that data could be collected, as well as the reduced number of responses obtained from perspective participants. Another limitation to this study was the lack of geographical diversity amongst perspective participants.

Future research in this area may benefit from an increased amount of participants in order to ensure the findings are a true representation of the targeted population. Second, it would be intriguing to survey speech language pathologists from different geographic areas about their perceptions of ABA in speech therapy. It could reveal if geographic and socioeconomic status affect perceptions of ABA in speech therapy. Lastly, it would be interesting to see a longitudinal study in which children with autism are provided speech therapy with ABA and without ABA. It would be fascinating to know which group makes larger gains and generalizes and maintains the targeted skill.

Table 1: Participants Responses When Asked if They had Previous Experience with Children with Autism	
Participant 1	Yes
Participant 2	Yes
Participant 3	Yes
Participant 4	Yes

Table 2: Settings Participants Work in When Treating Children with Autism	
Participant 1	Public School
Participant 2	Public School
Participant 3	Private Practice
Participant 4	Private Practice

Table 3: Total Number of Years the Participants Have Been a Speech Language Pathologist	
Participant 1	21+ years
Participant 2	1-5 years
Participant 3	11-20 years
Participant 4	6-10 years

Table 4: Number of Children with Autism the Participants Treat Annually	
Participant 1	6-10
Participant 2	11-20
Participant 3	1-5
Participant 4	1-5

Table 5: ABA Techniques the Participants Utilize When Treating Children with Autism	
Participant 1	Total Communication
Participant 2	Speech and language evaluation of students with autism using standardized assessments
Participant 3	Auditory Integration Training
Participant 4	Total Communication

Table 6: Likert Scale Responses of Participants Comfort When Addressing Challenging Behaviors in Children with Autism (*n*)

Challenging Behaviors	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Self-injurious behaviors			1	3	
Repetitive and stereotypical behavior				4	
Aggression towards others			1	3	
Restlessness				4	
Inattentiveness				4	
Frequent crying and screaming				4	
Running around room unless held				4	
Loudly talking to themselves				4	
Not potty trained		2		2	
Aversion to food and drinks			3	1	
Difficult to engage			1	3	

Challenging Behaviors	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Table 7: Likert Scale Responses of Participants Comfort When Addressing Challenging Behaviors in Children with Autism (%)					
Self-injurious behaviors			25%	75%	
Repetitive and stereotypical behavior				100%	
Aggression towards others			25%	75%	
Restlessness				100%	
Inattentiveness				100%	
Frequent crying and screaming				100%	
Running around room unless held				100%	
Loudly talking to themselves				100%	
Not potty trained		50%		50%	
Aversion to food and drinks			75%	25%	
Difficult to engage			25%	75%	

Table 8: Likert Scale Responses of Participants Perceptions of ABA (*n*)					
Perceptions of ABA	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I would like to know more about ABA			1	3	
ABA is useful when working with children with autism			1	3	
I would like to gain certification in ABA to utilize when treating children with autism		1	1	2	
An option to gain ABA certification when obtaining a master's degree in Communication Sciences and Disorders			1	2	1

Perceptions of ABA	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Table 9: Likert Scale Responses of Participants Perceptions of ABA (%)					
I would like to know more about ABA			25%	75%	
ABA is useful when working with children with autism			25%	75%	
I would like to gain certification in ABA to utilize when treating children with autism		25%	25%	50%	
An option to gain ABA certification when obtaining a master's degree in Communication Sciences and Disorders			25%	50%	25%

REFERENCES

Applied Behavioral Strategies. (2018). What is ABA Therapy?. *Applied Behavioral Strategies.* Retrieved from http://www.appliedbehavioralstrategies.com/basics-of-aba.html

ASHA. (2018). Applied Behavior Analysis and Communication Services. *American Speech-Language-Hearing Association*. Retrieved from https://www.asha.org/NJC/Applied-Behavior-Analysis-and-Communication-Services/

ASHA. (2018). Autism (Autism Spectrum Disorder). *American Speech-Language-Hearing Association* Retrieved from https://www.asha.org/public/speech/disorders/Autism/#treatments

