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Evaluating Knowledge and Perspectives of Behavior Analytic Language Strategies in the Clinical

Practice of Speech-Language Pathology

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Lee Honors College Thesis

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ABSTRACT

Research shows that principles of applied behavior analysis (ABA) may be beneficial to language acquisition. Speech-language pathologists (SLPs) have the responsibility of assessment, diagnosis, and treatment for individuals with various speech and language impairments, and work directly with language instruction. However, there is limited knowledge of the degree to which SLPs use concepts of behavior analytic language interventions in clinical practice for individuals of varying language and communication disorders. This study investigated the extent to which practicing SLPs use language strategies from ABA in their clinical practice. A qualitative approach was utilized by conducting individual semi-structured interviews with four practicing SLPs. Thematic analysis of the transcripts of the interviews revealed that although knowledge of ABA principles and perceptions of ABA varied across participants, all responses indicated that the ABA principles discussed could be applicable to the intervention of speech and language disorders, although limitations and barriers were identified. Results will be discussed in terms of the implications for the fields of applied behavior analysis and speech-language pathology.

Keywords: speech-language pathology, applied behavior analysis, communication

INTRODUCTION

The fields of applied behavior analysis (ABA) and speech-language pathology share the common interest of serving individuals with communication challenges and impairments and supporting their acquisition of necessary skills. Because of this shared interest, some researchers suggest that meaningful collaboration between these two professions could provide benefits to individuals they serve (Koenig & Gerenser, 2006; Ogletree & Oren, 2001; Cardon, 2017). For example, Ogletree and Oren (2001) state that despite perceptions that ABA may have limitations, speech-language pathologists (SLPs) may accept and apply ABA principles in their clinical practices. Although some studies have identified the benefits of collaboration between these two professions, the extent that SLPs utilize principles of ABA is unknown. This paper addresses the knowledge and perspectives of SLPs regarding the implementation of behavior analytic strategies in their clinical practice. Although some principles are cited in current SLP literature, limited background information is available regarding the extent to which ABA principles or practices are utilized by SLPs serving school-aged children with speech and language impairments. Modeled after Iacono and Cameron (2009), the aim of this current study was to explore the following research questions about the knowledge and practice of SLPs:

1. To what extent are SLPs aware of principles of ABA, and what is the extent of their knowledge about these practices?

2. What are their perceptions of behavioral practices with respect to communication and specifically for language and/or speech intervention?

3. What factors facilitate or hinder the use of ABA practices in their practice? (Why do they use or not use each technique)

4. From what sources do SLPs learn about applied behavior analysis?

Speech-Language Pathologist: Scope of Practice

In the scope of practice of an SLP, clinicians play crucial roles in rapidly changing and evolving health and education settings throughout all aspects of communication across the entire life span (ASHA, 2016). According to the American Speech-Language-Hearing Association (ASHA) Scope of Practice (2016), SLPs are responsible for ethically serving individuals with communication disorders, including speech production and fluency, language, cognition, voice, resonance, hearing, and swallowing. ASHA states that SLPs are responsible for "consulting and collaborating with other professionals, family members, caregivers, and others to facilitate program development and to provide supervision, evaluation, and/or expert testimony, as appropriate" (ASHA, 2016). In their clinical settings, SLPs may assess, diagnose and provide treatment for the aforementioned disorders (ASHA, 2016).

Literature in the field of speech-language pathology discusses the difference in language, speech, and communication as distinct, but overlapping, processes. ASHA (2019) defines language as the "comprehension and/or use of a spoken (i.e. listening and speaking), written (i.e. reading and writing) and/or other communication symbol system (e.g. American Sign Language)." ASHA (2019) further classifies language as receptive and expressive. Receptive language is defined as the ability to comprehend or understand information, while expressive language can be described as expressing thoughts and ideas through speech or writing (Turnbull & Justice, 2012; ASHA, 2019). Language is comprised of three domains: form, content and use (ASHA, 2019). Form depicts how words, sentences, and sounds are organized, and is further refined to include the phonology, morphology, and syntax of language. Content refers to the meaning of words in language and

includes the component of semantics. Use is related to the communicative meaning of language and is primarily concerned with pragmatics (ASHA, 2019; Turnbull & Justice, 2012).

In SLP literature, there is a strict distinction between language and speech in that they are independent but closely connected. An individual can have great language skills, but limited functioning speech, for example (Turnbull & Justice, 2012). Turnbull and Justice (2012) summarize that "speech is the voluntary and complex neuromotor behavior that humans use to share language" (p. 11). Speech is the neuromuscular process in which language is turned into a sound signal that is transmitted to another person and involves respiration, phonation, resonance, and articulation (Turnbull & Justice, 2012).

It has been noted that SLPs play a crucial role in the communication of individuals throughout their life span, and clients served by SLPs often present a variety of different communicative and/or behavioral difficulties (Maul, Findley & Adams, 2016, p. 2). Understanding the scope of practice and terminology in speech-language pathology is important to understand how and why SLPs approach the assessment and intervention of various communication disorders.

Board Certified Behavioral Analyst: Scope of Practice

According to Cooper, Heron, and Heward (2007), ABA is "a scientific approach for discovering environmental variables that reliably influence socially significant behavior" (p. 15). ABA focuses on behavioral principles that explain how learning happens (Autism Speaks, n.d.), and builds on B. F. Skinner's Behaviorism Theory. ABA seeks to explain the role that external forces (i.e. the environment) play in identifying, assessing, and discovering contributing factors underlying specific observable behaviors (Maul, Findley, & Adams, 2016, p. 19). Strategies and treatments that are derived from ABA principles are used in clinical, home, and school settings to change

socially significant behaviors in a positive way (Autism Speaks, n.d; Cooper, Heron & Heward, 2007). ABA providers are called Board Certified Behavior Analysts (BCBAs) and they provide services to support a wide range of individuals across a range of socially significant behavior including verbal behavior, communication skills, academic skills, and social skills. Strategies of ABA range from structured to naturalistic evidence-based interventions, which can be widely applied to teaching specific behaviors.

ABA systematically applies procedures and principles that elicit an understanding of the function of behaviors. Interventions founded in ABA adhere to principles of *operant conditioning,* an associative learning process which states that consequences that follow a behavior shape and maintain that behavior (Maul, Findley & Adams, 2016, p. 8). Donaldson and Stahmer (2014, p. 262) indicate that learning is the result of these consequences that follow a behavior and increase the likelihood of that behavior occurring again. Consequences can alter the frequency of a behavior, by either increasing a behavior through positive or negative reinforcement or decreasing a behavior through extinction or punishment (Maul, Findley & Adams, 2016, p. 8).

The Verbal Behavior Approach (VB) is a method of teaching language that is based on the principles of ABA (Greer & Ross, 2008). A behavior analytic approach to language development focuses on the function of the utterance or operant (Barbera, 2007). In other words, VB is concerned with *what* a child is saying, and *why* he is using that language (Barbera, 2007, p. 19).

