12-2021

A Parent Survey on Discrete Trial Teaching Versus Naturalistic Teaching and the Use of Behavioral Terminology

McKenzie Steele
Utah State University

A PARENT SURVEY ON DISCRETE TRIAL TEACHING VERSUS NATURALISTIC TEACHING AND THE USE OF BEHAVIORAL TERMINOLOGY

by

McKenzie Steele

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Special Education

Approved:

_____	_____
Ray Joslyn, Ph.D. Major Professor	Karen Hager-Martinez, Ph.D. Committee Member
_____	_____
Summer Gunn, M.S. Committee Member	D. Richard Cutler, Ph.D. Interim Vice Provost of Graduate Studies

UTAH STATE UNIVERSITY
Logan, Utah

2021

ABSTRACT

A Parent Survey on Discrete Trial Teaching versus Naturalistic Teaching and the Use of Behavioral Terminology

by

McKenzie Steele, Master of Science

Utah State University, 2021

Major Professor: Dr. Ray Joslyn
Department: Special Education and Rehabilitation

This study examined the effects of behavioral jargon and video models on parental preference between two teaching strategies: Discrete Trial Teaching and Naturalistic Teaching. Participants were parents with children receiving special education services between the ages of 2-5 years old. Data were collected by using a survey to record parents' responses. The survey had three different conditions that were randomized to the participants by using either technical terminology or layman terms. The results of the study showed that parents generally preferred Naturalistic Teaching in all three conditions, the use of behavioral jargon had little impact on parent preference, and the video models appeared to have a substantial impact on parent preference.

(53 pages)

PUBLIC ABSTRACT

A Parent Survey on Discrete Trial Teaching versus Naturalistic Teaching and the Use of Behavioral Terminology

McKenzie Steele

Children receiving special education are often exposed to a variety of learning strategies. Care providers may use an array of different strategies when describing therapeutic approaches to parents (including the use of technical or layman terminology), and research has indicated that the use of technical terminology may influence individuals' perceptions of behavior therapy. This study examined the use of behavioral and layman terminology and video models to see if it affected parents' preference between Discrete Trial Teaching, and Naturalistic Teaching. Participants were parents with children receiving special education services between the ages of 2-5 years old. Data were collected by using a survey to record parents' responses to various questions regarding the use of behavioral interventions. The results of the study showed that parents generally preferred Naturalistic Teaching in all three conditions, the use of behavioral jargon had little impact on parent preference, and the video models appeared to have a substantial impact on parent preference.

CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

A Parent Survey on Discrete Trial Teaching versus Naturalistic Teaching and the Use of Behavioral Terminology

Introduction

Children who receive special education require additional support and monitoring in order to have continual maximum success in their education (Shinn, 2007). Interest in parent participation and understanding in special education has led to a variety of research (Bunijevac & Durisic, 2017). Navigating the special education system can often be challenging for parents whose child is receiving services. It can be a daunting task to understand the wide variety of techniques and strategies used. Since a wide array of literature has suggested parental awareness has a positive impact on a child's success, parents, schools, and service providers must collaborate and have an equal understanding of services being provided to ensure that a child with disabilities is receiving the appropriate services (Burke, 2013). Parents having insight into their child's education has been shown to provide opportunities for schools to enrich programs and increase student success and parent/teacher satisfaction (Bunijevac & Durisic, 2017). When parents have a better knowledge and understanding, they will also be more accepting of a variety of teaching methods. Children need parent participation and parents need to understand the different types of teaching methods that are available. Without understanding the variety of teaching strategies available, parents will not be able to be fully involved in their children's education.

One of the most well-known intervention approaches used in special education is Discrete Trial Teaching (DTT). DTT is a structured Applied Behavior Analysis (ABA) approach that produces progress and changes behavior for children with autism. DTT is a

direct instruction that is individualized for the learner, and often breaks down a skill into smaller components. It is used to help children learn a wide variety of skills, which include receptive and expressive language (Steege et al., 2007). DTT consists of an antecedent (e.g., an instruction or cue), a prompt, the child's response, then a consequence (McEachin & Leaf, 1999). An example of implementation of DTT would look similar to the following; the learner and provider are often seated at a table across from one another in a distraction-free setting. Baseline data are collected to evaluate the child's current performance levels. The provider then sets the criterion based on the student's specific Individualized Education Program (IEP) goals. The provider presents something like a picture of an object and says, "What is this?" then waits five seconds for a response. After the child's response, the provider delivers praise and other reinforcers contingent on correct responding. If the child answers incorrectly, the provider does a least-to-most prompting and a correction procedure. A pause is taken and data are recorded. The provider then waits three seconds to see if the student can give the correct corresponding word. If the student succeeds, then it would be recorded as correct with a plus sign (+) on the data. If the child did not provide the correct word, did not respond, or said something else, a minus sign (–) is marked on the data sheet (Discrete Trial Training: National Professional Development Center on Autism Spectrum Disorders, 2010). This process is repeated until all objects have been presented. The data are continuously used to modify instruction and goals, maximizing effectiveness and progress. It is important that the person delivering the instruction follow clear and efficient training procedures (Downs et al., 2008). The use of ongoing data collection and progress monitoring used during DTT helps educators make appropriate assessments and goals for the learner. Many studies

have found the use of this type of instruction critical in a child's progress for children not only with autism but also a wide range of disabilities.

Naturalistic Teaching (NT) is another well-known intervention approach in special education. NT utilizes a social-pragmatic developmental approach that emphasizes the child's initiation of activities (Cowan & Allen, 2007). The components of NT involve intervention targets, a variety of contexts in which interventions are delivered, and instructional strategies. In NT, the contingency components may vary across interventions (Shreibman et al., 2015). An example of implementation of NT would look similar to the following; the student and provider are usually in a natural, one-on-one setting (e.g., a play scenario). The treatment area usually contains a table, chair, and a range of stimulus materials or activities that can include things like balls, board games, colors, and manipulatives. The child will then initiate which activity he or she would like to do (Dunst et al., 2012). Once the child requests an item, the teaching trial officially begins. The provider will then insert instruction into the activity. In this naturalistic play setting, there are a variety of different situations that include different stimuli. The provider must deliver a cue, then the child is given the opportunity to respond. Once the student gives a response, the provider gives the child access to the activity that he or she chose, reinforcing the behavior. The provider will then record the data, and one round of the trial is considered complete. The provider will then wait for the child to initiate the next round, repeating this process until the end of the trial. For example, the provider might set out beanbags so the child can throw them at different targets. The provider will then incorporate selected objects into this activity; the child might be hitting the pictures and the provider can say something such as, "Wow nice

shot! What did you just hit?" The provider waits for the child to respond, and after three seconds if the child gives the correct corresponding word, then it would be recorded as correct with a plus sign (+) on the data. If the child did not provide the correct word, did not respond, or said something else, a minus sign (–) is marked on the data sheet. During this intervention, the provider follows the child's lead and what he or she is motivated by in these natural activities (Pindiprolu, 2012). Instead of having an edible reinforcer, the reinforcement from NT comes from praise and naturally from the activity the child is doing. One study showed that NT techniques were effective in promoting reciprocal peer interactions and were successful in generalization (Pindiprolu, 2012). The use of NT has been studied in various ways that prove it is an evidence-based practice that promotes successful learning for children with disabilities.

When behavior analysts describe strategies like NT and DTT to parents they may use technical terminology. The use of behavioral jargon can be confusing to someone unfamiliar with such terms, leading to misunderstandings or misperceptions. The words and terminology we choose to use while communicating with parents could determine whether or not they truly understand the teaching methods (Critchfield, 2017). One of the many issues that may arise by the use of behavioral jargon with nonexperts is that the use of technical vocabulary could mean something very different to the parent than it did the expert (Critchfield, 2017). Data have shown that many technical words can actually come off as unpleasant, while other more layman terms were seen as pleasant (Critchfield & Doepke, 2017). This result suggests that behavior analysts must be mindful of the words they use when discussing behavioral strategies with parents.