ASHA. (2018). Autism. *American Speech-Language-Hearing Association.* Retrieved from http://www.asha.org/PRPSpecificTopic.aspx?folderid=8589935303&section=Treatment

ASHA. (2018). Challenging Behavior as Communication. *American Speech-Language-Hearing Association.* Retrieved from https://www.asha.org/NJC/Challenging-Behavior-as-Communication/

ASHA. (2018). Evidence-Based Practices in Communication Disorders. *American Speech-Language-Hearing Association*. Retrieved from https://www.asha.org/policy/PS2005-00221/

ASHA. (2018). School Services Frequently Asked Questions. *American Speech-Language-Hearing Association.* Retrieved from http://www.asha.org/SLP/schools/School-Services-Frequently-Asked-Questions/#caseload5

ASHA. (2018). Speech and Language Disorders and Diseases. *American Speech-Language-Hearing Association.* Retrieved from https://www.asha.org/public/speech/disorders/

ASHA. (2018). Stuttering. *American Speech-Language-Hearing Association.* Retrieved from https://www.asha.org/public/speech/disorders/stuttering.htm

ASHA. (n.d.). Applied Behavior Analysis Issues in the States. *American Speech-Language-Hearing Association.* Retrieved from https://www.asha.org/uploadedFiles/ABA-Issue-Brief.pdf

Autism Research Institute. (n.d.) Tantrumming & Aggression. *Autism Research Institute*. Retrieved from https://www.autism.com/treating_tips

Autism Speaks. (2018). Applied Behavioral Analysis (ABA). *Autism Speaks*. Retrieved from https://www.autismspeaks.org/what-autism/treatment/applied-behavior-analysis-aba

Autism Speaks. (2018). Discrete Trail Training. *Autism Speaks*. Retrieved from https://www.autismspeaks.org/blog/2012/12/14/discrete-trial-training

Autism Speaks. (2018). Pivotal Response Treatment (PRT). *Autism Speaks*. Retrieved from https://www.autismspeaks.org/what-autism/treatment/pivotal-response-therapy-prt

Autism Speaks. (2018). Treatment and Therapies. *Autism Speaks*. Retrieved from https://www.autismspeaks.org/family-services/tool-kits/100-day-kit/treatments-therapies

Autism Speaks. (2018). Verbal Behavior Therapy. *Autism Speaks*. Retrieved from https://www.autismspeaks.org/what-autism/treatment/verbal-behavior-therapy

Autism Speaks. (2018). What is Autism?. *Autism Speaks*. Retrieved from https://www.autismspeaks.org/what-autism

Barbera, M. (2009). The experiences of 'autism mothers' who become behavior analysts: a qualitative study. *Journal Of Speech-Language Pathology & Applied Behavior Analysis*, 4(1-4), 56-73.

BBB Autism. (2002). Prompting and Fading. *BBB Autism*. Retrieved from http://www.bbbautism.com/prompting_and_fading.htm

CDC. (2015). Autism Spectrum Disorder (ASD) Treatment. *Centers of Disease Control and Prevention*. Retrieved from https://www.cdc.gov/ncbddd/autism/treatment.html

CDC. (2018). Autism Spectrum Disorder (ASD) Data and Statistics. *Centers of Disease Control and Prevention*. Retrieved from https://www.cdc.gov/ncbddd/autism/data.html

Chan, A., Cheung, J., Leung, W., Cheung, R., & Cheung, M. (2005). Verbal expression and comprehension deficits in young children with autism. *Focus On Autism & Other Developmental Disabilities*, 20(2), 117-124.

Department of Education. (2009). Teacher In-Service Behaviour Management Facilitator's Manual 'Improving student behaviour and welfare'. Retrieved from http://www.education.gov.pg/TISER/documents/resources/behaviour/behaviour-management-tip-2009.pdf

Donaldson, A.L., & Staher, A.C (2014). Team Collaboration: The Use of Behavior Principles for Serving Students With ASD. *Language, Speech & Hearing Services in Schools*, 45 (4), 261-276. Doi: 10.1044/2014_LSHSS-14-0038

Frost, L., & Bondy, A. (2009). A common language: using B.F. Skinner's Verbal Behavior for assessment and treatment of communication disabilities in SLP-ABA. *Journal Of Speech-Language Pathology & Applied Behavior Analysis*, 4(1-4), 2-9.