VB refers to both language and speech, including listening, reading, writing, and sign language, and are treated as behaviors that can be shaped and reinforced (Barbera, 2007; Malott & Shane, 2014). According to this approach, VB is broken down into four main categories known as verbal operants: mand, tact, intraverbal, and echoic. According to Barbera (2007, p. 19), VB often uses the term "listener skills" to refer to what SLPs term "receptive language".

ABA discover aspects of the environment that contribute to a behavior, including speech and language skills. Understanding the scope of practice and terminology in ABA is important to understand how BCBAs approach language and teach specific skills.

Historical Outline

Outlining a historical context for ABA principles utilized in speech-language pathology is important to understand current knowledge and perspectives of SLPs. Koenig and Gerenser (2006, p. 2) conducted a meta-analysis in which they stated that in the past 50 years, changes in the practices of both ABA and SLP literature and clinical practice have occurred in response to complex interests and overlap between the two professions, as well as service delivery and consumer demands. Additionally, a commitment to evidence-based practice has continued to inspire evolving intervention and theoretical frameworks (Koenig & Gerenser, 2006).

According to Ogletree and Oren (2001, p. 105) principles of ABA have appeared throughout the literature in speech-language pathology and have historically influenced intervention in this field. Ogletree and Oren (2001) outline a historical context for ABA principles in speech-language pathology, and indicate that after the publication of B.F. Skinner's book, Verbal Behavior in 1957, SLPs began implementing these behavior principles in the remediation of speech and language disorders and appeared more regularly in the literature. In 1975, Kazdin (1975) did a review of behavioral methodologies in the Journal of Speech and Hearing Disorders, and found that 21.1% of articles published in 1970 had referred to behavioral methodologies (Ogletree & Oren, 2001, p. 104).

However, in the 1970s and 1980s, criticism of traditional ABA arose, and new theories of speech and language acquisition influenced the field of speech-language pathology, including social

learning theory, interaction theory, and transformational grammar theory (Ogletree & Oren, 2001). In the late 1980s and 1990s, Fey (1986) incorporated behavioral principles in emergent treatment methods of hybrid intervention approaches. An example of this would be milieu teaching, which utilizes environment manipulation, mands/models, and time delay (Ogletree & Oren, 2001).

In summary, ABA has had a substantial but varying effect on SLP literature and practice throughout history and has contributed to this current research regarding perceptions and collaboration between the two fields today.

Rationale

There is extensive research available regarding utilizing the assessment and intervention of ABA specifically for children or individuals with Autism Spectrum Disorder (ASD) (Maul, Findley, & Adams, 2016). Additionally, evidence from research has contributed to the need for collaboration between SLPs and BCBAs serving students with ASD (Donaldson & Stahmer, 2014; Koenig & Gerenser, 2006; Cardon, 2017). ABA has also contributed to classroom education by examining and strengthening the relationship between teacher behavior and student literacy performance (Joseph, Alber-Morgan, & Neef, 2015).

Although less evidence-based research has been conducted with individuals of various communication disorders (without a diagnosis of ASD), research does show that principles of ABA are applicable to various communication disorders with varying severity under an SLP caseload. For example, using Picture Exchange Communication Systems (PECS) is a common behavioral-based strategy often utilized by SLPs to support communication (Cardon, 2017). However, research yielded less information regarding the implementation of ABA principles for individuals with

varying communication disorders. Because of this gap in research, it is important to address if, how, and why SLPs use ABA principles in their clinical practice for various individuals.

METHOD

Design

Semi-structured interviews were conducted to explore if, how, and why practicing SLPs use strategies from ABA in their clinical practice. Questions were developed to explore the research questions previously described, regarding knowledge and perspectives of SLPs, and a semi-structured interview was conducted. The Human Subjects Institutional Review Board (HSIRB) of Western Michigan University approved the study (19-03-03) and corresponding materials used during the interviews.

Participants

To recruit participants, the student investigator contacted organizations that might employ SLPs, including public and private schools or organizations with early childhood intervention services within the state of Michigan. A flier (Appendix A) and accompanying email (Appendix B) were sent to directors and/or principals of these organizations. Participants who met the following criteria were selected for the study:

a.) Hold a master's level certification as a speech-language pathologist (SLP)

b.) Currently practicing as a part-time or full-time SLP

c.) Currently providing services to infant - secondary school-aged clients (including transitional services)

Before the interview, each participant reviewed and signed the consent form and completed a background/demographic Google form survey (Appendix C). The survey was broken up into 5

main parts, including eligibility, demographics, bachelor's degree, master's degree, and additional questions.

A total of four SLPs participated in the study. To ensure confidentiality, participants will be referred to as P1, P2, P3, and P4, in no particular order. All participants met the eligibility criteria previously described and were currently providing services to children including infants/toddlers (0-4 years), primary school-aged individuals (6-11 years), secondary school-aged individuals (11-19 years), and individuals in transitional phase (19-26 years). Although not a requirement, all participants were employed in Michigan and were female. Participants reported working in the field of speech-language pathology for 6-15 years and worked in a variety of settings, including clinic, private practice, public school, and telepractice. In addition, all participants had their clinical competence certification in speech-language pathology, and one participant (P2) also had her certification as a BCBA, which she received four years after she earned her MA in speech-language pathology. Table 1 indicates individuals educational backgrounds responses.

Table 1
Participant Education

Participant	Institution - BA in SLP	Year earned - BA	BA Major	Institution - MA	Year earned - MA
P1	Adrian College Michigan State University	1993 1996	History Audiology and Speech Sciences	Michigan State University	1998
P2	Central Michigan University	2009	Communication Disorders	Western Michigan University	2011
P3	Augustana College	1989	Speech-Language Pathology	Western Michigan University	1990
P4	Michigan State University	1989	Audiology and Speech Sciences	Michigan State University	1991

Table 2 depicts the percentage of SLP's working in different settings, including a clinic, private practice, private school, public school, or telepractice. Three of the four SLPs interviewed indicated that public school was their primary work environment. In addition, all SLPs indicated that they served more than one age group of clients, with all four serving students between the ages of 4 and 11.

Table 2
Participant Certification and Additional Information

Participant	Certification	Years employed as SLP	Primary work environment (s)	Ages of clients currently serving
P1	CCC-SLP	11-20	Public School	4 - 19 years
P2	CCC-SLP BCBA	6-10	Clinic Private Practice Telepractice	0 - 19 years
P3	CCC-SLP	20+	Private School Public School	0 - 11 years
P4	CCC-SLP	20+	Public School	0-19 years

Instruments

Before beginning the interview, the participants were emailed a copy of the consent form, a Google Form questionnaire (Appendix C), and a Google Drive document with the interview questions and tables (Appendix E & F). The Google Form questionnaire yielded data regarding background and data information, and asked questions regarding how many years they had provided services as an SLP, degrees in undergraduate and graduate college, certifications, populations served, and work environment. This was followed by a semi-structured interview to assess the research questions proposed (Appendix D). During two out of four interviews, one co-principal investigator was present and took fidelity data (Appendix G). A Jaytekk Digital Recorder was used to record interviews and was kept in a locked cabinet in the principal investigator's office.