Using layman terms that parents can understand will also help behavior analysts correctly follow the code of ethics. The code of ethics states that behavior analysts must obtain informed consent from the parents (BACB Ethics Requirements, 2020). In order to receive informed consent from the parents, they must disclose which interventions they are providing, clearly describing the conditions of the practice being used and the scope of services. In doing this, the behavior analyst must use understandable language that is comprehensive to all (BACB Ethics Requirements, 2020). If parents don't understand what you are asking of them then they really are not providing informed consent.

Literature Review

I searched for relevant literature using Google Scholar. Specifically, I searched for empirical research articles about the effectiveness of DTT and NT, comparisons of DTT and NT, parent preference for the two procedures, and the effects of behavioral terminology on individuals' perceptions of behavioral interventions using the following search terms: Discrete Trial Teaching, Naturalistic Teaching, Parent Participation in Special Education, Jargon, Applied Behavior Analysis, and Behavior Analysis Terminology. I specifically focused on articles published in English in the past 20 years. This search resulted in hundreds of articles, so I narrowed my results by searching those articles for studies demonstrating the effectiveness of DTT and NT, studies that compared the two, and studies examining the effects of technical jargon and layman terms on individuals' perceptions and emotions. This resulted in 24 articles relevant to my research topic. In order to deter a bias, the articles I chose to review all offered a variety of evidence showing the effectiveness of both DTT and NT. These articles also

discussed the need for parental insight, and that the use of jargon has proven to have an effect.

One article discussed how NT strategies need to be considered more when choosing services for children with autism spectrum disorder (Shreibman et al., 2015). The purpose of the article was to bring knowledge of other interventions to the field so parents can better understand the options available. DTT became increasingly popular in the 1980's for children with autism, however, new research started to find flaws in the popular intervention. The need to improve DTT led to new techniques that developed into NT strategies. The early applications of NT showed that generalization improved greatly. From there, naturalistic interventions for autism started to show other benefits, such as reduced dependence to prompts. The article goes on to provide further information on how the use of NT strategies has become increased and that research needs to continue to expand these efforts toward more naturalistic interventions when working with children with autism (Shreibman et al., 2015).

In 2008, Downs et al. evaluated the effectiveness of providing DTT to preschool children with developmental disabilities over the course of two years. They found three young children with significant cognitive and language delays enrolled in a public preschool. During each DTT session, the participants would be pulled out of class for 15 minutes and be taught skills in several developmental areas, like colors, shapes, emotions, etc. After the baseline was taken, each curriculum was individualized for each child based on his or her individual needs. This process was done over the course of the school year to see if the child could reach mastery of certain tasks during the DTT sessions. Results indicated that when DTT was used, the learner acquired new skills significantly

faster, showing the efficiency and effectiveness of DTT. It also showed that over a two-year span, the learners mastered more items the second year of using DTT than the first, suggesting that the long-term use of DTT provides the best results. However, the study does acknowledge that these results could also be due to the DTT sessions being used more efficiently over time, and that more DTT sessions were provided in year two. It could also be argued that the increase of DTT time was because of the shaping of the learners behavior from the use of DTT (Downs et al., 2008).

Despite both NT and DTT having differences, they are both based on the scientific principles of learning (Shreibman et al., 2015). It has long been debated which intervention is more effective when teaching children with disabilities. In 2014, Mohammadzaheri et al. compared the two strategies with children with autism. For this study, they felt that most of the studies comparing the two were done using a single subject design, so they did a randomized clinical trial using two groups of children to compare the interventions. The two main questions of this study were first, which strategy would result in greater gains in targeted language areas and second, which would result in greater generalized gains in communication. They used 30 children all diagnosed with autism as participants. First, they took baseline assessments, then DTT and NT treatments were implemented. Treatment sessions were conducted twice weekly for three months. Results showed that, although there was some variation, the NT group showed significantly greater general improvements in social communication following intervention. They go on to list several reasons why NT may have been more effective than DTT. One reason could be that the use of toys and activities the participants would receive during NT compared to what was received during DTT may have created more

interest in the NT sessions. Another thing to consider would be that they did not measure disruptive behavior in the study and it is possible that participants were more avoidant during the DTT intervention (Mohammadzaheri et al., 2014).

One study showed differential effects among participants, suggesting that the results depended on the task and individual learner (Golonka, 2016). In this study, a comparison was done between DTT and a more naturalistic teaching method known as incidental teaching to see which procedure was more effective in helping children with developmental disorders acquire increased sight word reading skills. They had three participants that attended a private education program and showed sight word reading difficulty. An alternating treatment design was used after conducting the baseline DTT and NT sessions. A response was considered accurate if the child gave the correct sight word response. The results showed three different response patterns across the participants. Neither strategy proved to be superior over one for all three participants. The study showed the importance of choosing academic instruction based on individual performance. It acknowledges that a limitation of the study could have been the behavioral stability of the participants, which resulted in the length of times during intervention. Additionally, there may have been a weak instructional match between the materials and the learner in the study (Golonka, 2016).

While completing my literature review, I discovered that although both NT and DTT methods are widely used and have been compared in the literature, there is little to no research showing parent preference of the two different teaching methods. For parents to be involved in special education, it is important for them to understand a variety of teaching methods. When providing input on their children's education, parents may

receive information in a variety of ways, including highly technical jargon or layman's terms. Therefore, it is important to consider the potential effects of the use of jargon when introducing interventions like these.

My literature review provided few jargon-related studies relevant to my study, but two were related to my research question. One study was conducted on the social acceptability of behavior-analytic terms compared to layman terms (Becirevic et al., 2016). For this study, a survey was given to 200 participants. The survey contained six technical behavior-analytic terms and six non-technical substitutes. The analysis focused on comparing the ratings that were given to a technical term versus its layman term. Results showed that the use of layman terms was more acceptable by members of the general public, while technical terms were seen as unacceptable. The study does mention that the differing ways one can use to construct survey items could have influenced survey responding. Additionally, they suggested that future studies should address why participants found behavior-analytic terms to be problematic (Becirevic et al., 2016).

Critchfield & Doepke (2017) performed a similar study that tested whether the jargon of behavior analysis could interfere with effective services. For this study, they used a large public domain list of 14,000 English words that have been rated for how they affect people emotionally. They then took this list and picked out the words that are recognized as important in behavior analysis technical discussions, then had those words rated by volunteers using an online data collection service. Each word was supposed to be rated in three areas: first, on a scale of 1 to 9 from unhappy to happy; second, on a scale of 1 to 9 from calm to excited; and third, a rating of each word separately. Their study showed that participants had an emotional response to the choice of words; the

words were either seen as pleasant or unpleasant and some were also proved to be more motivating than others. Specifically, the majority of the behavior analysis terms were rated as unpleasant. One limitation of the study the researchers acknowledged was that the behavioral terms were limited by the predetermined list, so they might not represent the overall behavior analytic lexicon. Another limitation is that though the results suggest people may reject behavior analysts due to the abrasive technical terms in their field, the ratings don't verify the conditions where it may actually happen (Critchfield & Doepke, 2017). Since both articles showed that the jargon of behavior analysis has an impact on participants, we tested to see if it has an impact in this study on the parents' preference of DTT or NT.

