The Effects of Jargon on School-Based Consultation

By

Shannon Martin
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Chair: Dr. Thomas Zane

Dr. David Jarmolowicz

Dr. E. Scott Geller

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The thesis committee for Shannon Martin certifies that this is the approved version of the following thesis:

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Co-Chair: Dr. David Jarmolowicz

Co-Chair: E. Scott Geller

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Abstract

Behavior analysts trained in applied behavior analysis (ABA) often use specific terminology and jargon when describing and implementing behavioral interventions. However, the use of jargon may be confusing to individuals without similar training, which could be a hindrance to successful interdisciplinary work, such as in consultation with schoolteachers. Therefore, a three-phase study was conducted with schoolteachers to test the effects of jargon using a within-subjects design. The first phase was a survey in which participants watched videos of behavioral interventions described in technical or non-technical language and selected the therapist with whom they would rather work. The second phase employed an alternating treatments design in which technical and non-technical descriptions were alternated and participants recalled what they had read. During the third phase, treatment fidelity was assessed by having participants implement both a technical intervention and a non-technical intervention with a confederate. Results indicated that participants without prior experience with a behavior analyst were more likely to prefer a therapist who used non-technical language. Additionally, participants correctly recalled and implemented more components of an intervention when it was written without jargon. This suggests that behavior analysts should avoid using jargon when consulting with teachers who are unfamiliar with behavioral principles.

Keywords: jargon, consultation, schoolteachers, behavioral interventions, interdisciplinary work, alternating treatments design

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The Effects of Jargon in School-Based Consultation

Behavior analysts often consult with individuals beyond the field of applied behavior analysis (ABA). Consultation allows behavior analysts to improve the well-being of clients, inform and train teachers, caregivers, and other individuals about behavioral principles, and to disseminate the field of ABA (DiGennaro Reed & Jenkins, 2013; Gravina & Hodges, 2018; Williams, 2000). As such, efforts to improve the behavioral consultation process should be examined.

What is Behavioral Consultation?

The consultation process often includes three different roles: the consultant, the consultee, and the client (DiGennaro Reed & Jenkins, 2013; Martens et al., 2014; Williams, 2000). The consultant serves as the "expert" of the skill deficit or disruptive behavior of interest. This individual is experienced in behavioral principles and is responsible for pinpointing, assessing, and designing an intervention to change the target behavior that needs to be addressed. Additionally, the consultant must train the consultee to implement the intervention. In many cases, the consultant is a behavior analyst. The consultee—often a teacher, parent, or manager—is responsible for implementing the procedure or intervention with the client. The client is the student, staff member, or other individual with a skill deficit or behavioral excess that is being addressed by the consultant (Williams, 2000). It is common for the consultant to work directly with only the consultee and to have limited direct contact with the client (DiGennaro Reed & Jenkins, 2013; Martens et al., 2014).

There are many steps to the consultation process, including the hiring of the consultant, assessment of the target behavior, training of the consultee, implementation of the intervention with the client, and follow-up by the consultant (Martens et al., 2014; Williams, 2000). First, the

consultant is hired to advise on the target behavior that needs addressing. These behaviors may include problem behaviors to be reduced, or academic or communicative skills to be acquired. In the case of problem behaviors, the consultant applies indirect and direct methods to determine the function of the target behavior of the client (Mueller & Nkosi, 2007). Indirect methods involve interviewing the consultee and other stakeholders regarding the environmental variables relevant to the behavior (Martens et al., 2014). Direct methods require observation of the client's behavior by the consultant (Martens et al., 2014). After these assessments, the consultant designs an intervention to improve the target behavior. These interventions often address antecedents and consequences of the behavior that are found to be maintaining the behavior (Gravina & Hodges, 2018; Mueller & Nkosi, 2007).

The consultant must next train the consultee to implement the intervention. One recommended evidence-based method of staff training, known as Behavioral Skills Training (BST), can be beneficial to the training process (Lerman et al., 2015). BST involves first describing the necessary skill or intervention to the consultee, followed by providing a written description of the skill and a demonstration or model of the skill by the consultant. Next, the consultee is given time to practice the skill, and feedback regarding the consultee's performance is provided. Additionally, the consultee should repeat the process until a pre-determined mastery criterion is achieved (Lerman et al., 2015; Parsons et al., 2012). Ultimately, the consultant should ensure that the consultee is competent in the skill before the consultee begins to implement it with the client (DiGennaro Reed & Jenkins, 2013; Martens et al., 2014). Furthermore, once the consultee begins to work with the client, the consultant should continue to monitor progress and modify the program as necessary. The efficacy of the intervention and the process should be tested in an empirical manner (DiGennaro Reed & Jenkins, 2013; Gravina & Hodges, 2018).

Behavior Analyst Consultation with Teachers

There have been many demonstrations of successful behavioral consultation with teachers in a classroom setting. Successful consultations are ones in which the teacher is trained to competence, implements the procedure with high integrity, and the desired outcome for the student is achieved (Martens et al., 2014; Mueller & Nkosi, 2007). Behavioral consultation has been successful in reducing talk-outs by individual students and entire classrooms as a whole using differential reinforcement of low levels (DRL) of reinforcement (Dietz & Repp, 1973), reducing attention-maintained self-injury and aggression using extinction and differential reinforcement of alternative behaviors (DRA; Lalli et al., 1993), and increasing academic performance with reinforcement interventions (Noell et al., 1997).

These examples and others highlighted behavioral consultation as an important tool for both behavior analysts and teachers. It has the potential to improve the socially significant behaviors of the student, the relationship between the student and teacher, and the teacher's perception and understanding of ABA. However, poorly executed consultation could cause the opposite to occur in these instances (DiGennaro Reed & Jenkins, 2013; Gravina & Hodges, 2018; Williams, 2000). Therefore, behavior analysts should examine the factors that contribute to the success of behavioral consultation and incorporate them into their practice.

Factors that Affect the Success of Consultation

Many factors regarding the success of consultation should be considered, including feedback, avoidance, dominance, and the perception of ABA.

Feedback. Feedback during the training process has been demonstrated to be an important factor in the efficacy of behavioral consultation (Jones et al., 1997; McKenney et al., 2013; Noell et al., 1997; 2005; Witt et al., 1997). Feedback consists of the consultant providing

information to the consultee regarding the accuracy of their implementation during training and with the student. Feedback can be supportive in that the consultant informs the consultee of what s/he did well, corrective in that the consultant recommends what the consultee could do better next time, or a combination of these two methods. Feedback in a consultation model has been found to positively impact consultee performance positively (Jones et al., 1997; McKenney et al., 2013; Noell et al., 2005; Witt et al., 1997). For example, Jones and colleagues (1997) saw treatment integrity of a positive reinforcement procedure increase after a feedback component was added to the consultation process. Also, McKenney et al. (2013) found teacher performance of functional analysis conditions to improve following behavioral feedback. In another example, performance feedback was associated with higher treatment fidelity than weekly follow-up meetings with the consultant (Noell et al., 2005). Even studies that examine treatment integrity via permanent product of graded papers and redeemed reward slips have demonstrated that behavioral feedback is necessary (Witt et al., 1997).

Avoidance. DiGennaro and colleagues (2005; 2007) demonstrated that including a negative reinforcement component in addition to feedback improved treatment integrity. In both studies, teachers met once with a behavioral consultant to learn how to implement a new task or skill. Following the first session, they were able to avoid future meetings with the consultant if they continued to implement the procedure with 100% accuracy. The participants were informed that if they did not complete the skill at a mastery level, they would meet with the behavior analyst again to retrain. When this contingency was operating, the integrity of implementation increased. Therefore, this would suggest that meetings with the consultant may be seen as aversive to teachers, as correct implementation increased to avoid additional meetings. Based on

these results, improving the efficacy of the training process would eliminate the need for multiple meetings and be beneficial.

Dominance. Perhaps the dominance of the consultant in the consultant-consultee dyad can impact the success of the process. Dominance refers to an individual's control over another individual's behavior (Erchul, 1987). Witt and colleagues (1991) found that consultants successfully changed the topic 78% of the time, compared to only 58% of the time for consultees. This suggests that consultants are dominating the conversation during meetings. Additionally, Erchul (1987) indicated that consultants that were seen as more domineering in conversation were rated as more effective by the consultees. It remains unclear, however, if dominating the conversation and being seen as more effective in fact leads to more effective consultation.

Perception of the Field. It is also possible that the reputation of ABA impacts the consultation process. If teachers have negative attitudes towards or hold misconceptions of the field and its practices, then the procedures may be implemented with low integrity or avoided altogether (Bailey, 1991; Noell et al., 1997; Wickstrom et al., 1998). However, before evaluating whether this is true, it is first important to understand and evaluate the public perception of ABA.

The Perception of Applied Behavior Analysis

Many have argued that ABA as a discipline is generally perceived poorly and is considered less favorably compared to other methods (Bailey, 1991; Freedman, 2016; Friman, 2014; Neuringer, 1991; Rolider et al., 1998; Smith, 2016; St. Peter, 2013). According to Axelrod (1996), the beliefs that behavioral approaches require too much work, contradict the popular notion of freedom, threaten prevailing structures in education, and fail to glorify human beings as well as other approaches, all lead to the unpopular status of ABA. While these assumptions may

or may not be valid, it exemplifies many of the concerns that individuals outside of the field may hold regarding ABA.

There are evidently many misconceptions about the principles of ABA by those outside of the discipline. Arntzen and colleagues (2010) found that inexperienced individuals believed that behavior analysts disregard the role of genes in behavior, deny the uniqueness of individuals, and utilize statistical analyses in their research. These misconceptions likely play a negative role in the perception of ABA. For example, an *Atlantic* article titled, "Is Applied Behavior Analysis, the Most Common Therapy for Autism, Cruel?" (Devita-Raeburn, 2016) concluded that ABA teaches social skills through "unrelenting drills" and "forces people on the spectrum to hide who they are." Furthermore, it has been stated that the field has a "predatory approach" to parents and is a formulaic one-size fits all therapy (Devita-Raeburn, 2016).

In addition to magazine articles, many anti-ABA blogs posts are damaging to the field's reputation. For example, the blog *Stop ABA, Support Autistics* assumes that one cannot support both ABA and individuals with autism spectrum disorder (ASD). The blog's article "Why ABA Therapy is Bad: A Brief Summary" refers to ABA as a form of child abuse, conversion therapy, and an expensive scam that ignores children consent. Additionally, it claims that behavior technicians receive no training and are encouraged to directly harm children and lie to parents about it ("Why ABA Therapy is Bad," 2020). These misconceptions could easily scare away consumers.

Additionally, other disciplines may be viewed as more approachable than ABA. Woolfolk and colleagues (1977) found that after watching a short video demonstration of a behavioral intervention, college students rated the intervention more favorably if it was labeled as "humanistic education" rather than "behavior modification." However, in an attempt to

replicate these results twenty years later with a new sample, it was found that the labels were rated equally (Katz et al., 2000). These updated results may imply that college students are growing more accepting of behavioral terminology, but it is unclear if this would be seen for other populations as well. An even more recent sample of 230 teachers suggested a larger preference for a "social and emotional learning program" than for "behavioral consultation" (Egan et al., 2019).

It is unfortunate that ABA has garnered such a negative response from others. To address this, many suggestions have been provided to improve the perception of ABA. First, efforts must be made to correct misinformation regarding the ethical and conceptual foundation of ABA. As was apparent from the *Stop ABA, Support Autistics* blog post, there are many misconceptions regarding ABA philosophies, ethical standards, and training requirements. Also, some have speculated that the historical ties to aversive therapy and the traditional behaviorism of John B. Watson have led to continued misinformation and confusion (Smith, 2016). Ultimately, behavior analysts do not deny the existence of internal thoughts and feelings as some may be led to believe based on the ongoing dispute between the domains of behaviorism and cognitive psychology (Smith, 2016). Therefore, the perception of ABA may be improved by clarifying its principles to other disciplines and the public, including the nonuse of aversive therapies.

It has also been suggested that behavior analysts should increase their humility (Neuringer, 1991). Neuringer claimed that while it may be a virtue that behavior analysts strongly defend the importance and empirical nature of their field, it has also been argued that behavior analysts disregard other disciplines and scientific perspectives by doing so. Instead, Neuringer advocated for behaviorists to actively consider other viewpoints and disciplines to increase the field's overall scientific effectiveness. In response, Chase (1991) argued that

behavior analysts should focus more on being skeptical than being humble; however, the point remains that behavior analysts should not disregard other disciplines. Many others have suggested that behavior analysts should focus on building rapport with teachers and other professionals (Fantuzzo & Atkins, 1992) and collaborate with other disciplines (Kelly & Tincani, 2013; Koenig & Gerenser, 2006; St. Peter, 2013) to increase the positive perception of the domain.