Additionally, the researchers used Amazon Web Service (AWS) automatic speech recognition (ASR) service to initially transcribe the interviews. The recordings were uploaded to AWS and transcribed. Following this, the transcription was checked for accuracy by the student investigator, who listened to each recording and further transcribed the text into a clean verbatim style. The recordings and data collected were downloaded on a password protected computer with a private wifi network at Western Michigan University.

Interviews

Before the interview, the consent form was reviewed and signed by each participant, followed by a background and demographic Google Form survey (Appendix C). Following this, a semi-structured interview script was used for the remainder of the interview (Appendix D). Individuals participated in a single, one-hour interview.

In-person or phone interviews were offered to each participant in order to accommodate individuals from various locations. Given demographic locations and distance from the investigators, all four interviews were conducted via phone. During the interview, the student investigator was the primary interviewer, and was the main point of contact with each participant. The student investigator took detailed handwritten field notes. All participants were recorded using a digital recorder.

During the interview, the student investigator prompted participants through the semi-structured interview and utilized two tables, which included evaluating knowledge of principles and practices in ABA (Appendix E) and perceptions regarding implementing those practices (Appendix F). These tables included six principles and practices of ABA, which were identified by the researchers and used to investigate the knowledge and perspectives of SLPs.

Evidence-based principles in ABA were originally identified from Wong, Odom, Hume, Cox, Fettig, Kucharczyk, and Schultz (2015), who classified 27 focused interventions as evidenced-based practices in 2014. From this list, principles and practices were chosen with input from a doctorate-level BCBA serving as the principal investigator of this research, and a master's level BCBA serving as a co-principal investigator of this research. Table 3 below depicts a condensed table of the principles and practices of ABA that were chosen by the researchers.

Table 3
Principles and Practices of ABA

Evidence-Based Principle/Practice of ABA	
1. Discrete Trial Training (DTT)	4. Differential Reinforcement (DRA)
2. Positive Reinforcement	5. Extinction Procedures

3. Functional Communication Training (FCT)	6. Verbal operants
	    ● Mand
	    ● Tact

Following the interview script, the participants were initially asked whether they were aware of the practices and to define each to the best of their knowledge (Appendix E). If they were aware of the practice, they were then asked to define the practice to the best of their ability. Accuracy was determined by comparing the participants' definition to the researchers' definition.

After this, we moved on to Appendix F, where individuals were given definitions and examples, in order to more accurately determine if they may have used the ABA principle/practice in their clinical practice as an SLP, and if they perceived the practice to be applicable, or not, to the clinical practice of SLPs. These definitions and examples were adapted from Barbera (2007), Smith (2001), Malott and Shane (2016), and Vladescu, Gureghian, Kisamore and Schnell (2017) to give participants a concise but thorough table. Applicants were asked two questions after they were given time to read each definition and example. The first question was, "Have you ever used this

practice in a session?" followed by, "Do you think this practice/principle could be applicable to your

work?" A condensed version of Appendix F depicting the definitions is provided in Table 4.

Table 4
Definitions

Evidence-Based Principle/Practice of ABA	Definition
DTT	This procedure involves breaking a target skill or behavior into smaller steps: 1. Cue from the clinician 2. Child responds 3. Clinician provides consequence for
Positive Reinforcement	Positive reinforcement is a consequence that can strengthen the likelihood of a desired behavior occurring again
FCT	Functional communication training is frequently used to replace an interfering/challenging behavior (e.g. screaming, flopping, running away) with a more appropriate communication method (e.g.picture exchange, signing)
DRA	Reinforcement provided when the learner is engaging in a specific desired behavior as an alternative to an inappropriate behavior (DRA).
Extinction Procedures	Extinction involves withholding or removing reinforcement for a previously rewarded behavior/response.

Verbal Behavior
  a. Mand
  b. Tact
	Verbal Behavior is an approach to communication that looks at the outcome of an instance of communication for a speaker.
	Mand: Requesting an item, action, or attention
	Tact: Labeling or naming an item, such as an object, picture, smell, taste, noise, or feeling

Qualitative Analysis

Following the interview, all digital recordings were transcribed using AWS secure audio to

text transcription service. Following this, the transcription was checked by the student investigator

and further transcribed into a clean verbatim style. The participants were emailed a copy of the

transcription after the interview was completed. In order to analyze the interviews, a thematic

analysis was conducted. This method of analysis was chosen to provide a flexible approach to

analyzing detailed, complex data to produce insightful findings (Nowell, Norris, White, & Mouls,

2017). During this process, the student investigator began by entering separate ideas from each

transcript in separate cells of an excel sheet, organized by questions and/or topics. The main

separate ideas were analyzed and reorganized into themes.

RESULTS

The research questions were explored through questions about knowledge and perceptions

of SLPs. During the interviews, a fidelity score of 95% was achieved for 50% of the interviews

(Appendix G). Four themes were identified, as well as three sub-themes, which are presented in

Table 10.

Table 10
Summary of main themes

Theme	Subthemes (if applicable)
1. Knowledge of ABA principles	
2. Applying ABA principles to speech-language pathology	
3. Limitations and barriers perceived in implementing ABA principles	Generalization Difference in Terminology Limited resources to learn about ABA
4. Perception of the field of ABA	

Knowledge of ABA Principles

The first research question identified by the researchers related specifically to SLP's

knowledge of ABA principles: Are speech-language pathologists aware of specific ABA principles,

and what is the extent of their knowledge on these practices? (i.e. Can they define the practice

accurately). Only one participant (P2) was aware of every principle and accurately defined each. P4

was aware of all six principles and defined four accurately. P1 was aware of four principles and

defined two accurately. P3 was aware of one principle and defined it accurately. A summarized table

of responses for each individual are depicted in Table 5. Definitions given by each participant can

be found in Table 10 (Appendix H)

Table 5
Individual Results of Part I - Knowledge f ABA Principle

Participant	Evidence-Based Principle/Practice of ABA	"Are you aware of this practice?"	Accuracy of definition given by participant X = *Not accurate* Yes = *Accurate*
P1	Discrete Trial Training	No	X
	Positive Reinforcement	Yes	Yes
	Functional Communication	Yes	X
	Differential Reinforcement	No	X
	Extinction	Yes	Yes
	Verbal Behavior	Yes	X
P2	Discrete Trial Training	Yes	Yes
	Positive Reinforcement	Yes	Yes
	Functional Communication	Yes	Yes
	Differential Reinforcement	Yes	Yes
	Extinction	Yes	Yes
	Verbal Behavior	Yes	Yes
P3	Discrete Trial Training	No	X
	Positive Reinforcement	Yes	Yes
	Functional Communication	No	X
	Differential Reinforcement	No	X
	Extinction	No	X
	Verbal Behavior	No	X
P4	Discrete Trial Training	Yes	Yes
	Positive Reinforcement	Yes	Yes
	Functional Communication	Yes	X
	Differential Reinforcement	Yes	Yes
	Extinction	Yes	Yes
	Verbal Behavior	Yes	X

After reviewing each individual response, a summary of the responses from all four

participants was compiled below in Table 6.