Purpose Statement and Research Questions

The purpose of this study was to examine parent preference for either DTT or NT as influenced by the terminology used to describe the interventions and videos depicting the procedures. Parents typically do not get to choose the methods used with their child, this study is more about acceptability rather than choice. By using the three different survey groups this study provides evidence of the effects that behavioral terminology has when collaborating with parents. With the information collected we hope to inform future research of the power language has when communicating with parents and how to improve their understanding and knowledge of teaching strategies. This learner population is important because of the children's need for special skills and strategies to help in their cognitive development. Thus, we address the following research questions:

1. Do parents have a preference in which teaching method their child receives DTT versus NT?

2. Does the use of behavioral terminology affect their preference?

3. Does the use of video modeling affect parent preference?

Method

Participants

The participants in this study were parents or caregivers of children (aged 2-5) receiving special education services for a learning disability. This includes autism spectrum disorder, intellectual disability, developmental delays, and speech delays. All children were receiving academic or behavioral support. Participants were recruited via emails to parents of children receiving special education services and are affiliated with the Utah Parents Center, Utah State Board of Education, Babywatch. Additionally, the survey was posted to family support groups on social media for parents who have children with disabilities and want to participate. The survey did not record where each participant was recruited from due to the survey being anonymous. The parents were asked to fill out the online survey. Participant inclusion was based on responses to the initial questions of the survey. All participants provided consent for their response to be used for the purpose of the study.

Survey Development

The survey was developed and distributed to parents via Qualtrics. The survey contained 18 multiple choice questions, one yes/no question, one open response question, and two short videos modeling both teaching strategies. At the start of the survey definitions of abbreviations were given for DTT and NT in order to avoid any confusion. Abbreviations were only used when describing the teaching strategies in the descriptions. Survey questions were developed based on factors likely related to parents' perspectives

on learning approaches for their children (e.g., education level, frequency of child service provision, communication with care providers). Survey questions were also discussed between committee members during the development of the study. Sources like (*How to Write Good Survey Questions, 2021*) was used to determine appropriate wording and response options. When developing the survey questions the wording was taken into consideration. The survey depicts basic and simple questions to avoid using strong words that could control or influence the results (*How to Write Good Survey Questions, 2021*). The order of the questions was also important; by starting with broad general questions as a warm-up and then use more specific questions towards the end this lead to better involvement for participants (*How to Write Good Survey Questions, 2021*). To make sure the data were accurate, some questions needed many answer options, like the use of "other" or "I don't know"; this is so the data are not forced. Additionally, the Likert Scale was used to create options for responses because it would be a reliable way to measure the parents' opinions, and perceptions. Lastly, the survey was constructed to be short enough that parents did not lose interest in the hopes that it would increase the chances of receiving a completed response from parents (*How to Write Good Survey Questions*, 2021).

Parent survey

The survey contained three different conditions that were sent out at random to the participants. Group 1 received the survey condition with both descriptions of the interventions in layman terms. Group 2 received the survey condition with the DTT description in technical terms and NT in layman terms. Group 3 received the survey condition with DTT description in layman terms and NT in technical terms. All of the

groups received the questions and the definitions in the same order. The first four questions of the survey are about the demographics of the participants to help provide a background of their characteristics (Appendix C). This provided information to allow for analysis of demographics in each group. The next seven questions asked about parental insight and understanding in their child's education. This aspect is important because it shows if they have any background with the current research topic or not, which could have an impact on the results. Then the parents were given the descriptions of the strategies based on what survey condition they received. After reading the descriptions, they were asked how well they understood the description and how likely they are to choose that strategy for their learner. Next, two video models were shown that give an example of both procedures being done. These videos provide a visual on how both strategies are administered and performed. Having the visual helps parents be able to envision their child and make a better conclusion for the study. They then were asked if the videos changed and influenced their preference. Lastly an open-ended question was asked to explain why they might have chosen one method over another. These questions are based on the study questions if parents would prefer either DTT or NT and if the use of layman and technical terms do in fact influence parents' decisions. See the Appendix for example survey questions.

Procedures

All data analyzed in the current study came from the survey (mentioned above) that was sent out electronically to parents. To recruit participants through groups such as the Utah Parent Center, a letter of recruitment was sent to the service providers by email that explained the study and asked for permission to conduct it. It also had an indirect recruitment letter attached explaining not to persuade or change any of the wordings in

the original parent recruitment letter. Then the groups would forward this to potential recruits via email. Potential recruits were met with the inclusion criteria listed by having the email sent by service providers to parents whose children are between the ages of 2 to 5 and receiving special education services. For the participants recruited through social media, a post was created explaining the survey and asking for participation if they so choose. They then would click on the link that then provides them with an informed consent page and by continuing they would go on to take the survey.

The survey was designed to see if parents are aware of what strategies are being used to teach their children, which strategy they prefer (DTT or NT), and if the use of technical terms versus layman terms influences their decision. In the survey, there are three separate conditions sent out to 20 parents in three different groups for a total of 60 participants. Table 1 illustrates each group and what their condition was.

The first condition describes both DTT and NT in layman terms. The second condition describes DTT in more technical terms and NT in layman terms. The last condition does the opposite — describe DTT in layman terms and NT in technical terms. The results then showed if the use of behavioral jargon had an influence in the parents' decision.

When creating the definitions for the survey, for the definitions written in technical terminology it was important to take them from a source that used technical terminology and behavioral jargon. This was to make sure the terms and definition were representing parts of the behavior analytic lexicon. While creating the definitions written in layman terms, we found articles that expressed these definitions in an understandable language that clearly described the conditions of the practice being used.

Table 1

Group Conditions and Descriptions

Groups	
	Group Condition
Group 1	DTT layman NT layman
Group 2	DTT technical NT layman
Group 3	DTT layman NT technical

DTT Technical Terms Definition
Discrete trial teaching is an academic intervention that focuses on methods utilizing applied behavioral analysis. DTT is a concise step-by-step intervention tailored to improve a specific skill in an efficient way. It follows the steps of first the descriptive stimulus, the prompt, the child response, and then is followed by a consequence. Its concentration on positivity and brevity allows for the productive shaping of important behavior in an easy-to-digest format. Through repetition of the DTT process, children can obtain mastery over necessary abilities. The skills taught are classified as 'cognitive, communication, play, social and self-help (Applied Behavior Analysis Programs Guide, 2020).

DTT Layman Terms Definition
Discrete trial teaching is a teaching strategy where the child and provider are placed at a table sitting across from one another in a distraction-free setting. The provider sets goals individually per child. The provider presents something like a picture of an object and says, "What is this?" the provider waits five seconds for a response. After the child's response the provider delivers praise and rewards like a snack or time to play with a toy (Steege et al., 2007).

NT Technical Terms Definition
Naturalistic teaching is an academic intervention that focuses on naturally occurring events as teaching opportunities. It follows the steps of incorporating variables to improve responsiveness, rate of response, and positive effect. The practitioner arranges an environment attractive to children and allows the child to prompt the teaching by showing interest in someone or something around him. The instructor then 'elaborates' on the chosen item and elicits responses from the child. When the child reacts appropriately, he receives a 'confirming response' or reinforcement (Applied Behavior Analysis Programs Guide, 2020).

NT Layman Terms Definition
Naturalistic Teaching is used to help children learn when the child and provider are in a natural setting, surrounded by activities. Several activities will surround the child and provider. This can include things like balls, board games, colors, and other objects. The child will then choose which activity they would like to do. The provider must ask a question, and then the child is to respond. Once the child answers, they are given what they chose (Mohammadzaheri, 2015).

When the parents are taking the survey with the condition that describes DTT using technical terminology, they read this brief description; "Discrete trial teaching is an academic intervention that focuses on methods utilizing applied behavioral analysis. DTT is a concise step-by-step intervention tailored to improve a specific skill in an efficient

way. It follows the steps of first the descriptive stimulus, the prompt, the child response, and then is followed by a consequence. Its concentration on positivity and brevity allows for the productive shaping of important behavior in an easy-to-digest format. Through repetition of the DTT process, children can obtain mastery over necessary abilities. The skills taught are classified as 'cognitive, communication, play, social and self-help' (Applied Behavior Analysis Programs Guide, 2020). In the other survey condition groups, DTT was described in layman terms as the following: "Discrete trial teaching is a teaching strategy where the child and provider are placed at a table sitting across from one another in a distraction-free setting. The provider sets goals individually per child. The provider presents something like a picture of an object and says, "What is this?" the provider waits five seconds for a response. After the child's response the provider delivers praise and rewards like a snack or time to play with a toy" (Steege et al., 2007).