Jarzynski, Becca. (2018). Talk to Toddlers-But Not in Telegraphic Speech. *Speech Science*. Retrieved from http://www.speechscience.org/toddlers-and-preschoolers/2018/3/8/talk-to-toddlers-but-not-in-telegraphic-speech

Jones, L., & Campbell, J. (2010). Clinical characteristics associated with language regression for children with autism spectrum disorders. *Journal Of Autism & Developmental Disorders*, 40(1), 54-62. doi:10.1007/s10803-009-0823-3

Kaplan, J. S., & Carter, J. (1995). *Beyond Behavior Modification: A Cognitive-Behavioral Approach to Behavior Management in the School* (3rd ed.). PRO-ED.

Leaf, J., Leaf, R., McEachin, J., Taubman, M., Ala'i-Rosales, S., Ross, R., & ... Weiss, M. (2016). Applied Behavior Analysis is a Science and, Therefore, Progressive. *Journal Of Autism & Developmental Disorders*, 46(2), 720-731. doi:10.1007/s10803-015-2591-6

Matson J.L., Turygin N.C., Beighley J., Rieske R., Tureck K., Matson M.L. (2012). Applied behavior analysis in Autism Spectrum Disorders: Recent developments, strengths, and pitfalls. *Research in Autism Spectrum Disorders*, 6 (1), 144-150. doi:10.1016/j.rasd.2011.03.014

Mohammadzaheri, F., Koegel, L., Rezaee, M., & Rafiee, S. (2014). A Randomized Clinical Trial Comparison Between Pivotal Response Treatment (PRT) and Structured Applied Behavior Analysis (ABA) Intervention for Children with Autism. *Journal Of Autism & Developmental Disorders*, 44(11), 2769-2777. doi:10.1007/s10803-014-2137-3

Mohammadzaheri, F., Koegel, L., Rezaei, M., & Bakhshi, E. (2015). A Randomized Clinical Trial Comparison Between Pivotal Response Treatment (PRT) and Adult-Driven Applied Behavior Analysis (ABA) Intervention on Disruptive Behaviors in Public School Children with Autism. *Journal Of Autism & Developmental Disorders*, 45(9), 2899-2907. doi:10.1007/s10803-015-2451-4

Ray, J.M., & Mehta, S. (2010). Knowledge and Confidence of Speech-Language Pathologists Regarding Autism (Unpublished doctoral dissertation). University of North Texas.

Roane, H. S., Fisher, W. W., & Carr, J. E. (2016). Applied Behavior Analysis as Treatment for Autism Spectrum Disorder. *Journal Of Pediatrics*, 17527-32. doi:10.1016/j.jpeds.2016.04.023

Schieve, L., Rice, C., Yeargin-Allsopp, M., Boyle, C., Kogan, M., Drews, C., & Devine, O. (2012). Parent-Reported Prevalence of Autism Spectrum Disorders in US-Born Children: An Assessment of Changes within Birth Cohorts from the 2003 to the 2007. *National Survey of Children's Health. Maternal & Child Health Journal*, 16151-157. doi:10.1007/s10995-012-1004-0

Shabani, D. B., & Lam, W. Y. (2013). A Review of Comparison Studies In Applied Behavior Analysis. *Behavioral Interventions*, 28(2), 158-183. doi:10.1002/bin.1361

Smith, T., Klorman, R., & Mruzek, D. W. (2015). Predicting Outcome of Community-Based Early Intensive Behavioral Intervention for Children with Autism. *Journal Of Abnormal Child Psychology*, 43(7), 1271-1282. doi:10.1007/s10802-015-0002-2