One effort to integrate ABA with other disciplines—the Actively Caring for People (AC4P) Movement—integrates humanism, positive psychology, and ABA into a synergistic framework to increase interpersonal acts of kindness (Geller, 2021). As part of the See, Thank, Enter, Pass (STEP) process (K. Geller, 2019), prosocial behaviors are reinforced with an AC4P wristband. Wristband recipients are requested to enter their positive interactions online, including the unique identification number on their wristband, and then pass the AC4P wristband on to another person who is observed performing an act of kindness. Therefore, this process not only applies the principles of positive reinforcement, but also incorporates the importance of empathy, gratitude, and individual happiness emphasized by humanism and positive psychology (Geller, 2021). Perhaps by incorporating a stronger emphasis on empathy in ABA—and associating the field with other disciplines that are perceived more favorably by others—behavior analysts will improve collaboration and communication with potential consumers.

In addition to collaboration, it has been argued that ABA could increase dissemination efforts to improve public acceptance and appreciation of its technology. Therefore, increasing the scope of applied research (Doughty et al., 2012; Freedman, 2016; Reid, 1991), publishing in journals and news outlets outside of the behavior analytic domain (Doughty et al., 2012; Freedman, 2016; Friman, 2014) and avoiding the use of jargon (Bailey, 1991; Cox, 2012;

Fantuzzo & Atkins, 1992; Foxx, 1996; Freedman, 2016; Hall, 2005; Hayes, 1991; Helton & Alber-Morgan, 2018; Hineline, 1980; Idol et al., 1995; LaFrance et al., 2019; Lindsley, 1991; Slocum & Butterfield, 1994; Vinokur-Kaplan, 1995) have all been recommended courses of action for behavior analysts. Perhaps by publishing findings in media outlets more readily accessible, and by avoiding jargon and instead using language that is easier to understand, ABA will become more approachable and relevant to the public.

Jargon in Behavioral Interventions

What is Jargon?

According to Merriam Webster dictionary (retrieved March 31, 2022), jargon is: "the technical terminology or characteristic idiom of a special activity or group." Additionally, it is "obscure and often pretentious language marked by circumlocutions and long words" (Merriam Webster). Circumlocution is defined as "the use of an unnecessarily large number of words to express an idea" (Merriam Webster). Therefore, jargon can be understood as the technical or specific terminology of a discipline that is not easily understood by individuals outside of that discipline.

Behavior analysts use many technical terms that are not well-known or are confusing to the public (Foxx, 1996). These include but are not limited to: abolishing operation, discriminative stimulus, elopement, errorless learning, extinction, mand, operant conditioning, negative reinforcement, and punishment. While many of these terms were created to describe specific behavior analytic procedures that may be unknown to those outside the field, several terms commonly used in behavior analysis (e.g. "extinction," "reinforcement," and "punishment") are defined differently within the field compared to their colloquial definitions. To the general population, "extinction" refers to the decimation of a species, not the removal of a

reinforcer to reduce unwanted behaviors (Foxx, 1996). Additionally, the behavioral definition of punishment (i.e., the removal or addition of a stimulus to decrease behavior) varies vastly from the Merriam Webster definition: "suffering, pain, or loss that serves as retribution." Therefore, some behavior analytic terms are recycled and redefined. However, it is likely that this leads to confusion and push-back from individuals outside of the field (Foxx, 1996; Skiba & Deno, 1991).

Why is Jargon Used in Behavior Science?

There are many arguments for the continued use of jargon within ABA. First and foremost, behavior analysts may have an ethical obligation to technological language. The Behavior Analyst Certification Board (BACB) has published the Ethics Code for Behavior Analysts (2022) regarding the ethical expectations and performance requirements of behavior analysts. According to the compliance code, behavior analysts must design interventions that are conceptually systematic with behavior-analytic principles (Code 2.01; BACB, 2022). As such, an adherence to technological language may be perceived as necessary. It has been argued that technical terms increase precision and experimental control (Cihon et al., 2016; Iwata, 1991) and therefore are more scientific.

Also of importance, technological methodology is one of the seven dimensions of ABA (Baer et al., 1968). Ultimately, this requires that any technique used must be adequately described such that it could be replicated. It is argued that terminology that is more precise is more likely to lead to correct implementation and replication (Cihon et al., 2016; Iwata, 1991). However, this requires that the individuals implementing and replicating the procedures understand the jargon.

Even though there may be justification for using behavioral jargon, it has been noted that many of these terms could be reframed into non-technical, easy to understand language for individuals of different backgrounds to avoid negative connotations and confusion (Becirevic et al., 2016). For example, escape extinction could be replaced by "follow-through training," negative reinforcement by "avoiding consequences," positive punishment by "penalty", and operant conditioning by "learning by consequences," (Becirevic et al., 2016). Despite the availability of these replacement terms, behavior analysts continue to use behavior analytic jargon in practice and during consultation (Bailey, 1991; Cox, 2012; Fantuzzo & Atkins, 1992; Foxx, 1996; Freedman, 2016; Hall, 2005; Hayes, 1991; Helton & Alber-Morgan, 2018; Hineline, 1980; Idol et al., 1995; LaFrance et al., 2019; Lindsley, 1991; Slocum & Butterfield, 1994; Vinokur-Kaplan, 1995).

A closer examination of the Ethics Code for Behavior Analysts (2022) reveals that behavior analysts may instead be obligated to use nontechnical language in certain circumstances. Code 2.08 states, "Behavior analysts use understandable language in, and ensure comprehension of, all communications with clients, stakeholders, supervisees, trainees, and research participants," (BACB, 2022). Therefore, it may be more ethical to use replacement terms (e.g., "follow-through training" rather than escape extinction) when working with clients or consultees that have limited backgrounds in ABA, given that the replacement terms are still consistent with behavioral principles. However, the mixed messaging from the Ethics Code regarding the use of technical or non-technical language may be partially responsible for the continued use of jargon when consulting with the lay population.

The Issue of Connotation

Jargon may not only confuse the reader, but it may also evoke negative emotional responses. The Pollyanna Principle refers to the human bias towards positive words; ultimately, it has been demonstrated on many occasions that humans use more words that are perceived as positive than words perceived as negative in communication (Boucher & Osgood, 1969; Dodds et al., 2015). Therefore, the perceived negativity of behavior analytic terminology could potentially affect the acceptance and prevalence of these terms outside of the field.

Words have both denotative and connotative meanings. Denotative meanings are the literal definitions of a word found in a dictionary, while connotative meanings are the subjective, emotional response that a word generates for the speaker or listener (Allan, 2007; Emodi, 2011). Therefore, connotations of a term are usually tied to the community attitude towards it (Allan, 2007). Not surprisingly, advertising agencies are well-aware of the emotional effects of words and the power of language (Emodi, 2011). Advertisers have been known to use words with strong positive connotations, misspelled words, repetitive words, words with multiple possible interpretations, and have even created new words to convince consumers to buy their products (Emodi, 2011; Vasiloaia, 2009). Ultimately, advertisements must "speak the language of the recipient" (Vasiloaia, 2009, p. 294) to be successful.

Some studies in advertising have indicated that individuals may be more susceptible to cognitive or affective language depending on their personal preferences (Byun & Jang, 2015; Fabrigar & Petty, 1999; Mayer & Tormala, 2010; Millar & Tesser, 1989). For example, affective language refers to words with strong emotional connotations, whereas cognitive language is more oriented towards denotative or rational definitions (Byun & Jang, 2015). For instance, one study showed that the use of the phrase "I think" versus "I feel" was more persuasive for

individuals who preferred cognitive language over affective language (Mayer & Tormala, 2010). Additionally, affective language was rated more positively in tourism advertisements for a beach, whereas cognitive language was rated higher in advertisements for tourism to the city of Berlin, indicating that destinations should consider modifying the language of their advertisements depending on the types of tourists they expect to attract (Byun & Jang, 2015). Also, loss-framed messages ("Failing to detect the virus may undermine effective treatment") have been rated as more effective when promoting screening behaviors, but gain-framed messages ("Prevention ensures you of your health") are more effective when promoting preventive health behaviors (Rothman et al., 1999). These results all indicate that words can evoke different emotional responses among individuals.

Warriner and colleagues (2013) asked participants on Amazon Mechanical Turk (mTurk) to rate 14,000 words for their emotional response. Each word was rated on a scale of 1 (unhappy) to 9 (happy) denoting how the word made the participant feel. To examine the emotional responses to behavioral jargon, Critchfield et al. (2017) focused in on the ratings of the relevant behavioral terms from the list. This led to the examination of 39 terms; of which, 60% were rated as unpleasant by the participants (Critchfield et al., 2017). This suggests that many of the terms used by behavior analysts may not be received well by individuals outside of the field, and thus their use ought to be avoided.

Additionally, Boydston and Jowett Hirst (2020) had participants drawn from mTurk to rate the acceptability and clarity of the following job titles related to behavior analysis: behavioral scientist, behavioral specialist, behavior analyst, Board Certified Behavior Analyst (BCBA), behavioral consultant, and behavior therapist. Of these, BCBA was rated as the least pleasant. Evidently, the technical language and most relevant job titles associated with behavior

analysis are seen as unpleasant. It is likely that the low acceptance of these terms is negatively impacting the use of such terms by the general population, and the perception of the field of behavior analysis. Therefore, avoiding their use with individuals outside of the discipline may be warranted, however more research in this area is necessary.

The Effects of Jargon on Acceptance, Ability to Recall, and Procedural Integrity

Effects on Acceptance

Technical jargon in behavioral interventions not only has the potential to limit public acceptance (Becirevic et al., 2016; McMahon et al., 2021; Rolider et al., 1998; Witt et al., 1984) but could also influence the ability to recall (Banks et al., 2018) and implement (Jarmolowicz et al., 2008) these interventions. To address the acceptance of interventions when behavioral terminology or jargon is used, many surveys have been administered to teachers, parents, and other members of the public. In a survey conducted by Witt and colleagues (1984), 112 teachers rated the acceptability of an intervention with a Likert scale format. One intervention—regarding keeping a student in from recess—was described in either behavioral, pragmatic, or humanistic terminology. The pragmatic descriptions were rated as more favorable than both behavioral and humanistic descriptions by the teachers. Interestingly, acceptance of all three descriptions increased if the behavior of the child in question was more severe (e.g. the child was getting in fights at recess versus child was not finishing his homework). Also, acceptability of all interventions decreased as years of the rater's teaching experience increased (Witt et al., 1984).

The results from Witt and colleagues (1984), while over thirty years old, are not irrelevant today. Similar results were found from surveying health care professionals, caregivers and other non-behavioral individuals: behavioral jargon was rated as less acceptable, harder to understand, and less compassionate (Rolider et al., 1998). Additionally, Becirevic and colleagues

(2016) asked general participants on mTurk to rate the acceptability of ABA terms and non-technical substitutes (e.g. escape extinction versus follow-through training). Except for "reinforcement," technical jargon was rated as less acceptable when compared to lay terms for the 200 non-experts who participated. These results were also replicated with teachers on mTurk (McMahon et al., 2021). It was speculated that the term "reinforcement" may have been rated more acceptably due to its multiple definitions and interpretations (Becirevic et al., 2016).

However, not all surveys have shown ABA jargon to be rated poorly. One questionnaire found that technicality of the language did not affect teacher acceptability (Rhoades & Kratochwill, 1992). Additionally, a different survey found that technical language improved the acceptability of punishment procedures (Hyatt & Tingstrom, 1993). Despite these outliers, it seems that behavior analytic language is generally rated poorly compared to non-technical language. This finding is likely concerning to behavior analysts but is perhaps not surprising, given what is known about the general perception of ABA, as well as the Pollyanna Principle.