When the parents are taking the survey condition describing NT using technical terminology, they read this brief description; "Naturalistic teaching is an academic intervention that focuses on naturally occurring events as teaching opportunities. It follows the steps of incorporating variables to improve responsiveness, rate of response, and positive effect. The practitioner arranges an environment attractive to children and allows the child to prompt the teaching by showing interest in someone or something around him. The instructor then 'elaborates' on the chosen item and elicits responses from the child. When the child reacts appropriately, he receives a 'confirming response' or reinforcement" (Applied Behavior Analysis Programs Guide, 2020). In the other conditions given, NT was described in layman terms as the following; "Naturalistic Teaching is used to help children learn when the child and provider are in a natural

setting, surrounded by activities. Several activities will surround the child and provider. This can include things like balls, board games, colors, and other objects. The child will then choose which activity they would like to do. The provider must ask a question, then the child is to respond. Once the child answers, they are given what they chose" (Mohammadzaheri, 2015).

Measures

Data Analysis

The final raw data are downloaded from the Qualtrics survey and converted for analysis. Descriptive statistics was used to analyze the responses of the participants. The mean, and percentage of each group's responses indicated the average and most common participant responses. The data are categorized by demographics, responses prior to the description, responses given after the description and responses given after watching the video. Responses given in the three different groups were looked at to see if any groups had significant numbers to certain demographics. It was also examined to see if there was any correlation between certain demographics and which strategy was selected in each condition and group. Randomization was used for the three different survey groups to reduce the potential for confounds. The last question was an open response question asking the participants why they chose that particular teaching style or why they had no preference. The open-ended question was used for qualitative purposes and to search for themes in the responses. To analyze the data we took a frequency count of common themes given in the participants' responses. We searched for word repetitions in order to demonstrate recurring themes. For example, the study found that certain words were repeatedly referred to for multiple participants as to why parents chose that strategy. This

indicated that these ideas were recurring themes in the participants' decision. Each group's percentage of responses were recorded and graphed then compared to which condition they were in. The graphs give a visual analysis on the effects of the groups given either layman or technical terms and compare them to their initial choice, their responses after reading the description and the response given after watching the videos. The analysis helped show the results of the study.

Results

There were 110 total responders to the survey. However, 50 of the responses were incomplete. Surveys were marked incomplete if one or more questions were not complete, excluding the free response question. This was stated in the informed consent prior to the beginning of the survey. Out of 60 participants, 6 selected that his or her child was not receiving special education services, which disqualified them from participating in the study. Through random assignment, there were 21 participants in Group 1, 19 participants in Group 2, and 14 participants in Group 3.

The responses were calculated to give a demographic summary about the population. We examined potential effects of level from education, parent satisfaction with their child's current progress, and previous knowledge of DTT and NT. Each respondent indicated that his or her child had a label and/or diagnosis of autism spectrum disorder (10%), intellectual disability (13%), developmental delay (16%), speech or language impairment (35%), and other (15%). When asked how intensive their children's needs were, (20%) reported mild, (62%) moderate, and (16%) severe. When asked how often their children were receiving services, (18%) reported receiving it daily, (7%) more

than 2 to 3 times a week, (25%) 2 to 3 times a week, (40%) once a week, and (7%) monthly. Table 2 displays the percentage of responses from participants in each group. The groups had a consistent average response in most of the demographics.

Table 2

Participant Demographics

	Group 1(21)	Group 2(19)	Group 3(14)	Mean
Education Level				
High School	9%	5%	0%	1
Some College	19%	21%	28%	4
Bachelors	47%	26%	35%	6.6
Post Bachelors	23%	47%	35%	6.3
Child's Needs				
Autism Spectrum Disorder	9%	10%	14%	2
Intellectual Disability	14%	21%	7%	2.6
Developmental Delay	23%	10%	21%	3.3
Speech or language impairment	47%	21%	50%	7
Other	4%	36%	7%	3
Severity of needs				
Mild	14%	21%	28%	3.6
Moderate	61%	57%	64%	11
Severe	19%	21%	7%	3
I don't know	.04%	0%	0%	0.3
Time of Services				
Monthly	9%	5%	7%	1.3
Once a week	42%	31%	50%	7.3
2-3 times a week	19%	31%	28%	4.6
More than 2-3 times a week	9%	10%	0%	1.3
Daily	19%	21%	14%	3.3

Note. The number next to the group name represents the amount of participants in that specific group.

We asked how often they discussed which teaching strategies were being used with their children's provider. The results showed that (11%) of total participants reported never discussing teaching strategies with providers, (18%) rarely, (35%) sometimes, (29%) frequently, and (5%) almost always. Next we asked participants if a

service provider has ever told them that one teaching strategy is better than another. The data showed that (33%) of total participants chose never, (22%) selected rarely, (27%) reported sometimes, (16%) selected frequently, and (0%) reported almost always.

When asked about how familiar they were with DTT (72%) of total participants reported not at all familiar, (7%) slightly familiar, (11%) somewhat familiar, (1%) moderately familiar, and (7%) extremely familiar. For NT it was reported that (62%) of total participants were not at all familiar, (16%) slightly familiar, (3%) somewhat familiar, (7%) moderately familiar, and (9%) extremely familiar.

We asked participants how satisfied they are with the strategies and progress of their children's special education services. They reported an average of 3.7 out of 5 for satisfaction of strategies their children are using. Total participants also averaged 3.6 for satisfaction of progress being made with their children's current teaching methods.

The results showed that before exposure to descriptions and videos, (75%) of parents had no preference between the two teaching strategies, while (22%) preferred NT and only (1%) chose DTT. Prior to the descriptions and videos, (72%) reported they were not at all familiar with DTT and (62%) noted they were not at all familiar with NT. Figure 1 shows that the initial preference responses are relatively even—all three groups had a majority of no preference.

We then asked the participants to read the descriptions of the two teaching strategies to find out how well they understood the description. After reading the description of NT, of Group 1's participants, (0%) reported understanding it not well at all, (4%) chose slightly well, (14%) selected neutral, (52%) of participants chose very well, and (28%) reported extremely well. Of Group 2's participants, (0%) reported not

well at all, (26%) chose slightly well, (10%) selected neutral, (36%) reported very well, and (26%) of participants selected extremely well. In Group 3, (0%) reported not well at all, (7%) selected slightly well, (7%) of participants chose neutral, (64%) said they understood the description very well, and (21%) selected extremely well. After reading the description of DTT and asked how well they understood the description, Group 1's results showed that (0%) reported not well at all, (4%) chose slightly well, (14%) selected neutral, (52%) chose very well, and (28%) reported extremely well. In Group 2, (0%) reported not well at all, (21%) chose slightly well, (21%) selected neutral, (31%) chose very well, and (26%) chose extremely well. Of Group 3's participants, (0%) reported not well at all, (7%) selected slightly well, (0%) chose neutral, (71%) reported very well, and (21%) selected extremely well. Figure 2 demonstrates that all three groups preferred NT after reading the descriptions, and the use of DTT increased while no preference decreased dramatically.

After the videos were shown, (70%) of the total participants preferred NT while only (14%) chose DTT and (14%) had no preference. The videos increased the preference of NT in all three groups (see Figure 3). The data reported that (92%) of total participants found the videos to be influential. When asked if they changed their preferred method after watching the video, (25%) of participants recorded yes. Group 1 reported after watching the videos that (19%) would prefer DTT, (14%) had no preference, and (66%) selected NT. Group 2's showed that (15%) would prefer DTT, (21%) had no preference, and (65%) chose NT. Finally, the data for Group 3 reports (7%) selected DTT, (7%) had no preference, and (85%) would prefer NT.