Table 6
Summary Results of Part I - Knowledge f ABA principles

Evidence-Based Principle/Practice of ABA	SLPs that were aware of this practice	SLPs that accurately defined the practice
Discrete Trial Training	2/4	2/4
Positive Reinforcement	4/4	4/4
Functional Communication Training	3/4	1/4
Differential Reinforcement (DRA)	2/4	2/4
Extinction	3/4	3/4
Verbal Behavior Training - Mand & Tact	3/4	1/4

Applying ABA Principles to Speech-Language Pathology

The second and third research questions identified by the researchers related specifically to SLP's perception of applying ABA principles: What are their perceptions of applying behavioral practices with respect to communication and specifically for language and/or speech intervention and what factors facilitate or hinder the use of ABA practices in their practice? (i.e. Why do they use or not use each technique).

All four participants stated that all six principles could be applicable to their field. Additionally, all six participants stated that they had applied three (discrete trial training, positive reinforcement, and extinction procedures) of the six tactics in their clinical practice. See Table 7 for a summary.

Table 7
Summary Results of Part II - Application and Perceptions of ABA Principles

Evidence-Based Principle/Practice of ABA	SLPs that had applied this technique in clinical practice	SLPs that perceive the practice to be applicable to their field
Discrete Trial Training	4/4	4/4
Positive Reinforcement	4/4	4/4
Functional Communication Training	3/4	4/4
Differential Reinforcement (DRA)	3/4	4/4
Extinction	4/4	4/4

Verbal Behavior Training
  - Mand
  - Tact
	1/4	4/4

P1 responded that she had implemented 5 out of the 6 principles, and said that all 6 could be applicable to the field of speech-language pathology (Table 8.1).

Table 8.1
P1 Responses - Application and Perceptions of ABA Principles

Evidence-Based Principle/Practice of Behaviorism	"Have you ever used this practice in a session?"	"Do you think this practice/principle could be applicable to your work?"
Discrete Trial Training	Yes	Yes
Positive Reinforcement	Yes	Yes
Functional Communication Training	No	Yes
Differential Reinforcement (DRA)	Yes - occasionally	Yes
Extinction	Yes - occasionally	Yes
Verbal Behavior Training - Mand - Tact	Not by those terms	Yes

P2 responded that she had implemented all 6 principles, and believed that all 6 were

applicable to the field of speech-language pathology (Table 8.2).

Table 8.2
P2 Responses - Application and Perceptions of ABA Principles

Evidence-Based Principle/Practice of ABA	"Have you ever used this practice in a session?"	"Do you think this practice/principle could be applicable to your work?"
Discrete Trial Training	Yes	Yes
Positive Reinforcement	Yes	Yes
Functional Communication Training	Yes	Yes
Differential Reinforcement (DRA)	Yes	Yes
Extinction	Yes	Yes
Verbal Behavior Training - Mand - Tact	Yes	Yes

P3 responded that she had implemented 4 out of the 6 principles in clinical practice, and

believed that all 6 were applicable to the field of speech-language pathology (Table 8.3).

Table 8.3
P3 Responses - Application and Perceptions of ABA Principles

Evidence-Based Principle/Practice of ABA	"Have you ever used this practice in a session?"	"Do you think this practice/principle could be applicable to your work?"
Discrete Trial Training	Yes	Yes
Positive Reinforcement	Yes	Yes
Functional Communication Training	Yes	Yes
Differential Reinforcement (DRA)	No	Yes
Extinction	Yes	Yes

Verbal Behavior Training
  -   Mand
  -   Tact
	Not by those terms	Yes

P4 responded that she had implemented 5 out of the 6 principles, and believed that all 6 were

applicable to the field of speech-language pathology (Table 8.4).

Table 8.4
P4 Responses - Application and Perceptions of ABA Principles

Evidence-Based Principle/Practice of ABA	"Have you ever used this practice in a session?"	"Do you think this practice/principle could be applicable to your work?"
Discrete Trial Training	Yes	Yes
Positive Reinforcement	Yes	Yes
Functional Communication Training	Yes	Yes
Differential Reinforcement (DRA)	Yes	Yes
Extinction	Yes	Yes

Verbal Behavior Training
  -   Mand
  -   Tact
	Not by those terms	Yes

Limitations and Barriers in Implementing ABA Principles

Limitations and barriers were identified by participants in implementing specific ABA

principles. Three sub-themes of limitations and barriers were identified, including difficulty in

generalization, a difference in terminology between the fields of ABA and speech-language

pathology, and limited resources to learn about ABA.

One limitation identified by participants specifically for functional communication training

(FCT) included difficulty generalizing the communication method into a public classroom setting.

SLPs identified communication boards, PECS, and ipads used for FCT, but expressed frustration in

implementing or generalizing those to the classroom. One participant (P4) also thought that

generalization to a more natural environment can be a challenge in discrete trial training.

For verbal behavior (VB), the most discussed barrier was in terminology. P1, P3, and P4 all

said that they had never used the VB terms "mand" or "tact", although after reading the definitions

of each, agreed that they did work on requesting and labeling in their sessions.

Another limitation identified was limited educational and outside resources through which

SLPs learn about ABA, which corresponded with the fourth research question: From what sources

do SLPs learn about applied behavior analysis? All participants stated that they had little to no

experience with ABA in their formal education courses but some had learned about ABA from

other, outside sources, including parents or conferences for individuals with Autism Spectrum

Disorder (ASD).

Perception of the Field of ABA

Two participants (P2 and P4) indicated that their overall perception of ABA was positive, P1

stated she had a neutral view, and P3 said she had a negative view of ABA. Table 9 depicts these

results.

Table 9
Results of Part III: Perceptions of ABA

Participant	Overall Perception of ABA - Statements given by each participant
P1	"I would say I have a *neutral o*pinion"
P2	*"Positive*"
P3	"For me, right now, my overall perception of ABA is very *negative"*
P4	"Overall, my perception is very *positive"*

DISCUSSION

Knowledge of ABA Principles

Results suggest that although all participants had heard of ABA as a field, responses varied significantly regarding their understanding and knowledge of ABA principles and practices used in the field. All participants were aware of, and accurately defined, positive reinforcement. However, the remaining principles varied. Two participants were aware of discrete trial training, and defined it accurately. Three participants were aware of functional communication training, but only one defined it accurately. Two participants were aware of differential reinforcement and both defined it accurately. Three participants were aware of extinction, and defined it accurately. Finally, two participants were aware of verbal behavior, and one was able to define it accurately. The parameters of this theme will continue to be discussed throughout the remaining sections, as results indicate that knowledge of ABA could affect participants overall perception of the field and willingness to apply different practices in SLP's sessions.