Effects on Recall and Procedural Integrity of Implementation

The opinions of jargon mentioned thus far were gathered indirectly with surveys and self-report. Empirical research regarding the effects of jargon is limited but has many implications regarding the ability to recall and implement behavioral interventions. Jarmolowicz and colleagues (2008) acknowledged this importance and incorporated an intervention integrity component into jargon research. First, experienced participants (with at least one year of graduate study in ABA) and their inexperienced counterparts (direct care staff at the same inpatient unit with no prior training in ABA) were asked to rate their understanding of a behavioral intervention written in either technical jargon or non-technical language on a Likert scale ("Not at all" to "Completely understand"). The intervention included functional

communication training (FCT) and extinction (EXT) components. Participants were divided into two groups and rated only one version of the intervention. Results of the surveys indicated decreased perceived understanding in the jargon condition for the inexperienced participants (Jarmolowicz et al., 2008).

To test whether these perceived differences correlated with actual decreased performance, the inexperienced participants were then asked to implement the intervention with a confederate in a second experiment. The participants remained in the same groups as before and only had access to one version of the instructions. The participants who received the non-technical instructions demonstrated higher integrity in both the FCT and EXT components (Jarmolowicz et al., 2008). These results indicate that technical jargon may not only lead to decreased understanding, but also decreased integrity when implementing the intervention procedure.

In a more recent study, Banks and colleagues (2018) asked parents of children receiving behavior analytic services to watch a video of a therapist describing a time-out intervention in either jargon, non-technical language, or "popular" terminology. Similar to the design by Jarmolowicz and colleagues (2008), participants in this study were only subjected to one condition. After the video, participants rated the acceptability of the intervention as well as the therapist describing it. Additionally, the participants were asked to recall the steps of the intervention described in the video. Surprisingly, language type did not affect the parents' ratings of either the intervention or the therapist. However, a significant difference was found in the number of steps accurately recalled. Parents in the non-technical condition accurately recalled more steps of the intervention than did parents in the jargon condition (Banks et al., 2018). The

authors concluded that jargon may negatively impact the ability to recall an intervention, regardless of its acceptability.

The Current Research

As discussed, many factors can impact the success of behavioral consultation with teachers. Due to the perceived poor acceptance of technical language in behavior interventions demonstrated via survey, consultation may benefit from the elimination of jargon. However, this assumption should be evaluated empirically, as the available data on the effects of jargon come mostly from indirect reports. Additionally, while negative perceptions due to jargon are important and should be evaluated, the effect of behavioral jargon on overt behavior is of great importance and should be observed. Both Jarmolowicz and colleagues (2008) and Banks and colleagues (2018) tested the effects of jargon on intervention recall and implementation in a manner that focused on real behavior change. However, neither study used a within-subjects design. As such, it is difficult to rule out extraneous variables and demonstrate more experimental control in their designs. Jarmolowicz and colleagues (2008) evaluated the effects of jargon on the acceptance and implementation of the intervention, and Banks and colleagues (2018) examined the effects on acceptance and recall. However, no study to date has evaluated the effects of jargon on acceptance, ability to recall, and implementation integrity among the same participants, nor subjected participants to both technical and non-technical conditions. Additionally, neither study evaluated the effects of jargon on elementary school teachers with a school-based consultation model.

Therefore, to expand on the previous research, the present study implemented a within-subjects design by exposing elementary school teachers to both technical and non-technical conditions. Participants were presented with descriptions of behavioral interventions written in

technical language and non-technical language in three different phases. In the first phase, participants were asked to indicate their preference of a therapist after watching two videos. In the second phase, participants with no professional experience in ABA recalled interventions in a free response format. In the final phase, participants implemented procedures remotely with a confederate. The research question was as follows: To what extent does technical jargon embedded in a behavioral intervention influence teachers' a) selection of a therapist, b) recollection of procedures, and c) implementation of procedures?

Phase 1: Therapist Survey

Method

Participants

Phase 1 was completed remotely on Qualtrics, an online survey tool. The recruitment letter and Qualtrics survey link were sent to 15 school districts in the surrounding Kansas City, Missouri area and were posted on Kansas City schoolteacher groups on Facebook. Respondents were divided into experienced and inexperienced groups as done by Jarmolowicz and colleagues (2008). Experienced teachers were those who reported prior experience working with a BCBA in a professional setting or taking a course in ABA or behavior modification. Both groups answered the same survey questions. Individuals who did not consent to participate or who indicated that they had no teaching experience were terminated from participating. The survey was open for seven weeks from February 16 to April 6, 2022.

A power analysis for a repeated measures, within-factors ANOVA was conducted to determine an appropriate sample size for Phase 1. Results from the study conducted by Jarmolowicz et al. (2008) were used to run the analysis, as the average rating of understanding from the inexperienced technical group ($M = 2.70$, $SD = 1.25$) was found to be significantly

lower than the inexperienced non-technical group (M = 4.30, SD = 0.95) with a large effect size of $d = 1.44$. Therefore, a power analysis with a significance criterion of $\alpha = 0.05$ indicated that six participants in each group would be needed to achieve a power of .90. Overall, eight experienced participants and 14 inexperienced participants completed the survey, for a total of 22 responses in Phase 1. Information regarding the participants' reported experience is provided in Table 1.

Materials

Necessary materials for the participants in all three phases consisted of a computer or smartphone with internet connection. One intervention description—differential reinforcement of incompatible behavior (DRI)—was used in Phase 1. All intervention descriptions used in the three phases are provided in Appendix A. The author originally wrote fifteen descriptions to be used across the three phases.

The descriptions were reviewed by a panel of three senior-level behavior analysts. Panel members reviewed the descriptions on Qualtrics, and deemed whether, in their professional opinion, the descriptions were conceptually consistent with behavioral principles and were equally difficult compared to the other descriptions. Based on the feedback from the panel members, minor modifications were made to eleven of the descriptions. The original intervention descriptions were considered conceptually consistent with behavioral principles and were described in such a way that the technical and non-technical forms addressed the same intervention on 66.7% (30/45) of the opportunities. Any intervention that all three raters marked as more difficult to learn were not used. This resulted in the elimination of two interventions, with a final total of thirteen intervention descriptions being used across the three phases.

In addition, clinician feedback was solicited regarding the specific technical and non-technical terms used in the descriptions. Five graduate students in the Applied Behavioral Science department at the University of Kansas were recruited on Qualtrics to provide their input on the status (technical or non-technical) of 50 phrases and terms used in the descriptions. The results of these evaluations can be found in Table 2. Terms were only used in non-technical descriptions if they were rated as non-technical by at least 80% of clinicians. Therefore, no terms that were given technical or inconclusive status were used in non-technical descriptions.

Overall, the clinicians reported 80% or higher agreement on 45 of the 50 (90%) terms. Seventeen were rated as technical, 28 as non-technical, and five as inconclusive. Based on these ratings, each technical description (excluding the Technical DRI intervention) contained one to two technical terms. The DRI intervention was selected for Phase 1 because the technical description contained the highest number of technical terms (three) compared to the other interventions.

Procedure and Measurement

The Phase 1 survey questions that were completed by participants on Qualtrics are given in Appendix B. After signing the consent form, participants first saw a brief introduction to the survey. After clicking the next button, participants then indicated whether they had teaching experience. A positive response to the question “Are you currently or have you ever been a school teacher?” was necessary to continue. Participants then indicated the population of students with whom they had experience teaching (general education, special education, or both) and whether they had professional experience working with a BCBA or had previously taken an ABA course. Afterwards, participants watched the first of two video descriptions of the DRI intervention embedded directly into the survey. The next button did not appear on the

participants screen until after 12 seconds on the page had elapsed. Following the video, the participant responded to the Acceptability Questionnaire (see Appendix B, p. 68). This process then repeated for the second video. After both videos and acceptability questionnaires were completed, the participant responded to the Therapist Survey (see Appendix B, p. 71). The formatting and presentation of the videos, as well as the Acceptability Questionnaires and the Therapist Survey to which the participants responded to, are described in detail in the following sections.

Video Format

The video recordings were like those used by Banks and colleagues (2018). All video recordings were head and shoulder shots with the therapist facing the camera. The videos were recorded in the same location with minimal background distractions. Both therapists wore a plain red shirt and talked with a neutral affect and tone. The videos were ten seconds in duration. In each the video, the therapist reads the DRI intervention description to the participant. Therapist A and Therapist B recorded both a technical description and a non-technical description for the intervention. Therefore, four videos were recorded: Therapist A using technical language (TA), Therapist A using non-technical language (NTA), Therapist B using technical language (TB), and Therapist B using non-technical language (NTB). The two therapists in the videos did not interact with the participants in any way nor were they involved in data collection during any phase of the study.

Video Presentation and Order

Participants saw one video of each therapist and one video of each description type. However, the order in which they saw each therapist (A/B or B/A) was counter-balanced across participants. Additionally, the order in which the videos were presented (T/NT or NT/T) was

counterbalanced across participants as well. Therefore, there were four possible presentations of videos:

- Technical A, Non-Technical B
- Non-Technical B, Technical A
- Non-Technical A, Technical B
- Technical B, Non-Technical A

Acceptability Questionnaire

This questionnaire was adapted from the questionnaire used by Jarmolowicz and colleagues (2008) with minor changes. The participants were asked to rate their understanding of the intervention, their comfort implementing the intervention, their perception of the intervention's compassion, and their opinion of the student's ability to participate in the intervention after watching each video on a 5-point Likert-type scale. Due to the formatting of Qualtrics, each point was given a quantifier (i.e., (1) Not at all, (2) A little, (3) Somewhat, (4) Mostly, and (5) Completely) unlike in the study by Jarmolowicz and colleagues, in which only points 1, 3, and 5 were given quantifiers. The participant completed the same questionnaire following each recording.

Therapist Survey

After completing the videos and Acceptability Questionnaires, the participants were asked: *Which therapist would you prefer to work with?* An image of each therapist was presented on the screen.

Results

Acceptability Questionnaire

A mixed ANOVA was run to test for differences in rating according to one within-subject measure (language type) and one between-subject measure (experience level). No significant main effects were found for language type, experience level, or an interaction between the two. Mean ratings on the Acceptability Questionnaire are depicted in Figure 1. The four measures are displayed on the x-axis with mean rating on the y-axis. Despite statistical insignificance, the results for each rating by experience type are discussed in detail in the section that follows.

Perceived Understanding

Experienced. The mean ratings of perceived understanding for the experienced participants who viewed Technical Therapist A ($M = 5$, $SD = 0$) was considerably higher than ratings for Non-Technical Therapist B ($M = 4.33$, $SD = 1.15$) by the same participants.

Inexperienced. The mean rating of perceived understanding for the inexperienced participants who viewed Non-Technical Therapist A ($M = 4.71$, $SD = 0.76$) was considerably higher than the mean rating of perceived understanding for Technical Therapist B ($M = 3.71$, $SD = 1.60$) by the same participants. Additionally, the mean ratings of perceived understanding for the inexperienced participants who viewed Technical Therapist A ($M = 2.86$, $SD = 1.35$) was considerably lower than ratings for Non-Technical Therapist B ($M = 4.29$, $SD = 1.11$) by the same participants.

Perceived Comfortability

Experienced. The mean ratings of perceived comfortability for the experienced participants who viewed Technical Therapist A ($M = 3.33$, $SD = 1.53$) was considerably higher than ratings for Non-Technical Therapist B ($M = 2.33$, $SD = 1.53$) by the same participants.

Inexperienced. The mean ratings of perceived comfortability for the inexperienced participants who viewed Technical Therapist A (M = 1.86, SD = 1.57) was considerably lower than ratings for Non-Technical Therapist B (M = 2.43, SD = 1.81) by the same participants.

Perceived Compassion

Experienced. The mean ratings of perceived compassion for the experienced participants who viewed Technical Therapist A (M = 3.33, SD = 1.53) was considerably higher than ratings for Non-Technical Therapist B (M = 2.67, SD = 1.53) by the same participants.

Inexperienced. The mean ratings of perceived compassion for the inexperienced participants who viewed Technical Therapist A (M = 1.71, SD = 0.96) was considerably lower than ratings for Non-Technical Therapist B (M = 2.71, SD = 1.38) by the same participants.

Perceived Participation

Experienced. The mean ratings of perceived participation for the experienced participants who viewed Technical Therapist A (M = 3.67, SD = 1.53) was considerably higher than ratings for Non-Technical Therapist B (M = 2.33, SD = 0.58) by the same participants.

Inexperienced. The mean ratings of perceived participation for the inexperienced participants who viewed Technical Therapist A (M = 2.14, SD = 1.46) was considerably lower than ratings for Non-Technical Therapist B (M = 3, SD = 1.73) by the same participants.