The data were then compared across groups and conditions. Figure 4 shows how the participants' selection changed from their initial responses, to reading the descriptions and then seeing the video model. The first bar for each color in each group shows how many participants selected that preference in their initial response. The second bar indicates how many selected that preference after reading the descriptions. Then the third bar of the same color shows the percentage of selection after the video model was shown. It is broken down further by which group participants were in to show overall how the results changed further into the survey.

Group 1 was the only group to have some respondents (4%) select DTT initially. Regardless, the majority still selected no preference initially (76%). After the descriptions were both given in layman terms, the selection of DTT did increase to (33%) and no preference drastically decreased to (9%), while overall NT was preferred at (57%). After the video was shown, DTT decreased from before to (19%) and no preference went to (14%), while NT was the highest response at (66%).

Group 2 initially had no one select DTT, no preference was the majority at (78%), and NT was chosen at (21%). After the descriptions were given—DTT in technical terms and NT in layman terms—they did have a few DTT responses at (21%), while no preference decreased dramatically to (26%) and NT was chosen overall at (52%). After the video was shown, DTT decreased to (15%) and so did no preference to (21%), while NT was the highest overall response at (63%).

Group 3 initially had no one select DTT at (0%), NT was chosen at (28%), and no preference was the majority at (71%). We then described DTT in layman terms and NT in technical terms, after which participants did have a few DTT responses at (7%), while no

preference dramatically decreased to (14%) and NT was chosen for the majority at (78%). After the video was shown, DTT responses remained the same at (7%), no preference decreased to (7%) and once again NT was selected overall at (85%).

Out of the total participants, 46 out of 54 gave an answer to the open response question at the end. The majority of participants chose NT as their preferred teaching strategy. A frequency count of common themes given in the responses was taken. For participants that chose NT these were the themes or words that occurred and their count: natural (16), fun (5), free (2), does not support ABA (3), choice (6), positive (4). For participants that chose DTT these were the themes that occurred and their count: NT is distracting (3), specific prompting (5). Table 3 shows the frequency count and relative frequency for the common themes found in the qualitative data.

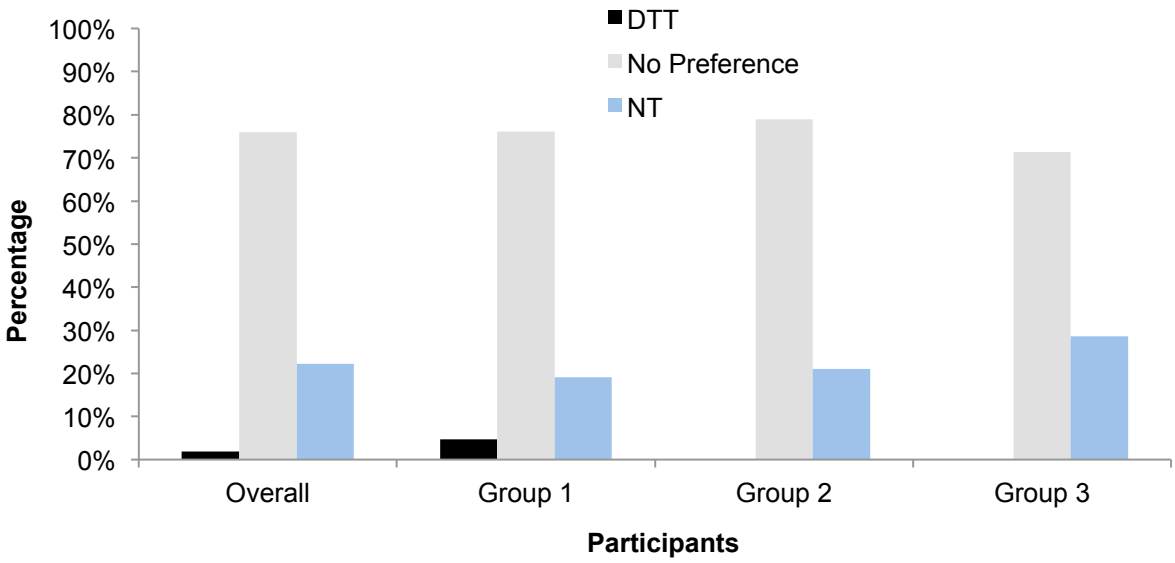
Table 3

Frequencies of Common Themes

Response	Category	Frequency	Relative Frequency
NT			
	Natural	16	0.34
	Fun	5	0.1
	Free	2	0.04
	Do not support DTT	3	0.06
	Choice	6	0.13
	Positive	4	0.08
DTT			
	NT is distracting	3	0.06
	Specific prompting	5	0.1
No Preference			
	Both have benefits	2	0.04

Figure 1

Parents' Initial Preferences



Note. Group 1- both descriptions in layman terms, Group 2 - DTT in technical terms and NT in layman terms, Group 3 - DTT in layman terms and NT in technical terms.