Applying ABA Principles to Speech-Language Pathology

All four participants in this study concluded that all six principles/practices of ABA could be applicable to their profession as SLPs, after reading a definition and example from the researchers.

For discrete trial training, participants mentioned that this principle could work for students with articulation or language goals, including structured, expressive language. P2 indicated that this practice would generally work for all kids and various skills. One example of using discrete trial training in a session was given by P2, who stated:

> For students with autism who maybe have difficulty with receptive language or a parent, you know, expresses concerns that the child isn't understanding or following a direction, then what I would do is try to figure out what the real issue is. If you say go get your coat, and the kid doesn't do it, breaking that down into do they know what "go" means. Do they know what "get" means? Do they know what "coat" means? Also, do they know where their coat is? Is it that their attention is poor? And then from there taking that individual deficit that they may have working on them individually and then building on them, um, to complete the task.

For positive reinforcement, participants discussed different types they had used or could use in their sessions. Examples included stickers, verbal praise like high fives, smiley faces, and prizes. All participants said that they would use positive reinforcement for everyone they worked with, regardless of abilities or diagnosis. P4 summarized, "I can't image going through a session without giving some kind of positive reinforcement, for at least attempting".

For FCT, more specific skill sets and/or diagnoses were identified by the participants. For example, two participants mentioned that this principle could be used with children whose speech is very inconsistent or unintelligible. In addition, FCT was identified as applicable for individuals with more severe behaviors, ASD, speech-language impairment (SLI), hearing impairment (HI), or emotional impairments. Three out of the four participants said that they had previously used it in a session, and had implemented this through communication boards or ipads. One example included

also using FCT for kids who are fully functional but have learned to use challenging behavior as a means of communication. One piece of advice given by P2, who has experience with ABA as a BCBA, was "One thing I always try to remember and remind myself for functional communication is that it has to be easier for them to do than the challenging behavior. Otherwise, they're not going to do it."

For differential reinforcement, three out of four participants indicated that they had used this principle in a session, and all four thought it could be applicable to the field of speech-language pathology. One participant also indicated that she did not use it often, and but when she did, it was within small group settings. Participants responded that differential reinforcement could be applicable to all kids, including students with ASD, students who require more redirection, or students who have unwanted behaviors. P4 also said that "I can imagine using it in any kind of a session."

Regarding extinction procedures, all participants thought it was applicable to their profession and all four had previously used it in a session. Two indicated that they did not use it a lot, or said they might use it a little, but hadn't heard of it termed that before. No specific skill sets or diagnoses were mentioned, and participants responded that it can be used with all kids. P2 gave two examples of implementing extinction in a session, including looking away or not engaging in social reinforcement for an undesired behavior.

For VB, all four participants though it could be applicable, but only one participant had used this method for teaching speech and/or language. However, all participants indicated that they do work on requesting and naming in their sessions, which are different terms for manding and tacting, respectively. Although participants did not use the VB method, they implemented manding and tacting, but described them with different terms.

Limitations and Barriers in Implementing ABA Principles

Generalization

SLPs identified communication boards, PECS, and Ipads used for FCT, but P3 expressed her frustration with trying to implement this in the classroom. She stated that it was too time-consuming to have a positive effect in a public school classroom, and it was hard for teachers to implement. She said that "It feels like [teachers] don't have time to do it and wait for the child and go through the steps because the other kids are moving at such a fast pace." One participant (P4) also thought that generalization to a more natural environment could be a challenge in discrete trial training, and depending on the student, she had a difficult time building the skills back up.

Terminology

With experience working with both SLPs and BCBAs, P2 summarized that she used different terms when discussing similar concepts with an SLP vs. a BCBA. She found this difficult in her clinical practice because "I still have to talk to a speech therapist and I talk their language when I talk to them. I talk verbal behavior when I talk to behavior analysts." P3 said she was frustrated with the difference in terminology because the teachers would not understand the term used in VB. She said, "If I throw those words around, it's sort of like creating my own little island because nobody else understands it." This difference in terminology creates a barrier between the fields.

Limited resources to learn about ABA

All four participants stated that they had had little to no formal education on ABA in their undergraduate or graduate careers while studying speech-language pathology. One participant stated

that she had been briefly introduced to the ABA terms "tact" and "mand" in an early child development course in her undergraduate education. The participant with the most knowledge of ABA (P4) had learned about ABA after consulting as a speech therapist in a small clinic for individuals with ASD. For the remaining participants, individuals indicated that they did not have much experience or exposure to ABA, and they were not aware of many sources available to learn about ABA. However, as all participants had previously heard of the field of ABA, and were aware of at least one principle of ABA, some sources were identified by each participant through which they had been exposed to ABA.

P2 mentioned that additional sources she had learned about ABA included the Michigan Autism Conference and Mark Sundberg's Verbal Behavior, stating, "Really the only thing you could find as an SLP that covers both professions are [conferences] on autism." P4 indicated that she learned about ABA through ASD conferences and parents of kids with IEPs who were also receiving ABA. P1 stated that she was in an SLP Facebook group, where she had encountered negative perspectives regarding ABA. She also recalled being introduced to ABA when a BCBA attended a meeting for a student receiving speech and/or language services. P3 also reflected that she read SLP journals, and stated that "[ABA] is not in my journals much". P3 stated that she had been exposed to some ABA through a parent and a former teacher, as well as interactions with students on her caseload that received ABA, as well as their families. P4 mentioned that in her experience, parents had been an important source for her to learn about ABA, and were key supporters in advocating for their children. She stated that "Some [parents] don't bring up ABA therapy. Maybe they don't see the connection or it's a privacy thing, I'm not sure. But the parents that have shared information with me seem to really value the ABA therapy." However, families from varying socioeconomic backgrounds may not have the resources to share more of the

information they are getting from BCBA's, which could limit that source of collaboration between the fields.

Overall, participants indicated widely that they had not had any formal education in undergraduate or graduate school regarding ABA. Limited outside resources had connected these SLPs to ABA, and included parents and ASD conferences. This limitation could have an impact on how SLPs view ABA, as well as impacting whether or not they decide to incorporate the principles in their practice.

Perception of the Field of ABA

Out of four participants, two individuals stated that they had a positive view of ABA, one had a neutral view, and one had a negative view. However, both participants with a positive view of ABA also stated that they had witnessed negative perceptions of ABA throughout their field. P2, who has her BCBA, also stated that "There's something holding speech therapists back from accepting ABA for their clients." Participants identified multiple reasons for the "bad rep" that exists between SLPs and BCBAs. One reason identified by P2 was that because both fields are large and very specialized, this could lead to a difficulty in understanding what the other field does. P2 stated that SLPs "don't understand [ABA] or really know what it is." P3 noted that she didn't understand exactly what ABA professionals worked on, and had disagreed on speech and language goals for a student on her caseload that was also receiving ABA. She indicated that she did not think the language goals the BCBA was implementing was appropriate for the client, which could indicate further need for collaboration between the two professionals to justly serve students. P2 also identified that "There is also bad ABA, and some people may have just been exposed to one situation of ABA - if it was done poorly, then that is what their judgment is".