Therapist Survey

A Chi-Square statistic was calculated for therapist selection regarding experience level and language type. This form of analysis was selected due to the categorical nature of the variables, and because participants could only represent one experience type (experienced or inexperienced) and make one selection (technical or non-technical). Selections were not found to be significantly different, X^2 (1, N = 22) = 3.84, $p > .05$. Results of the Therapist Survey are

depicted in Figure 2. Description type is on the x-axis and the number of participants selecting the therapist that used that description type is displayed on the y-axis. Inexperienced participants are represented by the dark grey bars, and experienced participants are represented by the light grey bars.

Overall, the non-technical therapist was selected by 63.6% of participants. The participants who reported prior experience with ABA (N = 8) selected the therapist who used non-technical language three times (37.5%). The inexperienced participants (N = 14) selected the non-technical therapist 11 times (78.6%).

Discussion

A mixed ANOVA did not indicate statistically significant differences between technical and non-technical ratings of the four measures. However, minor differences between experience level and ratings were observed. The small sample size of this study most likely contributed to the statistically insignificant findings.

Additionally, a Chi-Square test did not indicate significant differences regarding therapist selection for language type and experience level. Overall, there was a moderate preference towards the non-technical therapist for inexperienced participants, but this difference did not reach statistical significance. This reflects the findings by Banks and colleagues (2018), but could be due to sample size. While these findings of preference are interesting, it is important to also examine real behavioral change due to the technicality of language.

Phase 2: Description Recall

Method

Participants and Setting

Participants in Phase 1 who indicated they did not have previous experience with a BCBA or took an ABA course were eligible to continue with Phase 2. This was done to replicate the methods of Jarmolowicz and colleagues (2008) and to avoid the possibility of improved participant performance due to previous exposure to behavioral interventions. Continued participation was optional.

A power analysis for paired samples was conducted to determine an appropriate sample size for Phase 2. Results from the study conducted by Banks et al. (2018) were used to run the analysis, as the average number of components accurately recalled by the technical group (M = 1.71, SD = 1.93) was found to be significantly lower than the non-technical group (M = 3.89, SD = 1.29) with a large effect size of d = 1.33. Therefore, a power analysis with a significance criterion of $\alpha = 0.05$ indicated that nine participants would be needed to achieve a power of .90.

Ten eligible participants opted to continue with the experiment and participated in Phase 2. Participants were automatically redirected to the Phase 2 form following completion of Phase 1 and completed Phase 2 on Qualtrics. Participants completed the consent form before any intervention descriptions were presented. Participants who did not consent or who did not attest to refraining from writing down or taking screenshots of the intervention descriptions to aid in their recall were terminated from further participation. One participant gave disingenuous responses (e.g., left answers blank, typed humorous questions rather than giving answers) and was left out of the final analysis. Therefore, the results of nine participants are reported.

Dependent Variable and Measurement

To measure the participants' ability to recall each intervention, the experimenter calculated the percentage of procedural components that were accurately recalled by participants

after reading the description. Similar to Banks and colleagues (2018), the participants recalled the components of the intervention in a free response format (see Appendix C for an example).

Participants read and recalled the components of six interventions (three technical trials and three non-technical trials). Researchers used the Recall Answer Key (see Appendix D) designed by the primary researcher to determine if the necessary components of each intervention were accurately recalled. The answer key was reviewed by graduate students at the University of Kansas to evaluate its reflection of the essential components of each intervention description.

Procedure

The forms that were completed by participants on Qualtrics are provided in Appendix C. As participants were automatically redirect after completing Phase 1, participants first saw an introduction to the new phase. Afterwards, participants completed the consent form for Phase 2, and attested to refrain from writing down descriptions and taking screenshots. If eligible to continue based on their attestation, participants then saw the first of six intervention descriptions. The participants were instructed to read the intervention description and click the next button when finished. Each participant was automatically advanced if the next button was not manually selected after 120 seconds. After advancing to the next page, the participant was asked to recall what was just read. While on the free-response entry page, the intervention description was no longer visible to the participant and the option to return to the description screen was unavailable. After completing their responses, the participants clicked the next button again and were advanced to the next intervention description. This process was repeated until six intervention descriptions were completed. To extend upon the design utilized by Banks and

colleagues, an alternating treatments design was used for each participant. Non-technical and technical intervention descriptions were alternated for a total of six interventions.

To avoid testing effects, or the possibility that participants' responses would improve due to increased exposure, the interventions and description types were randomized for each participant, such that each intervention was only viewed once regardless of the description type (e.g., if a participant had viewed the technical FCT description, they did not also see the non-technical FCT description). Additionally, half of the participants (five) were first shown a technical description in their series of six, and the other half (four) were first shown a non-technical description.

Interobserver Agreement

All responses for the nine participants were coded by the author and one additional research assistant to obtain interobserver agreement (refer to Appendix E for an example of the data sheet filled out by both researchers). For agreement to occur, both observers needed to record that a specific component was present or not present in an individual response. For example, if both observers agreed on the occurrence or non-occurrence of two components in an FCT response (three total components possible according to the Answer Key), this would lead to an agreement score of 2/3 for that FCT response. This was completed for every response for each participant.

Afterwards, technical agreement and non-technical agreement were calculated separately for each participant. Technical agreement scores were calculated by dividing the number of components agreed upon in responses to technical descriptions by the total number of components possible in those responses and multiplying by 100. This process was repeated for the responses to non-technical descriptions. Overall agreement on technical descriptions was

96.5% with a range of 70-100% per participant. Overall agreement on non-technical descriptions was 100%.

Results

A paired-samples t-test was run for mean components recalled regarding language type. A significant difference was found between technical and non-technical components recalled, $t(8) = 3.35$, $p = .010$. The mean percentage of components accurately recalled overall is depicted in Figure 3. Results are displayed with description type—non-technical (NT) or technical (T)—on the x-axis, and percentage of components accurately recalled on the y-axis. Overall, participants accurately recalled 74.5% (79/106) of components when the description was written non-technically, and 50.5% (49/97) of components in descriptions that used technical jargon.

The percentage of components accurately recalled by each individual participant can be seen in Figure 4. Additionally, non-technical scores for each participant are bolded in the explanation that follows. Participant 1 saw a non-technical description first in the sequence and accurately recalled **40**, 0, **50**, 75, **100**, and 66.7 (%) of components respectively across the six descriptions. This resulted in a non-technical average of 63.3% and a technical average of 47.2%.

Participant 2 saw a technical description first in the sequence and accurately recalled 50, **100**, 100, **100**, 20, and **100** (%) of components respectively across the six descriptions. This resulted in a non-technical average of 100% and a technical average of 56.7%.

Participant 3 saw a technical description first in the sequence and accurately recalled 0, **66.7**, 100, **100**, 66.7, and **66.7** (%) of components respectively across the six descriptions. This resulted in a non-technical average of 77.8% and a technical average of 55.6%.

Participant 4 saw a technical description first in the sequence and accurately recalled 0, **66.7**, 100, **100**, 0, and **100** (%) of components respectively across the six descriptions. This resulted in a non-technical average of 88.9% and a technical average of 33.3%.

Participant 5 saw a non-technical description first in the sequence and accurately recalled **20**, 66.7, **100**, 75, **100**, and 33.3 (%) of components respectively across the six descriptions. This resulted in a non-technical average of 73.3% and a technical average of 58.3%.

Participant 6 saw a non-technical description first in the sequence and accurately recalled **40**, 0, **0**, 33, **0**, and 33 (%) of components respectively across the six descriptions. This resulted in a non-technical average of 13.3% and a technical average of 22.2

Participant 7 saw a non-technical description first in the sequence and accurately recalled **100**, 75, **100**, 33, **100**, and 100 (%) of components respectively across the six descriptions. This resulted in a non-technical average of 100% and a technical average of 69.4%.

Participant 8 saw a technical description first in the sequence and accurately recalled 20, **75**, 33.3, **66.7**, 0, and **75** (%) of components respectively across the six descriptions. This resulted in a non-technical average of 72.2% and a technical average of 17.8%.

Participant 9 saw a non-technical description first in the sequence and accurately recalled 100% of components across all six descriptions.

Discussion

Seven of the nine participants accurately recalled a higher percentage of components when shown descriptions written in non-technical language as opposed to technical language or jargon, and this was found to be statistically significant. This excludes Participant 9 who accurately recalled all components of each description that was presented, and Participant 6 who recalled a higher percentage of components overall in the technical condition. However, all

scores for Participant 6 were relatively low. A clear alternating pattern of responding related to language type is seen for Participant 8. Similar trends are seen for Participants 2, 4, 5 and 7 but are less clear.

The results of Phase 2 compare favorably to previous research in the area. Banks and colleagues (2018) found that participants in the non-technical condition provided a higher number of accurate steps of a time-out procedure as opposed to participants in the technical condition. Therefore, both the current study and Banks and colleagues have demonstrated that more procedural steps of an intervention may be recalled when it is written in non-technical language. Based on these findings, the next step was to determine if remotely performing the procedures lead to the same effect.

Phase 3: Implementation Integrity

Method

Participants and Setting

Phase 3 took place remotely via Google Meet. No in-person interactions between the participants and researchers occurred. Following completion of Phase 2, participants who opted to participate in Phase 3 signed up for a time to meet with the primary author. Participants completed the consent form before any intervention descriptions were presented, and the primary author was available for any questions the participants had regarding the consent process. Only Five participants (Participants 1, 3, 4, 7, and 8) opted to continue with Phase 3.

A power analysis for paired samples was conducted to determine an appropriate sample size for Phase 3. Results from the study conducted by Jarmolowicz et al. (2008) were used to run the analysis, as the average percentage of intervals implemented correctly by the technical group ($M = 36.79$, $SD = 23.17$) was found to be significantly lower than the non-technical group ($M =$

73.13, *SD* = 22.77) with a large effect size of *d* = 1.58. Therefore, a power analysis with a significance criterion of $\alpha = 0.05$ indicated that seven participants would be needed to achieve a power of .90. Based on this calculation, the sample size for Phase 3 was too small to lead to statistically significant results.

Dependent Variable and Measurement

The dependent variable of Phase 3 was the accuracy of implementation of the procedures. Accuracy was defined as the percentage of intervals that the participant adhered to the intervention description they were given. During the procedure, the intervention description and a timer were visible on the participant's screen. The experimenter recorded whether the participant responded appropriately to the behavior of the confederate according to the procedure outlined in the intervention description.

The Noncontingent Reinforcement (NCR) and FR Schedule of Reinforcement (FR) interventions were used for all participants in Phase 3 (see Appendix A for these intervention descriptions). These two interventions were chosen for Phase 3 due to their ability to be conducted remotely. In the NCR condition, the participant was to provide verbal attention or praise to the confederate every 60 seconds (i.e., 1:00, 2:00, 3:00, 4:00, 5:00, 6:00 on the timer) regardless of the confederate's behavior. The response was correct if it occurred within a 10-second interval (e.g., attention at 1:05 was considered correct, however attention at 1:21 was considered incorrect). Additionally, the absence of attention outside of the six intervals was counted as correct.

In the FR condition, the participant was to provide verbal attention or praise to the confederate for every third math question completed. Praise was counted as correct if it occurred

in the 10-second interval following completion of every third problem. Additionally, the absence of praise or attention at all other times was counted as correct.

Procedure

Participants completed two 10-minute implementations during one meeting. First, an intervention description (either technical or non-technical) was shared with the participant via the experimenter's screen. The participant was given two minutes to read the intervention, or until the participant alerted the researcher that s/he was finished. Next, participants were asked to implement the intervention they just read with a confederate acting as a student. The intervention description was visible on the screen during the simulation. This process occurred twice.

Participants implemented two different procedures with the description type (i.e., T or NT), intervention (i.e., NCR or FR), and order counterbalanced across participants. Therefore, the participants conducted one session after reading a non-technical description, and one session after reading a technical description. If the participant received the technical NCR condition, then they completed the non-technical FR condition, and vice versa. Some participants completed the technical condition first, and others completed the non-technical condition first. The participants were told to respond to the client according to the procedure to the best of their ability. Additionally, they were told that any questions they had would be answered following completion of the session.

The author served as the confederate during this stage for all participants. The confederate followed a pre-determined script of behaviors to which the participant needed to respond (see Appendix F). To replicate the methods used by Jarmolowicz and colleagues (2008), the confederate followed a scripted sequence of 40 behaviors spaced 10 seconds apart. The sequence consisted of 20 behaviors relevant to the intervention (i.e., biting hand and completing

math questions), and 20 that were irrelevant (i.e., writing on, crumpling, and throwing paper, playing with a toy, biting pencil, using eraser, and doodling). This resulted in 41 total intervals for each condition, with a total time of 6 minutes, 50 seconds for each session. Due to the design of both scripts, the participants should have responded six times throughout each session.