Figure 2

Parents' Preference after Descriptions

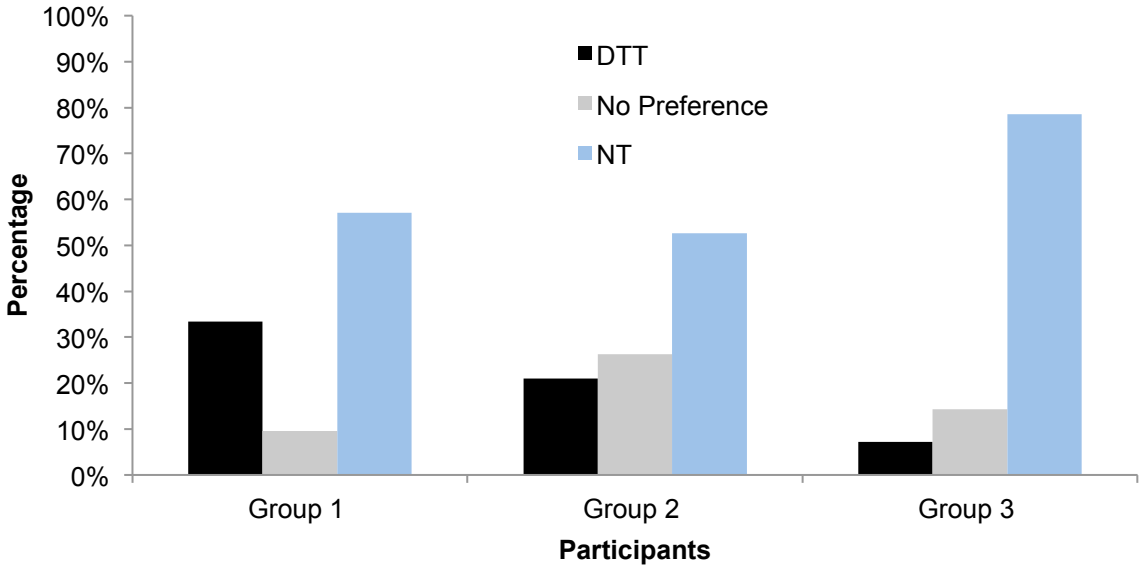


Figure 3

Parents' Preference after Videos

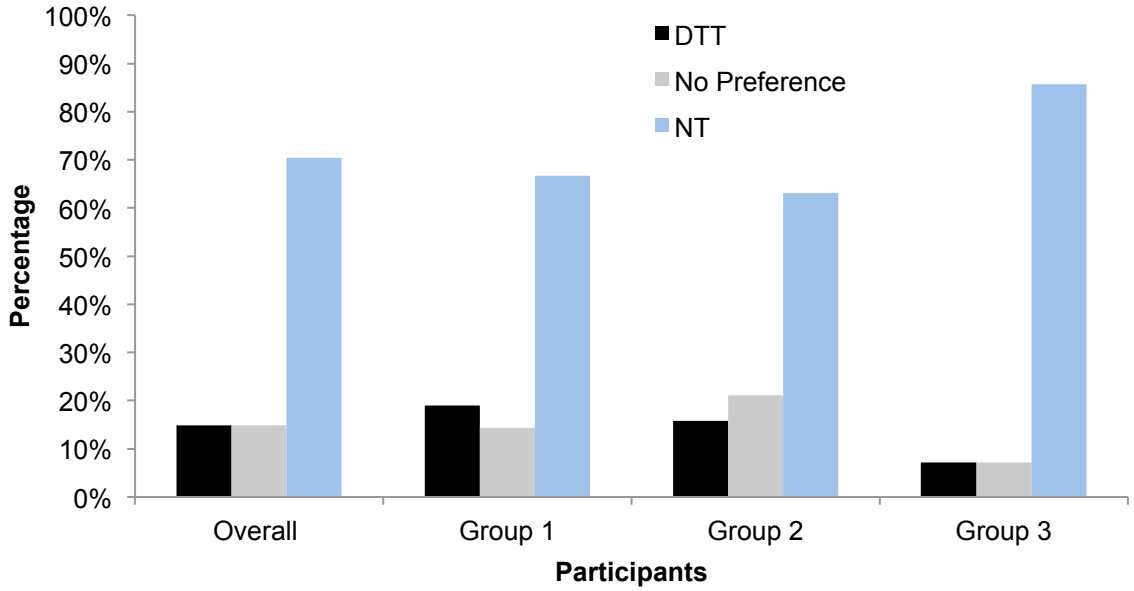
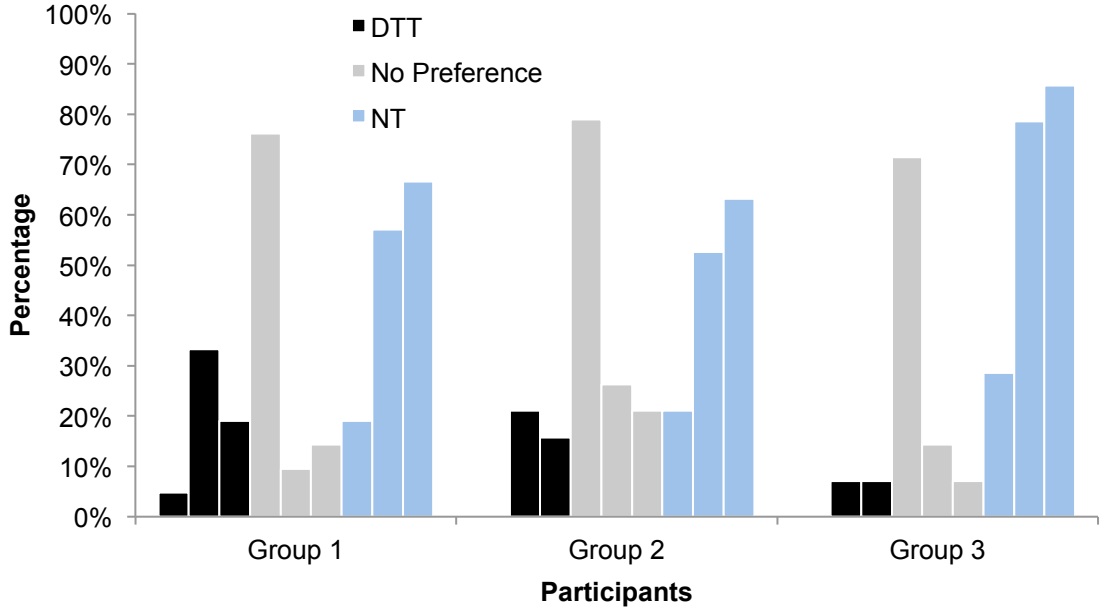


Figure 4

Comparison of Preference of Initial Responses, Descriptions and Video Model



Note. The first bar for each color represents the percentage chosen for initial preference, the second bar shows percentage after reading descriptions, and the third bar is the percentage after viewing the videos.

Discussion

This study examined how the use of behavioral jargon and video models affected a parents' preferred teaching method—NT or DTT. We used a parent survey to gather their initial preference of DTT versus NT. This survey had three different sets of questions that were randomized in order to see whether or not the use of layman terms or technical terms affected which teaching strategy parents preferred. After, a short video model was shown to see if the video affected their preference. Therefore, the present study showed that parents did have a preference in which teaching strategy is being used with their learners when given more information. The different conditions used supported the effectiveness of video models in influencing parents' preferences. Additionally, the study demonstrates the importance of giving parents as much information as possible to allow them to fully understand different strategies being used.

From the results we see that during the demographic summary, there are a variety of participants in each group with different backgrounds and that have children with different needs. When comparing the studies sample population to the general population, there are no abnormalities or significant discrepancies between the two (*Educational Attainment in the United States.* 2021). Though they do vary, overall the percentages of responses are fairly close. For level of education, Group 1 indicated a higher level of participants with a bachelor's degree while Group 2 had the highest number of respondents with post-baccalaureate. For describing their children's needs, Group 1 and Group 3 had the highest responses for speech or language impairment, Group 1 had ten responses while Group 2 had only four and Group 3 had seven. Group 2 had seven participants select "other" while Group 1 and Group 3 only had one. This is important to

note since parents may have been pre-exposed to certain teaching strategies or biases based on their children's disabilities. For example, DTT is often used with children who have Autism Spectrum Disorder, while NT is widely used by Speech Language Pathologists for teaching children with speech or language impairments (Mohammadzaheri, 2015). Perhaps Group 1 and Group 3 had a preference to NT because the majority of participants in those groups have children with speech or language impairments. However, another factor is that the study used children between the ages of 2-5. During this age, diagnoses can be fluid and may affect the severity of needs or how treatment is determined. Certain treatment options are more likely to be used during the beginning phases of treatments. When asked about severity of needs, each group was relatively equal in selection. This question is important to take into consideration because learners with more severe disabilities are oftentimes exposed to more intensive teaching strategies. So if one group had way more children with severe needs, it could impact which teaching strategies parents are used to and prefer. The groups were also asked about how much service time their children were receiving. The results showed that most of Group 1 chose once a week, Group 2 was tied between once a week and 2 to 3 times a week, and in Group 3 the majority chose once a week. Thus the participants' learners were averaging close to the same amount of time receiving services.

In regard to parent satisfaction, Groups 1 and 3 had zero responses for "highly unsatisfied with strategies being used." Group 1 and 2 had zero responses for "highly unsatisfied for progress being made." Over half of the total participants selected satisfied for their response. This shows us that overall, parents in this study report being satisfied with the strategies being used and progress being made with their children. Groups 2 and

3 had zero responses for “almost always discussing strategies.” These data could be due to several reasons. Options could vary widely depending on treatment setting, source of funding, and the behavior being treated. It is uncertain if the lack of discussion is because parents aren’t given choices or if they are given choices with no influence from their providers. At times providers might not be giving a lot of choices in teaching methods because there may only be one ideal option. It could also be interpreted that there needs to be more discussion between parents and providers. Providers should influence parents to choose evidence-based strategies. If providers are not having those conversations with parents, then parents are not fully aware of what their children are learning. In all three groups, no one selected “almost always” for having a provider tell them if one teaching strategy is better than another. This tells us that parents are not likely being persuaded or pressured into certain teaching strategies for their learners by the providers. It again could be because providers do not have the opportunity to discuss which teaching strategy they would recommend.

The study recorded whether or not parents had a pre-existing knowledge or background with the two teaching strategies. The data showed that the majority of parents had little to no previous knowledge of DTT or NT. This fact could be why the choice of “no preference” had the highest response total initially. It also is important to recognize this factor because it shows the study had little to no bias affect the results. Providers should take note of this result, because it again demonstrates the need for better communication, with parents.