APPENDIX A

APPENDIX A

PERCEPTIONS OF APPLIED BEHAVIORAL ANALYSIS IN SPEECH-THERAPY WITH

INDIVIDUALS WITH AUTISM SURVEY

A. Do you or have you worked with at least one student with autism?
   1. Yes
   2. No

B. In what kind of setting do you work the most with individuals with autism?
   1. Private Practice
   2. Home Health
   3. Public School

C. How many total years have you been practicing as an SLP?
   1. 1-5
   2. 6-10
   3. 11-20
   4. 21+

D. How many students with autism do you regularly provide speech/language intervention a
   year?
   1. 1-5
   2. 6-10
   3. 11-20
   4. 21+

E. Please check the techniques from the list that your SLP university training program adequately prepared you to use with clients after graduation.

   1. American Sign Language
   2. Auditory Integration Training
   3. Augmentative and Alternative Communication
   4. Evaluation and target selection with ABLLS or VB-MAPP
   5. Evaluation using Mean Length of Utterance (MLU)
   6. Facilitated Communication Training
   7. Functional Behavior Assessment
   8. Functional Communication Training
   9. Managing problem behavior of individuals with autism
   10. Manually Coded English Sign Systems
   11. Milieu or Naturalistic teaching
   12. Picture Exchange Communication System (PECS)
   13. Pivotal Response Training
   14. Positive Behavior Support
   15. Prompting and Prompt Fading
   16. Reinforcer Assessment
   17. Self and Parallel talk
   18. Speech and language evaluation of students with autism using standardized assessments (e.g., PPVT, PLS-4, CELF-4)
   19. Total Communication
   20. Traditional Articulation Therapy

F. For this item, please indicate whether you Strongly Agree (SA), Agree (A), Neither Agree nor Disagree, Disagree (D), or Strongly Disagree (SD):
I feel comfortable when managing the challenging behavior of my students with autism who exhibit self-injurious behaviors.
   1. Strongly agree (SA)
   2. Agree (A)
   3. Neither agree nor disagree
   4. Disagree (D)
   5. Strongly disagree (SD)

G. For this item, please indicate whether you Strongly Agree (SA), Agree (A), Neither Agree nor Disagree, Disagree (D), or Strongly Disagree (SD):
I feel comfortable when managing the challenging behavior of my students with autism who exhibit aggression toward other children or adults.
   1. Strongly agree (SA)
   2. Agree (A)
   3. Neither agree nor disagree
   4. Disagree (D)
   5. Strongly disagree (SD)

H. For this item, please indicate whether you Strongly Agree (SA), Agree (A), Neither Agree nor Disagree, Disagree (D), or Strongly Disagree (SD):
I feel comfortable when managing the challenging behavior of my students with autism who appear to be restless and unable to sit still.
1. Strongly agree (SA)
2. Agree (A)
3. Neither agree nor disagree
4. Disagree (D)
5. Strongly disagree (SD)

I. For this item, please indicate whether you Strongly Agree (SA), Agree (A), Neither Agree nor Disagree, Disagree (D), or Strongly Disagree (SD):
I feel comfortable when managing the challenging behavior of my students with autism who appear to not pay attention to my instructions.
1. Strongly agree (SA)
2. Agree (A)
3. Neither agree nor disagree
4. Disagree (D)
5. Strongly disagree (SD)

J. For this item, please indicate whether you Strongly Agree (SA), Agree (A), Neither Agree nor Disagree, Disagree (D), or Strongly Disagree (SD):
I feel comfortable when managing the challenging behavior of my students with autism who frequently cry and scream.
1. Strongly agree (SA)
2. Agree (A)
3. Neither agree nor disagree
4. Disagree (D)
5. Strongly disagree (SD)

K. For this item, please indicate whether you Strongly Agree (SA), Agree (A), Neither Agree nor Disagree, Disagree (D), or Strongly Disagree (SD):
I feel comfortable when managing the challenging behavior of my students with autism who run around the room every few minutes unless held by an adult.
1. Strongly agree (SA)
2. Agree (A)
3. Neither agree nor disagree
4. Disagree (D)
5. Strongly disagree (SD)