Interobserver Agreement

To obtain interobserver agreement, Phase 3 sessions were recorded. The data sheets that were filled out by both researchers are available in Appendix G. A second trained observer watched all sessions in addition to the primary author. Agreement was calculated per interval; intervals in agreement received the same rating from both observers. Participant agreement was calculated by dividing the number of intervals in agreement by the total number of intervals (82) across the two conditions. Overall, the two observers agreed on 400/410 intervals (97.6%). Agreement in technical conditions was 95.1% (195/210 intervals) and 100% in non-technical conditions. Individual participant agreement ranged from 93.9%-100%.

Procedural Fidelity of the Confederate

To ensure procedural fidelity on part of the confederate, two trained observers took data on the confederate's adherence to the script for all sessions. Refer to Appendix H for the Phase 3 procedural integrity sheets. The confederate needed to perform the designated behavior within 1 second of the start of each interval for the interval to be counted as correct. This was calculated as percentage of correct intervals. Agreement by both researchers that the confederate completed the interval correctly was necessary for the interval to be considered correct. Overall, the two observers agreed that the confederate adhered to 400/410 intervals (97.6%). Integrity in technical conditions was 97.6% (200/205 intervals) and in non-technical conditions as well (200/205 intervals).

Results

A paired-samples t-test was run for percentage of intervals correctly implemented regarding language type. The difference found between technical and non-technical implementations, $t(4) = 2.44$, $p = .071$ was statistically insignificant, but could be impacted by the small sample size as determined by the power analysis. The percentage of correct intervals implemented by the participants are shown in Figure 5. Results are displayed with participants along the x-axis and percentage of correct intervals on the y-axis. Technical and non-technical scores are displayed for each participant. Participant numbers reflect their corresponding number in Phase 2.

Overall, the participants accurately completed 88.8% of intervals (182/205) in the non-technical condition, and 63.9% (131/205) in the technical condition. Participant 1 correctly implemented 70.7% of intervals in the non-technical condition, and 58.5% of intervals in the technical condition. Participant 3 correctly implemented 100% of intervals in both conditions. Participant 4 correctly implemented 100% of intervals in the non-technical condition, and 41.5% in the technical condition. Participant 7 correctly implemented 80.5% of intervals in the non-technical condition and 70.7% of intervals in the technical condition. Participant 8 correctly implemented 92.7% of intervals in the non-technical condition and 48.8% of intervals in the technical condition.

Discussion

Except for Participant 3, all participants performed with higher integrity in the non-technical condition. Also of note, overall accuracy in the non-technical condition was considerably high across participants, whereas the same could not be said for performance in the technical condition. However, statistical significance was not demonstrated in this phase, perhaps

due to the small sample size. Therefore, the conclusion that non-technical descriptions led to better implementation cannot be made with confidence.

Despite statistical insignificance, the results of this phase do reflect previous findings, as the participants in the non-technical condition of the study conducted by Jarmolowicz and colleagues (2008) accurately implemented the procedure twice as well as participants in the technical condition. In the current design, two of the five participants performed twice as well with the non-technical description than with the technical. This result was not found for the other three participants but could be due the expectations of the specific intervention descriptions themselves.

General Discussion

The three phases of this experiment attempted to identify changes in preference, as well as differences in the ability to recall and implement procedures due to the use of jargon with teachers. Results of Phase 1 were statistically insignificant but indicated minor differences in preference due to prior experience with ABA. The inexperienced participants were more willing to work with the therapist that used non-technical language. Results of Phase 2 indicated that more components were accurately recalled by participants on average when the description was written without behavioral jargon. Finally, four of the five participants in Phase 3 demonstrated higher integrity when implementing a procedure that was written in everyday language, however a small sample size likely led to statistical insignificance.

The results of all three phases in this study led to similar results as Jarmolowicz and colleagues (2008) and Banks and colleagues (2018). However, unlike previous work, five participants in the current study completed all three phases. The overall results of these participants are displayed in Table 3. Of the five participants completing all three phases, four

(80%) selected the non-technical therapist in Phase 1. After demonstrating high preference for a therapist who uses non-technical language, all five participants accurately recalled more components when shown non-technical descriptions. Finally, four of the five participants demonstrated higher integrity of implementation in Phase 3 with a non-technical description. This within-subject analysis indicates that preference, ability to recall, and implementation integrity may be impacted by jargon in behavioral interventions with teachers.

These results are not without potential limitations. First, as previously mentioned, this study had a small number of participants. Only five participants completed all three phases, and as such it is difficult to confidently assume that these findings would extend to other teachers. The sample sizes in Phases 1 and 2 were sufficient according to the power analyses that were run based on prior work, however the sample size for Phase 3 was too small to result in significant results. No monetary incentive was given to participants for this study, which most likely impacted participant involvement and enthusiasm.

Additionally, the remote formatting of all three phases led to limitations as well. A limitation of Phase 1 is that participants could have completed the Acceptability Questionnaires without first watching the embedded videos. However, this possibility was minimized by requiring 12 seconds to pass on the screen before the “next” button appeared. Additionally, a limitation of Phase 2 is that participants may have written down or taken screenshots of the intervention descriptions to aid in their recall. The possibility of this occurring was potentially minimized by requiring participants to attest to refrain from doing so, and by automatically advancing participants to the recall form after the intervention was presented for two minutes without the opportunity to see the description again. However, even with these precautions in

place, it is still possible that participants skipped the videos and/or wrote descriptions down prior to completing the free response entry form.

It is also possible that sequence effects account for the changes in components accurately recalled in Phase 2, rather than the technicality of the language. That is, it is possible that the increases in components accurately recalled for some participants across the six trials were due simply to increased exposure to behavioral descriptions. However, to mitigate this risk, care was taken to ensure that each participant saw six different interventions, regardless of technicality. Therefore, the assumption was that reading an FCT procedure, for example, would not boost the ability to recall a procedure on latency data collection, as the two procedures are not related despite both being behavioral in nature. In other words, it does not seem to follow that exposure to an FCT procedure makes a latency procedure easier to recall or understand.

Despite the current study and work by Jarmolowicz and colleagues (2008) and Banks and colleagues (2018), most of the research on the effects of jargon is based on indirect methods. Therefore, future research in this area should expand further on the effects of jargon on direct, observable behavior. It would be worthwhile to replicate this study with behavior analyst-teacher dyads, speech language pathologists, occupational therapists, and professionals from other disciplines who collaborate with behavior analysts. Furthermore, as the current study was conducted remotely and with a confederate, teacher performance in the natural environment with their students should also be examined. Additionally, the effects of jargon on the long-term maintenance of implementation integrity should also be explored, as well as the effects on the progress of the student or client.

Ultimately, the practical applicability of these results remains to be seen. It is unlikely that a consulting behavior analyst would provide a teacher with an intervention description

without fully explaining it before expecting it to be implemented with a student. However, it is important that teachers can comprehend interventions and implement them with integrity independently, as the consulting behavior analyst will not always be available for assistance. Therefore, behavior analysts should take teacher preferences and prior experience into account when designing and teaching behavioral interventions. Perhaps by decreasing the use of ABA jargon with teachers, behavior analysts can improve relationships with other professionals, positively impact student outcomes, and boost the positive perception of applied behavioral science.

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Table 1: Participant Prior Experience

Table 1

Participant Prior Experience

		Students			Prior Experience		
	N	General	Special	Both	BCBA	ABA Course	Both
Experienced	8	2	0	6	3	3	2
Inexperienced	14	8	1	5	0	0	0
Total	22	10	1	11	3	3	2

Table 2: Terms Analysis

Table 2

Term Ratings and Awarded Status

Term/Phrase	T Votes	NT Votes	Agreement (%)	Status*
Responses	1	4	80	NT
Therapist	0	5	100	NT
Card	0	5	100	NT
Break	0	5	100	NT
Reinforced	4	1	80	T
Delivery	0	5	100	NT
FR1 schedule	5	0	100	T
Instruction	0	5	100	NT
Worksheet	0	5	100	NT
Noncontingent reinforcement	5	0	100	T
Attention	0	5	100	NT
Self-injurious behavior	2	3	60	-
Hand biting	0	5	100	NT
Consequences	1	4	80	NT
Ignore	1	4	80	NT
Edible reinforcer	4	1	80	T
Reinforcement	4	1	80	T
Hand stimming	2	3	60	-
Gummy	1	4	80	NT
Hand flaps	1	4	80	NT
Bathroom requests	0	5	100	NT
DRL 15-minute schedule	5	0	100	T
Receptive identification	5	0	100	T
Array of six	1	4	80	NT
Stimulus prompt	5	0	100	T
Lay out six cards	0	5	100	NT
Stimulus	5	0	100	T
Gestural prompt	3	2	60	-
Erroneous responding	4	1	80	T
Pointing	0	5	100	NT
Two second delay	1	4	80	NT
Physically prompting	3	2	60	-
Physically guiding the child's hand	1	4	80	NT
Model the correct response	0	5	100	NT
Point to the correct card	0	5	100	NT
Social reinforcement	4	1	80	T
FR-3 schedule	5	0	100	T
VR-5 schedule	5	0	100	T

Verbal praise	1	4	80	NT
Average	0	5	100	NT
Partial interval data	5	0	100	T
Out of seat behavior	0	5	100	NT
Record	0	5	100	NT
30-second intervals	2	3	60	-
Every 30 seconds	0	5	100	NT
Latency data	5	0	100	T
In-seat behavior	0	5	100	NT
Record how long it takes	0	5	100	NT
Elopement	5	0	100	T
Whole interval data	5	0	100	T

Note. NT = Non-Technical, T = Technical.

*Status was awarded if the term received 80% or higher agreement.

Table 3: Participants Completing All Phases

Table 3

Results By Phase

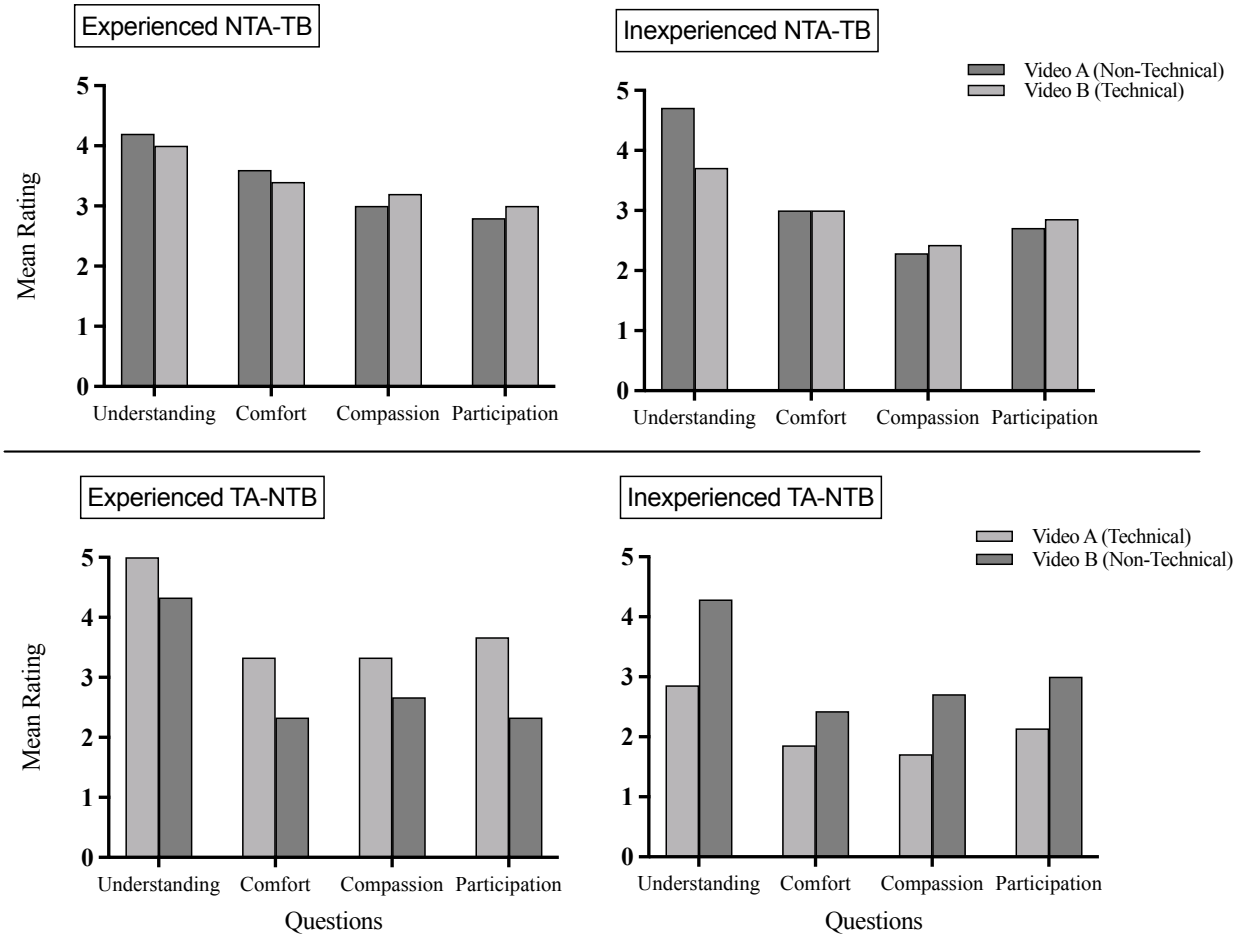
Participant	Phase 1 Therapist Selection	Phase 2 Components Accurately Recalled		Phase 3 Intervals Correctly Implemented	
		T Average (%)	NT Average (%)	T Average (%)	NT Average (%)
1	NT	47.2	63.3	58.5	70.7
3	T	55.6	77.8	100	100
4	NT	33.3	88.9	41.46	100
7	NT	69.4	100	70.7	80.5
8	NT	17.8	72.2	48.78	92.68