The survey randomized the order and group the definitions of the teaching strategies were put in, to see if the use of terminology affected parent preference. After

being asked which teaching strategy they preferred, all three groups had the highest response for NT. There was little impact with the use of technical terminology versus layman terms. This could be due to how the written descriptions were written and the selection of words not varying enough. It should also be taken into consideration that the names of the two strategies Discrete Trail Teaching and Naturalistic Teaching, inherently contain "technical" and layman" terms. This could have been another reason why NT was the preferred strategy due to the name of the strategy itself.

Even though none of the groups had any major discrepancies, Group 1 (where both descriptions were done in layman terms) did have the highest percentage of participants selecting DTT at (33%). Also, Group 2 saw a higher reported preference for DTT as well after reading the descriptions. Thus, there is a small possibility that parents may be influenced when given more information in an understandable language. After reading the definitions, parents in all three groups consistently said they would likely select NT for their children. When asked how well participants understood the definitions, all groups had zero responses for "not well at all" on both definitions, showing an overall perception of understanding for the definitions given in layman terms and technical terms. Though the parents answered this questions pertaining to their level of understanding, the data collection is a self-report and the responses are the participants' perceptions rather than actual measures. In Group 3, where NT was described in technical terms, it had the most participants choose "very well" for understanding. Again, this demonstrates that the use of technical terminology versus layman terms did not have a significant impact on a parent's choice when deciding between DTT and NT.

We also discovered that the use of video models might affect parent choice. Most participants found the videos to be influential, and a quarter of participants switched their preferred teaching strategies after watching them. Additionally, the percentage of "no preference" drastically decreased and the responses to NT increased. Though the videos did impact the preference of participants, the final percentage of responses could be due to a cumulative effect from the descriptions and questions prior to the videos. Participants received more information throughout the survey, which may have added up to influence their final preference. Videos are an efficient, easy way to give parents a visual demonstration of the strategies being used by providers. These results exhibit that parents may need a video model to fully understand and provide informed consent to certain teaching methods.

There are several reasons why NT may have been preferred over DTT. It could be from how the two descriptions were written, parents having preconceived thoughts or beliefs about certain practices, or because of how the video model was performed. In the survey, parents responded to an open-ended question providing their reasoning to why they selected their preferred method. Generally, a common theme of why NT was chosen was that it looked more natural and fun for the children. NT seemed more relaxed and they liked that their children had more choice in their activities. The specific video content may have affected multiple outcomes. How the provider presented tasks, asked questions, and gave corrections could be why participants said one seemed more natural and fun over the other. A few responders that chose NT also stated that they did not agree with ABA-based methods such as DTT. One participant wrote, "I prefer naturalistic because I do not agree with ABA-based methods of the discrete method. I do not support

ABA practices." If participants have negative feelings or beliefs toward certain teaching methods, it could have affected the data. Providers should also take this into consideration when discussing and selecting ABA practices for learners, since some parents may not agree to these methods. Participants that chose DTT made statements such as NT seemed too distracting for their learners and that they liked the specific prompting used in DTT. Future research could expand on these ideas by asking why a parent chose that strategy or looking more into why certain participants have negative feelings toward ABA practices. Further research could also determine if the presentation of the two strategies in the video had an impact on why parents stated NT was more "fun" or "care free" while DTT was seen as more "uncomfortable."

The results of this study provide valuable information in three main areas: 1) benchmark measurement of a parent's understanding and preference of DTT and NT, 2) the effects of technical versus layman terminology on a parent's perception of learning strategies, and 3) the effects of watching procedures on a parent's perception of learning strategies. Overall, this study illustrated that parents generally report preferring one teaching strategy, but only when sufficient information is provided. Describing the strategy being used and using video models can increase a parent's understanding and preference of procedures. Hopefully if parents have a better understanding and knowledge base of strategies being used, they will become more involved. Better parent knowledge and involvement can increase student success and parent/teacher satisfaction (Bunijevac & Durisic, 2017). If providers can give parents a deeper understanding of teaching methods, parents may also be more accepting of a variety of teaching methods.

Although the findings of this study were informative and potentially important, some limitations exist. First, by having the three different definitions randomized, the number of participants in each group was not equal. Group 3 had the fewest participants because some surveys were marked as complete even though they were not. The survey software used, Qualtrics, would count a survey as completed even if they chose the option "My child is not receiving any form of special education," which immediately ended the study. Furthermore, it not only counted it as complete, but it would then send the next participant the next group. Thus, one of the conditions would be skipped over, and there would be less responses in one group. Under coverage in one group or even over coverage in another is a problem, because it can lead to disparate group sizes. The different group sizes may have also influence the interpretation of the data. Due to Group 3 having a smaller number of participants it is more sensitive to small differences in the responses. This could make a conclusion in the study seem more significant then it would be if the group sizes were all equal.

In addition, some of the survey questions had response choices that could have impacted results. In the demographics when asked how often a parent's child is receiving services, the answers "2 to 3 times a week" and "more than 2 to 3 times a week" were given as options. Since these are very similar, they could lead to confusion or a participant accidently selecting one without reading the full description. Future studies should avoid having responses that are too similar.

The videos shown also could have impacted the studies results. In the video of DTT the provider is using paper with colors on it and asking the child to touch. While in the video of NT the provider uses toys and asks the child for a verbal response. These are

two different response methods. This could have deterred participants from a certain strategy due to how the responses were given. If a parent has a child who is non-verbal then they may have thought that strategy would not work for their child. Also in the videos, the amount of errors the child makes and the providers' corrections are different. The definitions were also different for the participants depending on which group they were in, which could have also influenced their choices. Future research could make a more deliberate and systematic comparison by making sure that both strategies are presented as similarly as possible to reduce these possible effects.

Future research could benefit from seeking a more equal number of participants with the same demographics of children's disabilities. For example, there were six responses for autism, but twenty-one for speech or language impairment. This could have produced biased outcomes due to certain disabilities being pre-exposed to certain teaching strategies. The data showed that all participants who chose autism spectrum disorder chose NT, showing that there may be correlation between the disability and the preferred teaching strategy. Future research could consider how these subgroups with diagnosis differences would respond individually. By doing so you could see if there was a correlation between the disability and the preferred teaching strategy.

Lastly, part of this study examined the effects of the use of behavioral terminology and parent's preferred teaching strategy. The data showed that the use of technical terminology versus layman terms did not have a large impact on preference. However, the definitions of DTT and NT were predetermined, and so future research may want to address more of the technical words chosen to represent behavioral jargon. This study should have asked participants more about how the words and terminology made

them feel or affected them. By doing this we could have better determined whether the different terminology does impact a parent's feelings toward different strategies.

Future researchers should address the limitations detailed above in order to get even more specific results. The limitations discussed could have impacted the data. When you take the limitations into consideration it could also affect how the data was analyzed and the conclusions that were drawn. Future research, may be able to avoid those issues, by examining the limitations, they can prevent varying numbers of participants in groups, identify more statistically significant relationships, and demonstrate better experimental control on the use of behavioral terminology. We could gather even more interesting information about these factors by examining different age groups, focusing on specific disabilities, looking at specific behavioral terms, and asking more questions on why parents had a higher preference for NT over DTT.

In conclusion, parents may prefer a strategy for their child when given information about different methods. This result indicates that the use of certain strategies should be explained to parents and providers should take their preferences into consideration. We should acknowledge and reevaluate how we are communicating with parents. This study helps expand research in the field of behavioral analysis and special education. Additionally, it contributes to other research done on the use of behavioral jargon and its effects on people's perceptions of behavioral analysis teaching methods. Another benefit this study provides is that the participants are from the population of interest rather than randomized volunteers, as they are in previous studies. And not only does it show the effect on perceptions but also shows the effects behavioral jargon and the use of video models has on parents' choices. By using the information found in this

study, we could improve the communication between service providers and parents by giving those parents a better knowledge base of the strategies being used with their children. This improvement will encourage better relationships between providers and parents, potentially increasing parental involvement and the success for our learners.