Participants also recognized that overlap does exist between the two professions, and collaboration could benefit individuals served. P3 stated that "I think any time a team is working on something at the same time in order to meet a goal, it's got to be helpful." However, three participants mentioned that there isn't always contact information or release forms to make that happen.

When comparing the knowledge of ABA principles and the perception of ABA among these four participants, the two individuals that accurately defined the most principles (P2 defined six, P4 defined four) also had the most positive view of ABA. The participant (P1) with a neutral view accurately defined three. The individual with the least amount of knowledge on ABA principles also had the most negative view. Based on these findings, knowledge of ABA principles could play a factor in how SLPs perceive the field of ABA and affect their ability to implement these principles in their clinical practice.

Limitations and Further Research

This study provided qualitative insights into the knowledge and perception of ABA principles and practices in the clinical practice of speech-language pathology. A larger and increasingly diverse sample size could elicit further in-depth qualitative research and provide more affluent data. Additionally, further questions are raised that might be addressed in future studies. This study relied on the individual's ability to determine if they had previously implemented a specific ABA practice when given a definition and example. Further research could observe a session lead by the SLP to reveal more in-depth information on additional ABA strategies that SLPs might employ, allowing the researcher to determine if and how the principle is implemented.

CONCLUSION

The results of this study suggest that participants believe the ABA principles and practices identified, including discrete trial training, positive reinforcement, functional communication training, differential reinforcement, extinction, and verbal behavior, could be applied to their clinical practice for various individuals and skills, although limitations and barriers were identified. Additionally, participants had varying perceptions of ABA as a field, and responses indicated that lack of knowledge, educational background, and resources to learn about ABA could be factors. Although all participants acknowledged barriers to exist in collaboration and respect between fields, increased communication and access to sources to learn about ABA could lead to successful collaboration between the two fields.

Acknowledgments

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APPENDICES

Appendix A - Recruitment Flier

Appendix B - Recruitment Email

Appendix C - Background/Demographic Google Form Survey

Appendix D - Semi-Structured Interview Script

Appendix E - Principles and Practices in ABA - Table 1.1

Appendix F - Perspectives, Table 1.2

Appendix G - Fidelity Data A & B

Appendix H - Table 10 Full table - *Individual Results of Part I - Knowledge f ABA Principles*

Appendix A

Perspectives and Practices in Speech-Language Pathology Study

WESTERN MICHIGAN UNIVERSITY
Lee Honors College

- Do you have a master's level certification as a speech-language pathologist (SLP)?
- Are you a practicing as an SLP at least part-time?
- Are you currently providing services to infant - secondary school aged clients (including transitional services)?

If you answered yes to these questions, please consider participating in an undergraduate thesis project through the Lee Honors College at Western Michigan University!

The purpose of this research study is to investigate SLP's perspectives and knowledge of applied behavior analysis (ABA) language practices and its application to their clinical practice.

Time Commitment: One (1) 60 minute interview during March or April of 2019. Interviews may be conducted in person at Western Michigan University, by phone, or by secure video conferencing.

Investigators: Denise Ross, PH.D, BCBA-D and Mackenzie Sturman

Please contact Mackenzie Sturman for more information

Appendix B

"My name is Mackenzie Sturman, and I am a senior in the Speech, Language and Hearing Sciences program at Western Michigan University. I am conducting a study through the Lee Honors College at WMU to find out if practicing speech-language pathologists utilize behavior analytic language practices and their perspectives on this topic. The title of this research is, "Evaluating Knowledge and Perspectives of Behavior Analytic Language Strategies in the Clinical Practice of Speech-Language Pathology". You may be eligible to participate if you meet the following criteria:

a.) A master's level certification as a speech-language pathologist (SLP)

b.) Currently practicing as a part-time or full-time SLP

c.) Currently providing services to infant - secondary school-aged clients (including transitional services).

If you choose to participate, you will be asked to complete one (1) 60-minute interview will be scheduled to discuss strategies you employ in your clinical practice. If you are interested in participating, please contact Mackenzie Sturman at ████████████████████████ or ███████ ████. I greatly appreciate your consideration to help me complete my honors thesis with a goal to yield quality, evidence-based information that could be useful for your profession!

Thank you,

Mackenzie Sturman"

Appendix C

Background Information

You have agreed to participate in a research project entitled, "Evaluating Knowledge and Perspectives and Behavior Analytic Language Strategies in the Clinical Practice of Speech-Language Pathology".

In this survey you will be prompted to answer questions regarding your eligibility to participate in this study and additional background information. Please move through the form and submit when you are finished.

Please do not complete this survey until you have read and signed the consent form.

Thank you for participating!

Eligibility
Please answer the following questions to the best of your knowledge.

1. **Do you have a master's level certification as a speech-language pathologist (SLP)?**
   Mark only one oval.

   ◯ Yes
   ◯ No

2. **Are you currently practicing as a part-time or full-time SLP?**
   Mark only one oval.

   ◯ Yes
   ◯ No

3. **Are you currently providing services to infant - secondary school aged clients (including transitional services)?**
   Mark only one oval.

   ◯ Yes
   ◯ No

Background Information:

4. **Name:**

   _____

5. **Gender:**

   _____

Bachelor's Degree

6. **From what institution did you earn your bachelor's degree?**

   _____

Appendix C

7. **What year did you earn your bachelor's degree?**

8. **What was your major and minor in undergrad?**

Master's Degree(s)

9. **Please indicate what field your master's degree is in. (If you have more than one master's degree, list both)**

10. **From what institution did you earn your master's degree? (If more than one, list both)**

11. **Please list the year you earned your master's degree. (If more than one, please list both.)**

Additional Questions

12. **Please list your certifications(s)**

13. **How many years have you been employed in the field of speech-language pathology? (Do not include clinical fellowship year)**
    Mark only one oval.

    ◯ 20+ years

    ◯ 11-20 years

    ◯ 6-10 years

    ◯ Under 5 years.

Appendix C

14. **Please identify your primary work environment(s)**
Check all that apply.

- ☐ Clinic
- ☐ Private Practice
- ☐ Private School
- ☐ Public School
- ☐ Residential School
- ☐ Hospital
- ☐ Other: _____

15. **What are the ages of the clients you currently serve?**
Check all that apply.

- ☐ Infants/toddlers (0-4 years)
- ☐ Preschool age (4-6 years)
- ☐ Primary school age (6-11 years)
- ☐ Secondary school age (11-19 years)
- ☐ Transitional phase (19-26 years)

Powered by
Google Forms

Appendix D

Semi-Structured Interview Questions:

Interview questions modeled after Iacono and Cameron (2009).