Note. NT = Non-Technical, T = Technical

Figure 1: Phase 1 Acceptability Questionnaire Ratings

Figure 1

Mean Ratings Across Participant Experience and Video Type



Note. TA = Technical Therapist A, NTB = Non-Technical Therapist B, NTA = Non-Technical Therapist A, TB = Technical Therapist B.

Figure 2: Phase 1 Therapist Survey

Figure 2

Choice of Therapist by Experience Type

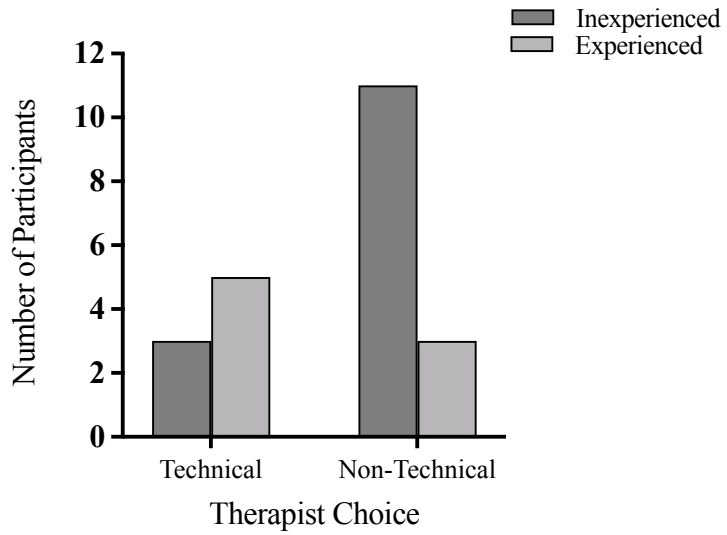
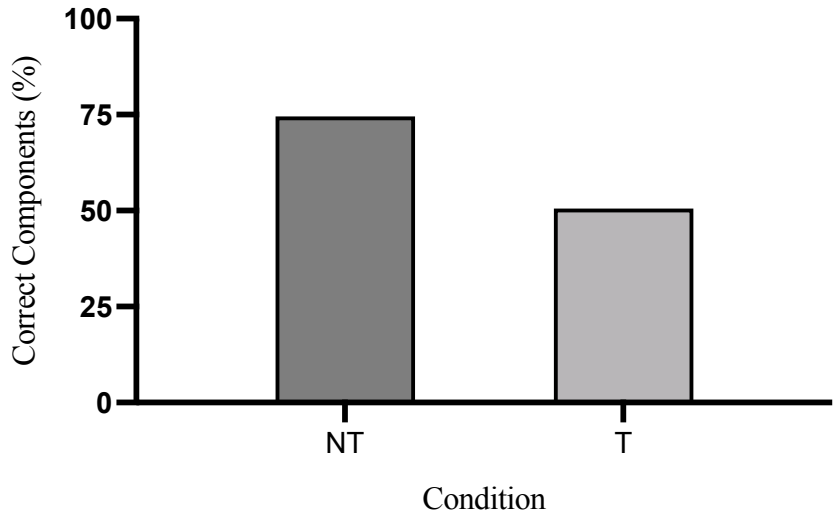


Figure 3: Phase 2 Overall Components Recalled

Figure 3

Percentage of Components Accurately Recalled Overall



Note. NT = Non-Technical, T = Technical

Figure 4: Phase 2 Components Recalled by Participant

Figure 4

Percentage of Components Accurately Recalled by Participant

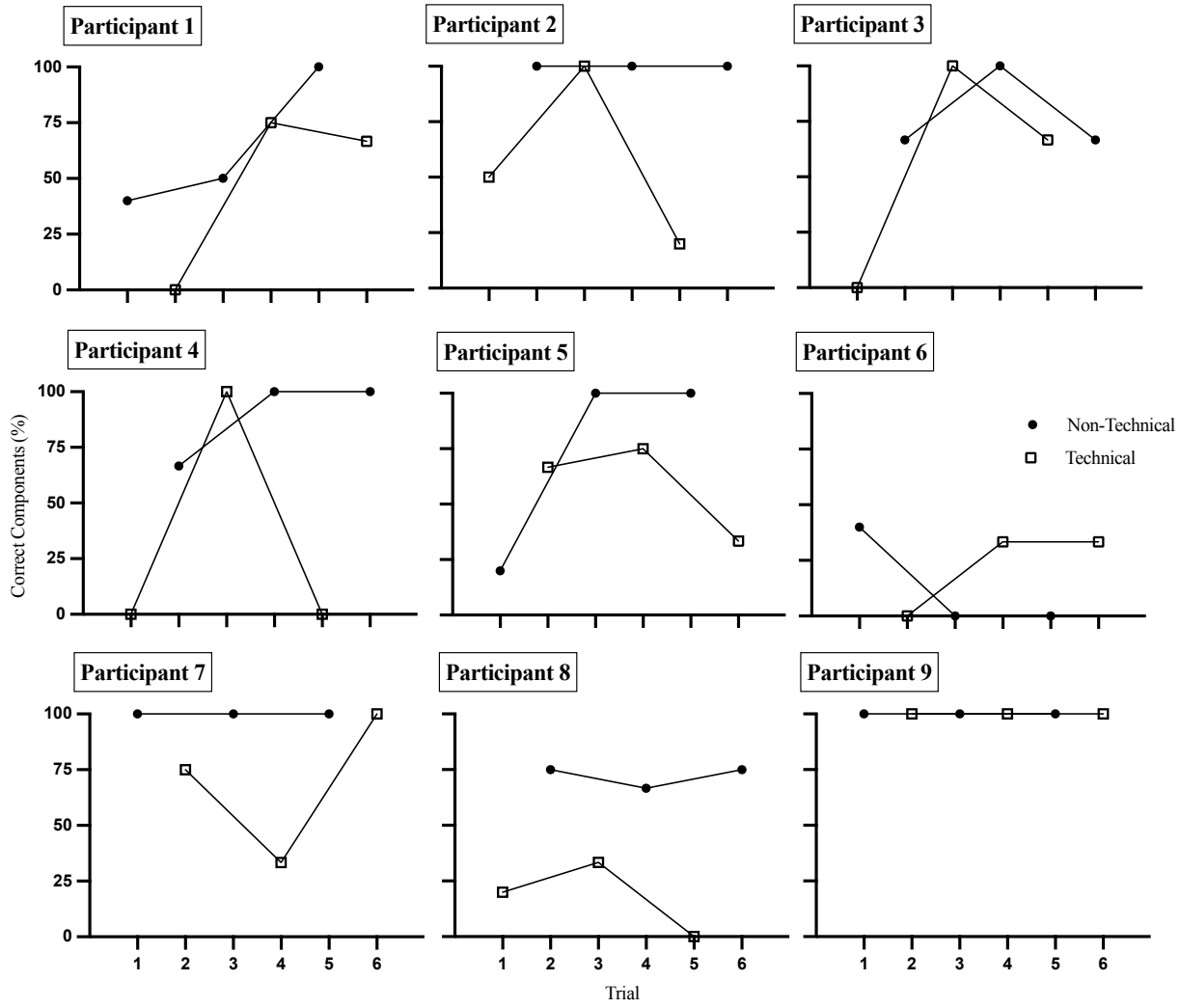
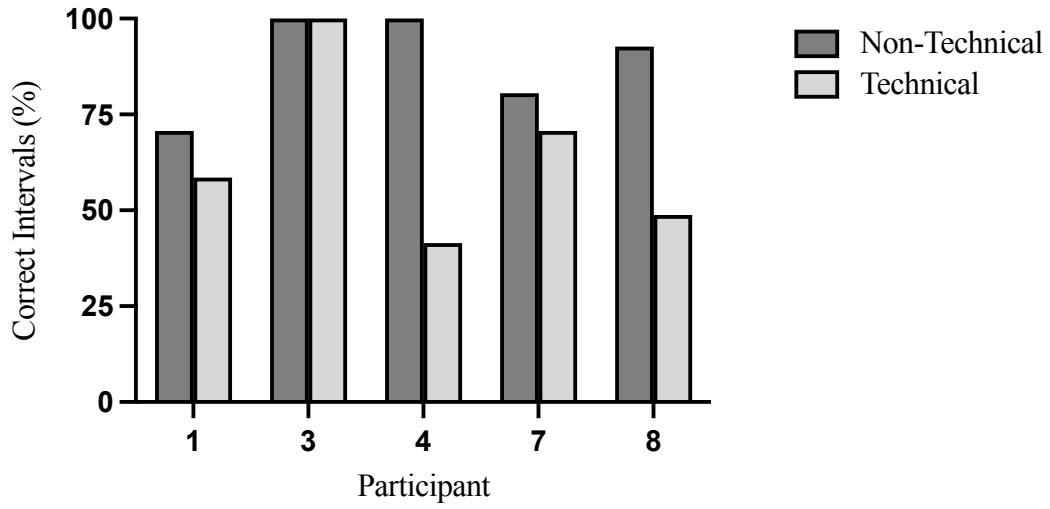


Figure 5: Phase 3 Implementation

Figure 5

Percentage of Intervals Accurately Implemented



Note. Participant number reflects corresponding number in Phase 2.

Appendix A: Intervention Descriptions

1. FCT
    a. Technical: All appropriate responses (defined as handing the therapist the card with "Break" on it) are reinforced with the delivery of a break on a FR1 schedule. Remove the worksheet from the table to initiate the break.
    b. Non-technical: Every time the child hands you the card with the word "Break" on it, remove the worksheet from the table.
2. NCR
    a. Technical: Provide noncontingent reinforcement (attention) every 60 seconds. Self-injurious behavior (defined as hand biting) and all other behavior results in no consequences from the therapist.
    b. Non-technical: Give the child attention (talk to him) every 60 seconds, regardless of what they are doing when the 60 seconds has elapsed, even if they are biting their hand. Ignore hand biting that occurs at any other time and do not provide attention or talk to the child.
3. DRI
    a. Technical: Provide small edible reinforcer when hands are in pockets on an FR1 schedule. No reinforcement for hand stimming.
    b. Non-technical: If the child puts his hands in his pockets, give him a gummy. If he flaps his hands, do not give him the gummy.
4. DRL
    a. Technical: Grant bathroom requests on a DRL 15-minute schedule. Otherwise, do not grant bathroom requests.

   b. Non-technical: If 15 minutes have elapsed since the last time the child has asked to go to the bathroom, then allow him to go when he asks. If 15 minutes have not passed, then do not allow him to go to the bathroom.