L. For this item, please indicate whether you Strongly Agree (SA), Agree (A), Neither Agree nor Disagree, Disagree (D), or Strongly Disagree (SD):
I feel comfortable when managing the challenging behavior of my students with autism who talk to themselves loudly.
   1. Strongly agree (SA)
   2. Agree (A)
   3. Neither agree nor disagree
   4. Disagree (D)
   5. Strongly disagree (SD)

M. For this item, please indicate whether you Strongly Agree (SA), Agree (A), Neither Agree nor Disagree, Disagree (D), or Strongly Disagree (SD):
I feel comfortable when managing the challenging behavior of my students with autism who are not potty trained.
   1. Strongly agree (SA)
   2. Agree (A)
   3. Neither agree nor disagree
   4. Disagree (D)
   5. Strongly disagree (SD)

N. For this item, please indicate whether you Strongly Agree (SA), Agree (A), Neither Agree nor Disagree, Disagree (D), or Strongly Disagree (SD):
I feel comfortable when managing the challenging behavior of my students with autism who refuse to eat foods or drink liquids.
   1. Strongly agree (SA)
   2. Agree (A)
   3. Neither agree nor disagree
   4. Disagree (D)
   5. Strongly disagree (SD)

O. For this item, please indicate whether you Strongly Agree (SA), Agree (A), Neither Agree nor Disagree, Disagree (D), or Strongly Disagree (SD):
I feel comfortable when managing the challenging behavior of my students with autism are not motivated for objects or activities and are difficult to engage.
   1. Strongly agree (SA)
   2. Agree (A)
   3. Neither agree nor disagree
   4. Disagree (D)
   5. Strongly disagree (SD)

P. For this item, please indicate whether you Strongly Agree (SA), Agree (A), Neither Agree nor Disagree, Disagree (D), or Strongly Disagree (SD):
I would like to know more about applied behavior analysis.
1. Strongly agree (SA)
2. Agree (A)
3. Neither agree nor disagree
4. Disagree (D)
5. Strongly disagree (SD)

Q. For this item, please indicate whether you Strongly Agree (SA), Agree (A), Neither Agree nor Disagree, Disagree (D), or Strongly Disagree (SD):
Applied behavior analysis can be useful when providing speech therapy to children diagnosed with Autism.
1. Strongly agree (SA)
2. Agree (A)
3. Neither agree nor disagree
4. Disagree (D)
5. Strongly disagree (SD)

R. For this item, please indicate whether you Strongly Agree (SA), Agree (A), Neither Agree nor Disagree, Disagree (D), or Strongly Disagree (SD):
I would like to gain certification in applied behavior analysis in order to utilize it when providing speech therapy to children diagnosed with Autism.
1. Strongly agree (SA)
2. Agree (A)
3. Neither agree nor disagree
4. Disagree (D)
5. Strongly disagree (SD)

S. For this item, please indicate whether you Strongly Agree (SA), Agree (A), Neither Agree nor Disagree, Disagree (D), or Strongly Disagree (SD):
I believe it would be beneficial to offer applied behavior analysis certification when obtaining a Masters Degree in Communication Sciences and Disorders.
1. Strongly agree (SA)
2. Agree (A)
3. Neither agree nor disagree
4. Disagree (D)
5. Strongly disagree (SD)

T. For this item, please indicate whether you Strongly Agree (SA), Agree (A), Neither Agree nor Disagree, Disagree (D), or Strongly Disagree (SD):
I believe it would be beneficial to offer applied behavior analysis certification when obtaining a Masters Degree in Communication Sciences and Disorders.
   1. Strongly agree (SA)
   2. Agree (A)
   3. Neither agree nor disagree
   4. Disagree (D)
   5. Strongly disagree (SD)