1. What is your overall perception of ABA?

2. Of the following practices in applied behavior analysis (Table 1.1) please answer the following questions:
    a. Please indicate which you are familiar with or of which you've heard.
    b. Of the practices you identified, could you explain them? If so, please elaborate

3. Of the following practices in applied behavior analysis (Table 1.2) please answer the following questions:
    a. Which do you think are applicable to your work as a speech-language pathologist? For what purpose?
    b. Which do you think are not applicable to your work as a speech-language pathologist? Why?
    c. Have you personally previously used, or currently use any of these strategies in your clinical practice? For what purpose? What do you believe are its limitations and barriers?

4. What clinical populations do you provide services to?

5. Do you think there is any overlap between the professions of speech-language pathologists and applied behavior analysts?

6. From what sources have you previously learned about applied behavior analysis?

Appendix E

Table 1.1: Principles and Practices in Applied Behavior Analysis (ABA)			
Evidence-Based Practices	**Question #1** Are you aware of these practices? Please indicate Yes or No below:		**Question #2** If you selected "yes", please define the practice as best you can (e.g. what it is, how and when it is used)
	Yes	**No**	
Discrete Trial Training			
Positive Reinforcement			
Functional Communication Training			
Differential Reinforcement (DRA)			
Extinction Procedures			
Verbal Behavior training: Mands and/or tacts			

Appendix F

Table 1.2: Principles/Practices of Behavioral Analysis Definitions and Examples				
Evidence-Based Practice	**Definition**	**Example**	**Question #1** Do you think this practice/principle is applicable to your work?	**Question #2** Have you ever used this practice in a session?
Discrete Trial Training	This procedure involves breaking a target skill or behavior into smaller steps: 1. Cue from the clinician 2. Child responds 3. Clinician provides consequence for correct or incorrect response	Target Behavior: production of /s/ in initial word position in response to a picture stimuli 1. Clinician presents a picture card 2. Individual responds 3. If the production was correct, the clinician gives the individual praise/reinforcement		
Positive Reinforcement	Positive reinforcement is a consequence that can strengthen the likelihood of a desired behavior occurring again	The clinician gives an individual items such as those listed below when the learner demonstrates a specific behavior. - Tokens (sticker, star) - A break - Verbal praise - "Good job!"		
Functional Communication Training	Functional communication training is frequently used to replace an interfering/challenging behavior (e.g. screaming, flopping, running away) with a more appropriate communication method (e.g.picture exchange, signing)	Picture Exchange Communication System (PECS) The clinician identifies a problem behavior and formulates a hypothesis about why that behavior is occurring. For example, a child walks into the kitchen and flops to the floor screaming. The clinician formulates he might be hungry. The clinician teaches the child to sign "hungry" or "I want ___".		

Differential Reinforcement (DRA)	Reinforcement provided when the learner is engaging in a specific desired behavior as an alternative to an inappropriate behavior (DRA).	A child shouts in class after her teacher asks a question. The teacher only responds or calls on the child (reinforcing her) when she raises her hand. The attention from the teacher would decrease the behavior of shouting, because raising her hand is an alternative to shouting out.		
Extinction Procedures	Extinction involves withholding or removing reinforcement for a previously rewarded behavior/response.	A teacher provides a reaction (verbal or emotional) when a child crawls under the table (and the student finds the reaction reinforcing) then this attention from the teacher could increase the inappropriate behavior. To reduce this behavior, the teacher uses extinction - she ignores the behavior, and the child no longer receives a response (reinforcement).		
Verbal Behavior - *Mand* - *Tact*	Verbal Behavior is an approach to communication that looks at the outcome of an instance of communication for a speaker. Mand: Requesting an item, action, or attention Tact: Labeling or naming an item, such as an object, picture, smell, taste, noise, or feeling	Mand: A child does not have juice. He says "juice" and his mother gives him juice. The child manded the item. Tact: The clinician points to a picture and asks, "What is this?" The client responds "chair". The clinician says, "Good job!" The child tacted the chair.		

Appendix G
Fidelity Checklist A

Participant: P3

Interviewer: MS

Individual completing fidelity checklist: MU

Throughout Interview

Does Researcher	**Yes**	**No**	**N/A**	**Comments**
Establish rapport	X			
Reinforce detailed responses to questions	X			
Takes Notes throughout	X			
Remain "neutral"; refrain from critical or judgmental statements	X			
				TOTAL 4/4

Introduction

Does Researcher	**Yes**	**No**	**N/A**	**Comments**
Start meeting on time	X			
Have materials ready	X			
Introduces Self	X			
Introduces co-investigators	X			
Explains outline of interview	X			
				TOTAL 5/5

Consent form

Does Researcher	*Yes*	*No*	*N/A*	*Comments*
Give individual copy of consent form - If over phone, ask that they open the file on their computer	X			Emailed it day before & received it back signed

Read consent form			X	Participant already signed
Ask participant if they have any questions	X			
Ask participant to sign consent form			X	
				TOTAL 2 /4

Background/Demographics

Does Researcher	**Yes**	**No**	**N/A**	**Comments**
Give individual copy of background questionnaire - If over phone, ask that they open the file on their computer	X			
Ask participant if they have any questions	X			
				TOTAL 2/2

PART I: KNOWLEDGE ASSESSMENT

Does Researcher	**Yes**	**No**	**N/A**	**Comments**
Direct individual to table 1.1. For Part I: Knowledge and assessment questions/tables - If over phone, ask that they open the file on their computer	X			
Explain directions and layout of interview document	X			
Allow individual time to complete table 1	X			
Answer questions they may have as needed	X			
After they complete it, thank participant and direct Part II (principles and strategies)	X			
				TOTAL 5/5

PART II PRINCIPLES AND STRATEGIES

Does Researcher	Yes	No	N/A	Comments
Direct individual to table 1.2. For Part II: Principles and strategies questions - If over phone, ask that they open the file on their computer	X			
Explain directions and layout of interview document - Answer question 1 - If answered No to question 1, answer question 2 - After answering question 1 & 2, follow up w/verbal questions	X			
Allow individual time to complete table 1	X			
Ask follow up questions verbally for Q1: - If indicated yes, for what skills? - For what types of individuals - What do you believe are its limitations/barriers?	X			
Ask follow up questions verbally for Q2: - If indicated NO, why do you think it is not applicable? - If indicated YES, how would you apply it and for what skills?	X			
Use reflective responding as needed throughout	X			
Reinforce detailed responding as needed throughout	X			
Answer questions they may have as needed	X			
After they complete it, thank participant & direct Part III (perceptions)	X			

				TOTAL 9/9

PART III PERCEPTIONS

Does Researcher	Yes	No	N/A	Comments
Direct individual to Part III: Perceptions - If over phone, ask that they open the file on their computer	X			

Interviewer asks questions verbally:
  - What is your overall perception of ABA?
  - Do you think there is any overlap between the professions of speech-language pathologists and applied behavior analysts?
  - From what sources (if any) have you previously learned about applied behavior analysis?
	X			

Use reflective responding as needed throughout	X			
Reinforce detailed responding as needed throughout	X			
Answer questions they may have as needed	X			
After they complete it, thank participant & direct Part IV (comments)	X			
				TOTAL 6/6