5. Stimulus Prompt
   a. Technical: The target is receptive identification of a cow in an array of six. Use a stimulus prompt by positioning the correct card closer to the student to increase the likelihood that the child will choose the correct response.
   b. Non-technical: You want the student to point to the cow. Lay out six cards, and place the cow card closer to the student than the other cards so they are more likely to choose it.
6. Gestural Prompt
   a. Technical: The target is receptive identification of a ball in an array of six. Use an immediate gestural prompt with the instruction “Where’s the ball?” to decrease the likelihood of erroneous responding.
   b. Non-technical: You want the student to point to the ball. Lay out six cards, then ask, “Where’s the ball?” while pointing to the ball immediately afterwards so the child does not have the chance to answer incorrectly.
7. Time Delay
   a. Technical: The target is receptive identification of a car in an array of six. Use a two second delay after delivering the instruction before physically prompting the child to select the correct response.

   b. Non-technical: You want the student to point to the car. Lay out six cards, then say, “Find the car.” Wait 2 seconds before physically guiding the child’s hand to the correct card.

8. Error Correction
   a. Technical: The target is receptive identification of a snake when asked, “What starts with the letter S?” in an array of six. If the child responds incorrectly, model the correct response.
   b. Non-technical: You want the student to point to the snake. Lay out six cards, then ask “What starts with the letter S?” If the child selects the wrong card, point to the correct card.
9. FR Schedule of Reinforcement
   a. Technical: Provide social reinforcement on an FR-3 schedule for question completion.
   b. Non-technical: Provide verbal praise to the student for every third question they complete.
10. VR Schedule of Reinforcement
   a. Technical: Provide social reinforcement to student on a VR-5 schedule for raising their hand.
   b. Non-technical: Provide verbal praise to the student for raising their hand after an average of 5 times.
11. Partial Interval Data Collection
   a. Technical: Take partial interval data on elopement during 30-second intervals for 5 minutes.

b. Non-technical: Watch the child for 5 minutes. Record if any attempts to run away occur every 30 seconds.

12. Whole Interval Data Collection

a. Technical: Take whole interval data on out of seat behavior during 30-second intervals for 5 minutes.

b. Non-technical: Every 30 seconds, record if the child spent the entire time interval out of their seat. Do this for 5 minutes.

13. Latency Data Collection

a. Technical: Take latency data for in-seat behavior following instruction.

b. Non-technical: Tell the child to sit in their seat. Afterwards, record how long it takes for the child to sit down.

Appendix B: Phase 1 Survey

Thank you for participating in this survey. **This survey is intended for teachers**.

The survey has 3 components:

1. Demographics
2. Two 1-minute videos with 4 questions that follow
3. One follow-up question

The entire survey should only take approximately **5 minutes** to complete.

Following completion of the survey, some participants may be asked to participate in Phases 2 and 3 of this study. If you wish to do so, you will be redirected to another Qualtrics form.

Further participation is not required but greatly appreciated.

Please click the blue arrow below to start the survey.

Are you currently or have you ever been a school teacher?

Yes

No

→

KU

What demographic(s) of students have you worked with?

- General
- Special Education
- Both

Do you have prior experience working with a Board Certified Behavior Analyst (BCBA) in a professional setting?

- Yes
- No

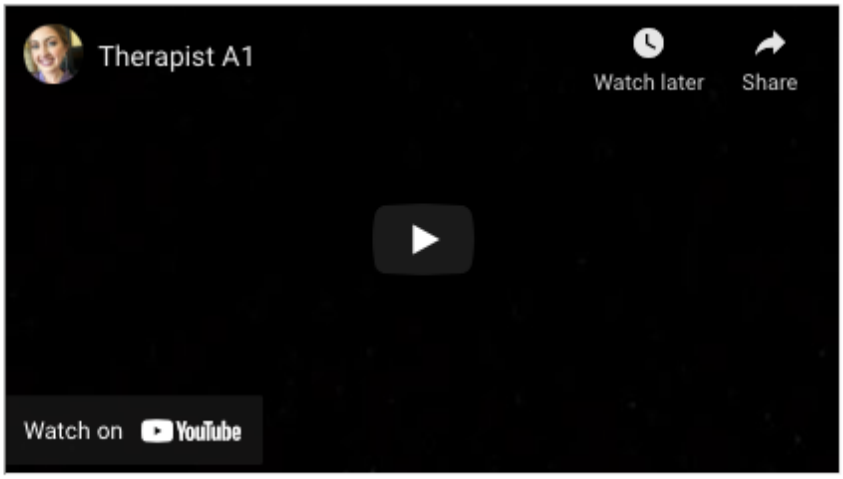
Regarding your own education, did you ever take a course in applied behavioral analysis (ABA)?

- Yes
- No

→

KU

Please watch the short video that follows. You can watch the video as many times as necessary. You will then be asked 4 questions about the video you watched.



→

KU

1. Please indicate...

	Not at all	A Little Understanding	General Understanding	Mostly Understanding	Completely Understand
The degree to which you feel you understand how the intervention will be implemented	○	○	○	○	○

2. Please indicate...

	Not at all	A Little Comfortable	Somewhat Comfortable	Mostly Comfortable	Completely Comfortable
How comfortable you are with the intervention, or how acceptable you feel this intervention is as a means of treatment	○	○	○	○	○

3. Please indicate...

	Cold/ Mechanical	A Little Cold/ Mechanical	Neither	A Little Caring/ Compassionate	Caring/ Compassionate
Your perception of this intervention on a continuum of being cold and mechanical to being caring and compassionate	○	○	○	○	○

4. Please indicate...

	No Participation	A Little Participation	Moderate Participation	Considerable Participation	Full Participation
The level of participation you feel the intervention allows the student. Participation includes degree of involvement, opportunity to make choices, and overall personal control.	○	○	○	○	○

→

KU

Please watch the short video that follows. You can watch the video as many times as necessary. You will then be asked 4 questions about the video you watched.

→

KU

1. Please indicate...

	Not at all	A Little Understanding	General Understanding	Mostly Understanding	Completely Understand
The degree to which you feel you understand how the intervention will be implemented	○	○	○	○	○

2. Please indicate...

	Not at all	A Little Comfortable	Somewhat Comfortable	Mostly Comfortable	Completely Comfortable
How comfortable you are with the intervention, or how acceptable you feel this intervention is as a means of treatment	○	○	○	○	○

3. Please indicate...

	Cold/ Mechanical	A Little Cold/ Mechanical	Neither	A Little Caring/ Compassionate	Caring/ Compassionate
Your perception of this intervention on a continuum of being cold and mechanical to being caring and compassionate	○	○	○	○	○

4. Please indicate...

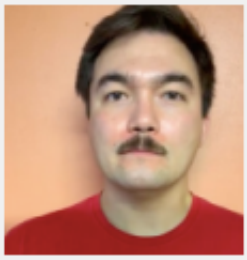
	No Participation	A Little Participation	Moderate Participation	Considerable Participation	Full Participation
The level of participation you feel the intervention allows the student. Participation includes degree of involvement, opportunity to make choices, and overall personal control.	○	○	○	○	○

→

KU

Which therapist would you prefer to work with?

Therapist A 

Therapist B 

→

KU

Thank you for completing this survey. There are two additional phases of this experiment that you are eligible to participate in if you wish to do so.

Phases 2 and 3 of this study will ask you to read and demonstrate your understanding of behavioral interventions similar to the two included in the survey you just completed. This will be completely remote.

Phase 2 will take approximately **10 minutes**. If you choose to continue, you will be automatically redirected to another Qualtrics form to complete Phase 2. If you cannot complete Phase 2 right now but would like to later, please select "No" below and email smresearchscheduler@gmail.com.

Phase 3 will take approximately **30 minutes**. Following completion of Phase 2, you will set up an appointment time to complete Phase 3 at a later date.

Would you like to continue with Phases 2 and 3 of this study?

Yes

No

→

Appendix C: Phase 2 on Qualtrics

Thank you for participating in Phase 2 of this study.

In this phase, you will be reading 6 different descriptions of behavioral interventions. After reading each description, **you will be asked to recall what you read in a free response format** to the best of your ability.

This should take approximately **10 minutes** to complete.

Afterwards, please follow the link to sign up for a time slot to complete Phase 3 at your convenience. Phase 3 will take approximately 30 minutes and will be conducted remotely via Google Meets.

You may click the blue arrow below to begin.

KU

The first intervention description will be presented on the next page.

You will have two minutes to read the intervention description. If you finish before two minutes has elapsed, you may press the blue arrow to advance to the recall portion.

If you have not moved on to the next page after two minutes, you will be advanced automatically.

Due to the interests of this study, **it is important that participants do not write down the intervention descriptions** before advancing to the recall portion.

We ask that you please do not write down or take screenshots of the descriptions as this will bias the results.

You must select the box below to attest that you will not take screenshots to continue.

☐ I will not write down or take screenshots of the intervention descriptions.

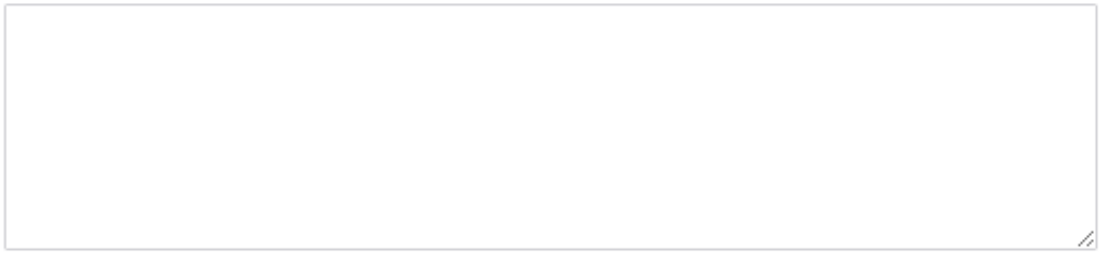
→

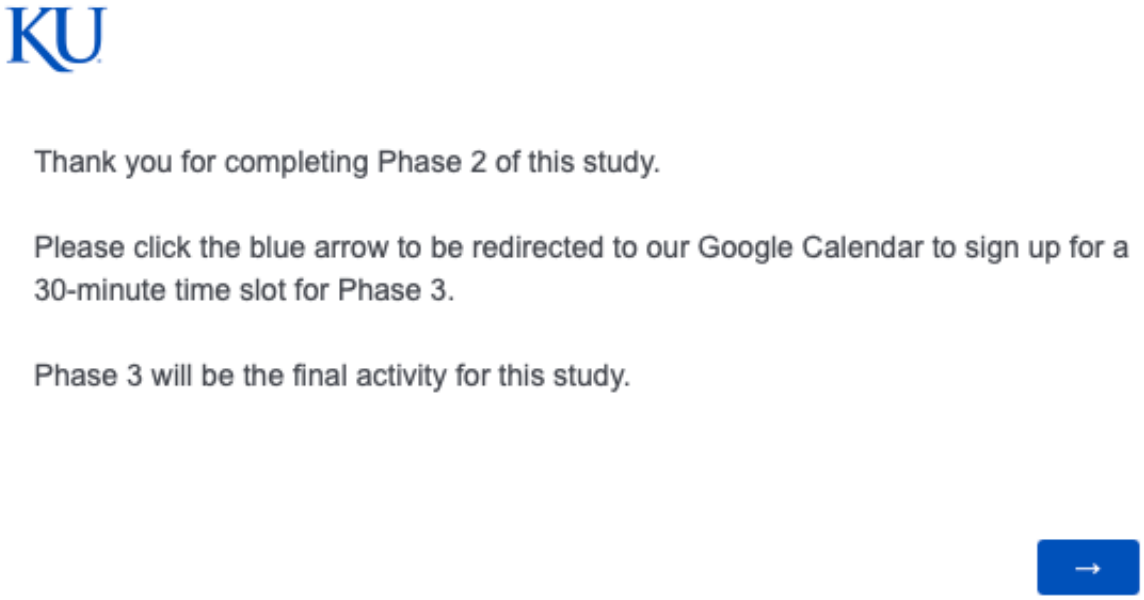
KU

Please read the intervention description below. When you are finished, click the blue arrow.

The target is receptive identification of a ball in an array of six. Use an immediate gestural prompt with the instruction "Where's the ball?" to decrease the likelihood of erroneous responding.

Please describe the components of the intervention you just read about in the text box below.





Note. Participants saw six interventions and completed six free-response entries before seeing this final page.