APPENDIX B

APPENDIX B

TERMINOLOGY IN ALPHABETICAL ORDER

Terminology

Word	Definition
Adverse Behavior	Challenging behaviors that can typically be seen in children with autism and may include self-injury, aggressiveness, and tantrums
Antecedent	An event that occurs before the behavior that causes the environment to change
Applied Behavioral Analysis	An evidence-based approach that can be utilized while treating children with autism that focuses on increasing functional behaviors while decreasing adverse behaviors and in turn increases language and communication skills
Autism	When a child presents with a range of conditions characterized by difficulties with social skills, behaviors, speech, and nonverbal communication
Behavior Management	Strategies that encourage functional behavior and reduce the occurrence of adverse behaviors
Consequence	The response or change in behavior to an antecedent
Discrete Trial Training	When a targeted behavior or skill is broken down into "small discrete components" which are taught successively and reinforced through use of tangible objects
Early Intensive Behavioral Training	A program that targets a range of skills from self-care to sociability before the age of four for 25-40 hours a week for a range of one to three years
Echolalia	When a child repetitively repeats words or phrases they heard earlier that day or in previous weeks
Expressive Language	Difficulty in expressing their thoughts, feeling, and ideas

Extinction	Weakens a behavior by denying a positive reinforcer which decreases the behavior from reoccurring
Fading	When a prompt is slowly taken away from a child and replaced with a weaker or less intrusive prompt such as pointing to ball rather than utilizing hand-over-hand assistance
Gestural Prompt	When the clinician utilizes a gesture in order for the client to achieve the targeted behavior
Global Regression	When previous interests or pragmatic skills are lost
Language Disorder	Presenting with difficulties in either receptive language or expressive language
Language Regression	When language skills that have been acquired are gradually lost
Least-to-Most	Typically used once the child has already acquired the targeted behavior and prompts that are less invasive are utilized
Model Prompt	When the clinician models the targeted behavior that the child is supposed to imitate
Most-to-Least	Typically used when a child is acquiring a new skill and needs the strongest type of prompt to exhibit the functional behavior being targeted
Negative Reinforcement	Strengthens a targeted behavior by promptly avoiding or removing something the child finds to be aversive
Physical Prompt	When physical assistance is needed in order to achieve the desired behavior
Pivotal Response Training	When a clinician does not target a specific behavior but rather pivotal areas in development that can range from communication to positive social behaviors
Positional Prompt	When the clinician places an item in a specific location
Positive Reinforcement	When a behavior is strengthened by promptly rewarding the behavior with a reward that the child finds desirable
Prompts	A stimulus that encourages or supports a child display a functional behavior that typically is not displayed by the child
Receptive Language	Trouble with understanding spoken language
Response Cost	When a child will have to return tokens after displaying an adverse behavior when using a token system

Speech Disorder	Presenting with a speech sound disorder, voice disorder, or stutter
Speech Sound Disorder	Difficulty producing a specific sound or set of sounds correctly
Speech Therapy	Most commonly used to target and correct a language disorder or a speech disorder
Stutter	Affects the fluency of speech due to disfluencies such as prolongations, repetitions, and interjections
Telegraphic Speech	When a sentence contains mostly nouns and verbs and all other words are omitted making the sentence grammatically incorrect
Token System	A behavior management system in which a student is rewarded with a token when displaying targeted behaviors that can be cashed in for desired rewards or taken away for adverse behaviors
Verbal Behavioral Intervention	Motivates a child to learn language by "connecting words with their purposes" and avoids utilizing words to only label objects but rather utilize language to request objects or explain ideas
Voice Disorder	Problems utilizing their voice properly and effectively

BIOGRAPHICAL SKETCH

Irene Cortez attended The University of Texas Rio Grande Valley from 2011-2016, where she obtained a Bachelor's of Science in Communication Sciences and Disorders and Minors in Philosophy and English. She then continued her education at The University of Texas Rio Grande Valley from 2016-2018 where she obtained her Masters of Science in Communication Sciences and Disorders.

Ms. Cortez has presented about the Milieu technique on language acquisition in Spanish speaking children at the national and state level. Ms. Cortez has also presented on anomia cueing hierarchies for the Spanish speaking population in the Rio Grande Valley at the state level. Ms. Cortez as an interest in early intervention, language acquisition, bilingual language acquisition, multicultural populations, fluency, Down Syndrome, and Autism Spectrum Disorder. She intends to continue contributing research to the field of Communication Sciences and Disorders in these areas. She can be contacted at irenejcortez@gmail.com.