PART IV COMMENTS

Does Researcher	Yes	No	N/A	Comments
Ask if participant has any additional questions or comments	X			

				TOTAL 1 /1

Termination

Does Researcher	Yes	No	N/A	Comments
Watch the clock so as not to go over 1 hour	X			
Thank interviewee for their help/information provided	X			
Leave your contact information if they have questions or concerns later	X			
Offer to share your final product if they're interested	X			
Provide a warm, standard closing ("Take care,")	X			
				TOTAL 4/4

Calculate Introduction - Termination

Total Number of components observed : 39 /41

Percentage of integrity (ALL YES) : 39/41 = 95 %

Number of components where "YES" was checked <u>39</u>/41

Number components where "NO" was checked <u>0</u>/41

Number of components where "NA" was checked **2**/41

Observer Comments:

_____

_____

Appendix G
Fidelity Checklist B

Participant: P4

Interviewer: MS

Individual completing fidelity checklist: MU

Throughout Interview

Does Researcher	**Yes**	**No**	**N/A**	**Comments**
Establish rapport	X			
Reinforce detailed responses to questions	X			
Takes Notes throughout	X			
Remain "neutral"; refrain from critical or judgmental statements	X			
				TOTAL 4/4

Introduction

Does Researcher	**Yes**	**No**	**N/A**	**Comments**
Start meeting on time	X			
Have materials ready	X			
Introduces Self	X			
Introduces co-investigators	X			
Explains outline of interview	X			
				TOTAL 5/5

Consent form

Does Researcher	*Yes*	*No*	*N/A*	*Comments*
Give individual copy of consent form - If over phone, ask that they open the file on their computer	X			

Read consent form			X	
Ask participant if they have any questions	X			
Ask participant to sign consent form			X	
				TOTAL 2 /4

Background/Demographics

Does Researcher	Yes	No	N/A	Comments
Give individual copy of background questionnaire - If over phone, ask that they open the file on their computer			X	
Ask participant if they have any questions	X			

PART I: KNOWLEDGE ASSESSMENT

Does Researcher	Yes	No	N/A	Comments
Direct individual to table 1.1. For Part I: Knowledge and assessment questions/tables - If over phone, ask that they open the file on their computer	X			
Explain directions and layout of interview document	X			
Allow individual time to complete table 1	X			
Answer questions they may have as needed	X			
After they complete it, thank participant and direct Part II (principles and strategies)	X			
				TOTAL 5/5

PART II PRINCIPLES AND STRATEGIES

Does Researcher	Yes	No	N/A	Comments
Direct individual to table 1.2. For Part II: Principles and strategies questions - If over phone, ask that they open the file on their computer	X			
Explain directions and layout of interview document - Answer question 1 - If answered No to question 1, answer question 2 - After answering question 1 & 2, follow up w/verbal questions	X			
Allow individual time to complete table 1	X			
Ask follow up questions verbally for Q1: - If indicated yes, for what skills? - For what types of individuals - What do you believe are its limitations/barriers?	X			
Ask follow up questions verbally for Q2: - If indicated NO, why do you think it is not applicable? - If indicated YES, how would you apply it and for what skills?	X			
Use reflective responding as needed throughout	X			
Reinforce detailed responding as needed throughout	X			
Answer questions they may have as needed	X			
After they complete it, thank participant & direct Part III (perceptions)	X			
				TOTAL 9/9

PART III PERCEPTIONS

Does Researcher	Yes	No	N/A	Comments
Direct individual to Part III: Perceptions - If over phone, ask that they open the file on their computer	X			
Interviewer asks questions verbally: - What is your overall perception of ABA? - Do you think there is any overlap between the professions of speech-language pathologists and applied behavior analysts? - From what sources (if any) have you previously learned about applied behavior analysis?	X			
Use reflective responding as needed throughout	X			
Reinforce detailed responding as needed throughout	X			
Answer questions they may have as needed	X			
After they complete it, thank participant & direct Part IV (comments)	X			
				TOTAL 6/6

PART IV COMMENTS

Does Researcher	Yes	No	N/A	Comments
Ask if participant has any additional questions or comments				
				TOTAL 1/1

Termination

Does Researcher	Yes	No	N/A	Comments
Watch the clock so as not to go over 1 hour	**X**			
Thank interviewee for their help/information provided	**X**			
Leave your contact information if they have questions or concerns later	**X**			
Offer to share your final product if they're interested	**X**			
Provide a warm, standard closing ("Take care,")	**X**			
				TOTAL 4/4

Calculate Introduction - Termination

Total Number of components observed : 38/41

Percentage of integrity (ALL YES) : 93 %

Number of components where "YES" was checked 38/41

Number components where "NO" was checked 0/41

Number of components where "NA" was checked 3/41

Observer Comments:

_____

_____

Appendix H

Table 10

Full Table - Individual Results of Part I - Knowledge f ABA Principles

Participant	Evidence-Based Principle/Practice of ABA	"Are you aware of this practice?"	"Could you define the practice? If so, please do." *(Accuracy of definition given by participant)*
P1	DTT	No	N/R
	Positive Reinforcement	Yes	"Rewarding students for appropriate behavior or correct responses"
	FCT	Yes	"I've just heard of this, I'm not sure if I could define" it
	DRA	No	N/R
	Extinction	Yes	"An educated guess would be managing students in a manner to extinguish unwanted behaviors"

	VB
	   - Mand
	   - Tact
		Yes	N/R

P2	DTT	Yes	"Antecedent, behavior, reinforcement/consequence, breaking down skills, repeated trials"
	Positive Reinforcement	Yes	"Use of motivation and preferred items following a target behavior to increase the likelihood that the preferred behavior will occur again in the future"
	FCT	Yes	"Use of communication strategies as a means to reduce negative or non-preferred behavior"
	DRA	Yes	"Reinforcement of an alternative behavior (to increase preferred behavior) to reduce a non-preferred behavior"
	Extinction	Yes	"Elimination of a non-preferred behavior"

	VB
	   - Mand
	   - Tact
		Yes	Mands - "requests for items/preferences"
			Tacts - "labeling"

P3	DTT	No	N/R
	Positive Reinforcement	Yes	"Providing some type of verbal or physical praise for a trial"
	FCT	No	N/R
	DRA	No	N/R
	Extinction	No	N/R

	Verbal Behavior Training
	   - Mand
	   - Tact
		No	N/R

P4	DTT	Yes	"Reinforce specific behavior - shape specific behavior
	Positive Reinforcement	Yes	"Giving reinforcement for a given behavior"
	FCT	Yes	"Shape functional communication, like vocalizations"
	DRA	Yes	"Two different behaviors, reinforcement one over the other to modify or replace appropriate behaviors"
	Extinction	Yes	"Stop reinforcing certain behaviors - replace an appropriate behavior"

	VB
	   - Mand
	   - Tact
		Yes	Mands - "commands"
			Tact - "label"