Appendix D: Phase 2 Recall Answer Key

Intervention	Necessary Components	Total Components
FCT	1. Appropriate response occurs (Break card handed to the therapist)* 2. Break given (Worksheet removed from the table) 3. On a FR1 schedule (Every response)	3
DRL	1. Target behavior: Bathroom requests 2. Grant requests on DRL schedule (After 15 minutes have elapsed, granted) 3. Otherwise, do not grant requests (Before 15 minutes have elapsed, denied)	3
Stimulus Prompt	1. Target is receptive identification of the cow (You want the student to point to the cow) 2. In an array of 6 (Lay out six cards) 3. Use a stimulus prompt (position the correct card closer)	3
Gestural Prompt	1. Target is receptive identification of a ball (You want the student to point to the ball) 2. In an array of 6 (Lay out six cards) 3. Provide instruction (Where's the ball?) 4. Use IMMEDIATE gestural prompt (pointing)	4
Time Delay	1. Target is receptive identification of a car (You want the student to point to the car) 2. In an array of 6 (Lay out 6 cards) 3. Provide instruction (Find the car) 4. Wait 2 seconds before prompting 5. Use physical prompt	5
Error Correction	1. Target is receptive identification of a snake (You want the student to point to the snake) 2. In an array of 6 (Lay out six cards) 3. Provide instruction (What starts with the letter S?) 4. Incorrect response occurs 5. Model (point to) correct response	5
VR Schedule	1. Provide social reinforcement (verbal praise) 2. On VR-5 schedule (an average of 5 responses) 3. For hand raising	3
Partial Interval	1. Take partial interval data (any responses during the timeframe)	4

	2. For 30-second intervals (every 30 seconds) 3. For 5 minutes 4. For elopement (running away)	
Whole Interval	1. Take whole interval data (response occurs during the entire time frame) 2. For 30-second intervals (every 30 seconds) 3. For 5 minutes 4. For out of seat behavior	4
Latency	1. Provide instruction 2. Take latency data (record how long it takes) 3. For in-seat behavior (for the child to sit down)	3

*Items in parentheses are non-technical responses that the participant may provide. These should be counted as correct, regardless of the condition (T or NT) of the description.

Appendix E: Phase 2 Data Collection and IOA

Intervention	**Technical or Non-technical**	**Total Components** (from final column of answer key)	**Components Accurately Recalled** (list by component number)	**Percentage of Components Accurately Recalled**
	T N			
	T N			
	T N			
	T N			
	T N			
	T N			

Appendix F: Phase 3 Confederate Scripts

NCR

Interval	Time	Behavior
1	0:00	No specified behaviors
2	0:10	Write on paper
3	0:20	Bite hand
4	0:30	Write on paper
5	0:40	Play with toy
6	0:50	Bite hand
7	1:00	Bite hand
8	1:10	Crumple paper
9	1:20	Bite hand
10	1:30	Play with toy
11	1:40	Play with toy
12	1:50	Bite hand
13	2:00	Bite hand
14	2:10	Play with toy
15	2:20	Throw paper
16	2:30	Bite hand
17	2:40	Write on paper
18	2:50	Bite hand
19	3:00	Crumple paper
20	3:10	Bite hand
21	3:20	Play with toy
22	3:30	Play with toy
23	3:40	Bite hand
24	3:50	Write on paper
25	4:00	Bite hand
26	4:10	Bite hand
27	4:20	Bite hand
28	4:30	Play with toy
29	4:40	Throw paper
30	4:50	Bite hand
31	5:00	Play with toy
32	5:10	Bite hand
33	5:20	Bite hand
34	5:30	Bite hand
35	5:40	Throw pencil
36	5:50	Bite hand
37	6:00	Bite hand
38	6:10	Play with toy
39	6:20	Play with toy
40	6:30	Bite hand
41	6:40	Play with toy

FR Schedule of Reinforcement

Interval	Time	Behavior
1	0:00	No specified behaviors
2	0:10	Doodle
3	0:20	Complete question
4	0:30	Doodle
5	0:40	Complete question
6	0:50	Complete question
7	1:00	Tap pencil
8	1:10	Doodle
9	1:20	Complete question
10	1:30	Doodle
11	1:40	Tap pencil
12	1:50	Complete question
13	2:00	Use eraser
14	2:10	Doodle
15	2:20	Complete question
16	2:30	Use eraser
17	2:40	Complete question
18	2:50	Use eraser
19	3:00	Complete question
20	3:10	Complete question
21	3:20	Complete question
22	3:30	Tap pencil
23	3:40	Complete question
24	3:50	Doodle
25	4:00	Complete question
26	4:10	Tap pencil
27	4:20	Complete question
28	4:30	Use eraser
29	4:40	Complete question
30	4:50	Doodle
31	5:00	Complete question
32	5:10	Use eraser
33	5:20	Complete question
34	5:30	Complete question
35	5:40	Complete question
36	5:50	Use eraser
37	6:00	Complete question
38	6:10	Doodle
39	6:20	Complete question
40	6:30	Doodle
41	6:40	Use eraser

Appendix G: Phase 3 Data Collection and IOA

NCR

Interval	Time	Should Attention/Praise Occur?	Did Attention/Praise Occur within the Interval?*		Interval Score	
1	0:00	No	Y	N	C	I
2	0:10	No	Y	N	C	I
3	0:20	No	Y	N	C	I
4	0:30	No	Y	N	C	I
5	0:40	No	Y	N	C	I
6	0:50	No	Y	N	C	I
7	1:00	Yes	Y	N	C	I
8	1:10	No	Y	N	C	I
9	1:20	No	Y	N	C	I
10	1:30	No	Y	N	C	I
11	1:40	No	Y	N	C	I
12	1:50	No	Y	N	C	I
13	2:00	Yes	Y	N	C	I
14	2:10	No	Y	N	C	I
15	2:20	No	Y	N	C	I
16	2:30	No	Y	N	C	I
17	2:40	No	Y	N	C	I
18	2:50	No	Y	N	C	I
19	3:00	Yes	Y	N	C	I
20	3:10	No	Y	N	C	I
21	3:20	No	Y	N	C	I
22	3:30	No	Y	N	C	I
23	3:40	No	Y	N	C	I
24	3:50	No	Y	N	C	I
25	4:00	Yes	Y	N	C	I
26	4:10	No	Y	N	C	I
27	4:20	No	Y	N	C	I
28	4:30	No	Y	N	C	I
29	4:40	No	Y	N	C	I
30	4:50	No	Y	N	C	I
31	5:00	Yes	Y	N	C	I
32	5:10	No	Y	N	C	I
33	5:20	No	Y	N	C	I
34	5:30	No	Y	N	C	I
35	5:40	No	Y	N	C	I
36	5:50	No	Y	N	C	I
37	6:00	Yes	Y	N	C	I
38	6:10	No	Y	N	C	I
39	6:20	No	Y	N	C	I
40	6:30	No	Y	N	C	I
41	6:40	No	Y	N	C	I

*Allow for 3 seconds of pause between responses. If same response occurs across more than one interval, record only in the first interval.

FR Schedule of Reinforcement

Interval	Time	Should Reinforcement (Verbal Praise) Occur?	Did Participant Deliver Reinforcement Within the Interval?*		Interval Score	
1	0:00	No	Y	N	C	I
2	0:10	No	Y	N	C	I
3	0:20	No	Y	N	C	I
4	0:30	No	Y	N	C	I
5	0:40	No	Y	N	C	I
6	0:50	Yes	Y	N	C	I
7	1:00	No	Y	N	C	I
8	1:10	No	Y	N	C	I
9	1:20	No	Y	N	C	I
10	1:30	No	Y	N	C	I
11	1:40	No	Y	N	C	I
12	1:50	No	Y	N	C	I
13	2:00	No	Y	N	C	I
14	2:10	No	Y	N	C	I
15	2:20	Yes	Y	N	C	I
16	2:30	No	Y	N	C	I
17	2:40	No	Y	N	C	I
18	2:50	No	Y	N	C	I
19	3:00	No	Y	N	C	I
20	3:10	Yes	Y	N	C	I
21	3:20	No	Y	N	C	I
22	3:30	No	Y	N	C	I
23	3:40	No	Y	N	C	I
24	3:50	No	Y	N	C	I
25	4:00	Yes	Y	N	C	I
26	4:10	No	Y	N	C	I
27	4:20	No	Y	N	C	I
28	4:30	No	Y	N	C	I
29	4:40	No	Y	N	C	I
30	4:50	No	Y	N	C	I
31	5:00	Yes	Y	N	C	I
32	5:10	No	Y	N	C	I
33	5:20	No	Y	N	C	I
34	5:30	No	Y	N	C	I
35	5:40	Yes	Y	N	C	I
36	5:50	No	Y	N	C	I
37	6:00	No	Y	N	C	I
38	6:10	No	Y	N	C	I
39	6:20	No	Y	N	C	I
40	6:30	No	Y	N	C	I
41	6:40	No	Y	N	C	I

*Allow for 3 seconds of pause between responses. If same response occurs across more than one interval, record only in the first interval.

Appendix H: Phase 3 Procedural Integrity

NCR

Interval	Time*	Confederate Behavior	Implementation	
1	0:00	No specified behaviors	C	I
2	0:10	Write on paper	C	I
3	0:20	Bite hand	C	I
4	0:30	Write on paper	C	I
5	0:40	Play with toy	C	I
6	0:50	Bite hand	C	I
7	1:00	Bite hand	C	I
8	1:10	Crumple paper	C	I
9	1:20	Bite hand	C	I
10	1:30	Play with toy	C	I
11	1:40	Play with toy	C	I
12	1:50	Bite hand	C	I
13	2:00	Bite hand	C	I
14	2:10	Play with toy	C	I
15	2:20	Throw paper	C	I
16	2:30	Bite hand	C	I
17	2:40	Write on paper	C	I
18	2:50	Bite hand	C	I
19	3:00	Crumple paper	C	I
20	3:10	Bite hand	C	I
21	3:20	Play with toy	C	I
22	3:30	Play with toy	C	I
23	3:40	Bite hand	C	I
24	3:50	Write on paper	C	I
25	4:00	Bite hand	C	I
26	4:10	Bite hand	C	I
27	4:20	Bite hand	C	I
28	4:30	Play with toy	C	I
29	4:40	Throw paper	C	I
30	4:50	Bite hand	C	I
31	5:00	Play with toy	C	I
32	5:10	Bite hand	C	I
33	5:20	Bite hand	C	I
34	5:30	Bite hand	C	I
35	5:40	Throw pencil	C	I
36	5:50	Bite hand	C	I
37	6:00	Bite hand	C	I
38	6:10	Play with toy	C	I
39	6:20	Play with toy	C	I
40	6:30	Bite hand	C	I
41	6:40	Play with toy	C	I

*Onset of behavior must occur within one second of the time listed to be correct.

FR Schedule of Reinforcement

Interval	Time*	Confederate Behavior	Implementation	
1	0:00	No specified behaviors	C	I
2	0:10	Doodle	C	I
3	0:20	Complete question	C	I
4	0:30	Doodle	C	I
5	0:40	Complete question	C	I
6	0:50	Complete question	C	I
7	1:00	Tap pencil	C	I
8	1:10	Doodle	C	I
9	1:20	Complete question	C	I
10	1:30	Doodle	C	I
11	1:40	Tap pencil	C	I
12	1:50	Complete question	C	I
13	2:00	Use eraser	C	I
14	2:10	Doodle	C	I
15	2:20	Complete question	C	I
16	2:30	Use eraser	C	I
17	2:40	Complete question	C	I
18	2:50	Use eraser	C	I
19	3:00	Complete question	C	I
20	3:10	Complete question	C	I
21	3:20	Complete question	C	I
22	3:30	Tap pencil	C	I
23	3:40	Complete question	C	I
24	3:50	Doodle	C	I
25	4:00	Complete question	C	I
26	4:10	Tap pencil	C	I
27	4:20	Complete question	C	I
28	4:30	Use eraser	C	I
29	4:40	Complete question	C	I
30	4:50	Doodle	C	I
31	5:00	Complete question	C	I
32	5:10	Use eraser	C	I
33	5:20	Complete question	C	I
34	5:30	Complete question	C	I
35	5:40	Complete question	C	I
36	5:50	Use eraser	C	I
37	6:00	Complete question	C	I
38	6:10	Doodle	C	I
39	6:20	Complete question	C	I
40	6:30	Doodle	C	I
41	6:40	Use eraser	C	I

*Onset of behavior must occur within one second of the time listed to be correct.