References

ABA Programs Guide Staff. "What Is Discrete Trial Teaching?" *Applied Behavior Analysis Programs Guide*, 24 Apr. 2020, www.appliedbehavioranalysisprograms.com/faq/what is-discrete-trial-teaching/.

Becirevic, A., Critchfield, T. S., Reed, D. D. (2016). On the Social Acceptability of Behavior-Analytic Terms: Crowdsourced Comparison of Lay and Technical Language. *The Behavior Analyst, 39*(2), 305–317.

Behavior Analyst Certification Board. (2020). Ethics code for behavior analysts. Littleton, CO: Author. https://www.bacb.com/wp-content/uploads/2020/11/Ethics-Code-for-Behavior-Analysts-2102010.pdf

Brown-Chidsey, R., & Steege, M.W. (2004). Discrete trial teaching. In T.S. Watson & C.H. Skinner (Eds.), Encyclopedia of school psychology (pp. 96–97). New York: Kluwer/Plenum Press.

Bunijevac, M., Durisic M. (2017). Parental Involvement as a Important Factor for Successful Education. *Center for Educational Policy Studies Journal*, 7(3) 137-153.

Burke, M. M. (2013). Improving Parental Involvement: Training Special Education Advocates. *Journal of Disability Policy Studies* 23(4) 225-234.

Critchfield T. S. (2017). Visuwords®: a Handy Online Tool for Estimating What Nonexperts May Think When Hearing Behavior Analysis Jargon. *Behavior Analysis in Practice*, 10(3), 318–322.

Crichfield, T. S., Doepke, K. J., Epting, L. K., Amel, B., Reed, D. D., Fienup, D. M., Kremsreiter, J. L., Ecott, C., L. (2017). Normative Emotional Responses to Behavior Analysis Jargon or How Not to Use Words to Win Friends and Influence People. *Behavior Analysis in Practice,* 10(2) 97-106.

Cowan, R. J., Allen K. D. (2007). Using naturalistic procedures to enhance learning in individuals with autism: A focus on generalized teaching within the school setting. *Psychology in the Schools*, 44(7), 701-714.

Downs, A., Downs, C. R., Fossum, M., Rau, K. (2008). Effectiveness of Discrete Trial Teaching with Preschool Students with Developmental Disabilities. *Education and Training in Developmental Disabilities*, 43(4) 443-453.

Dunst, C. J., Raab, M., Trivett, C, M. (2012). Characteristics of Naturalistic Language Intervention. *Journal of Speech-Language Pathology And Applied Behavior Analysis*, 5, 8-16.

Educational Attainment in the United States. (2021, April 21). United States Census. https://www.census.gov/data/tables/2020/demo/educational-attainment/cps-detailed-tables.html

Golonka, A. (2016). A comparison of a discrete trial teaching procedure and an incidental teaching procedure to help children with developmental disorders acquire sight word reading skills. (Unpublished doctoral dissertation.) University of Southern Main.

How to Write Good Survey Questions. (2021). SurveyMonkey. https://www.surveymonkey.com/mp/writing-survey-questions/.

McKenzie Maughan. (2021, June 30). *Discrete Trial Teaching Example* [Video]. https://www.youtube.com/watch?v=dDz2vRxHQvI

McKenzie Maughan. (2021, June 30). *Naturalistic Teaching Example* [Video]. https://www.youtube.com/watch?v=n2oHa4Y29Mk

McEachin, J., & Leaf, R. (1999). *The Autism Partnership Curriculum for Discrete Trial Teaching with Autistic Children*.

Mohammadzaheri, F., Koegel, L. K., Rezaei, M., Bakhshi E. (2015). A Randomized Clinical Trial Comparison Between Pivotal Response Treatment (PRT) and Adult-Driven Applied Behavior Analysis (ABA) Intervention on Disruptive Behaviors in Public School Children with Autism. *Journal of Autism and developmental disorders,* 45 2899-2907.

Mohammadzaheri, F., Koegel, L. K., Rezaee, M., Rafiee, S. M. (2014). A Randomized Clinical Trial Comparison Between Pivotal Response Treatment (PRT) and Structured Applied Behavior Analysis (ABA) Intervention for Children with Autism. *Journal of Autism and developmental disorders,* 44(11), 2769-2777.

National Professional Development Center on Autism Spectrum Disorders (2010). Discrete Trial Training.

Pindiprolu, S., S. (2012). A Review of Naturalistic Interventions with Young Children with Autism. *The Journal of International Association of Special Education* 13(1) 69-78.

Schreibman, L., Dawson, G., Stahmer, A. C., Landa, R., Rogers, S. J., McGee, G. G., ... & Halladay, A. (2015). Naturalistic developmental behavioral interventions: Empirically validated treatments for autism spectrum disorder. *Journal of autism and developmental disorders*, *45*(8), 2411-2428.

Shinn, M. R. (2007). Identifying Students at Risk, Monitoring Performance, and Determining Eligibility Within Response to Intervention: Research on Educational Need and Benefit From Academic Intervention. *School Psychology Review,* 36(4) 601-617.

Steege, M. W., Mace, F. C., Perry, L., & Longenecker, H. (2007). Applied behavior analysis: beyond discrete trial teaching. *Psychology in the Schools*, 44, 91-99.

Appendices

APPENDIX A
Letter for Contacting Parents

Dear, Parent or Guardian

My name is McKenzie Steele and I am a graduate student at Utah State University studying special education. For my master's thesis, I am conducting research on different teaching methods used in special education and parent preference.

I would like to ask you for your participation in a survey regarding your child receiving special education services.

To be included in this study you must meet the following criteria:

- Have a child between 2-5 years old
- Child is receiving some form of special education services

The survey would last only about 10-15 minutes and can be taken at a time convenient to your personal schedule. Participation in the survey is entirely voluntary and there are no compensation or known/anticipated risks in this study. All information provided will be kept in utmost confidentiality and would be used only for academic purposes only.

The link below will take you to a protected website where you can view additional information about the project and complete the informed consent process for participation before beginning the study.

https://usu.co1.qualtrics.com/jfe/form/SV_b4bFzgbqPEaYwRM

Thank you for taking the time to assist me in my education. The data collected will provide useful information for the field of behavioral analysis.

If you have any questions or concerns about this study or the recruitment process please feel free to contact:

McKenzie Steele
Mckenziejane88@hotmail.com

or

Dr. Ray Joslyn
Ray.joslyn@usu.edu

USU IRB Protocol #12052

Appendix B
Indirect Recruitment Letter

Hello, my name is McKenzie Steele and I am a graduate student at Utah State University studying special education. For my master's thesis, I am conducting research on different teaching methods used in special education and parent preference. I am reaching out to you today in the intent for you to send this out to assist in recruiting your parent contacts.

Participation for parents in the survey is entirely voluntary and there are no compensation or known/anticipated risks in this study. All information provided will be kept in utmost confidentiality and would be used only for academic purposes only.

Instructions:
Simply forward the letter of information to parents, which will provide a brief description of the study and will provide them a link to informed consent and the survey.
Do not alter or add anything to the letter of information.
Please do not add anything more that might unintentionally pressure parents to participate.

If you have any questions or concerns about this study or the recruitment process please feel free to contact:

McKenzie Steele
mckenziejane88@hotmail.com
or
Dr. Ray Joslyn
Ray.joslyn@usu.edu

USU IRB Protocol #12052

Appendix C
Survey Questions

"Service Providers" - Someone your child is going to for assistance like clinicians, therapists, teachers, speech language pathologists.

"NT" - Naturalistic Teaching

"DTT" - Discrete Trial Teaching

1. What is your highest level of education?
    - High school
    - Some college
    - Bachelors
    - Post Bachelors

2. Which term best describes your child's needs in special education?
    - Autism spectrum disorder
    - Intellectual disability
    - Developmental delay
    - Speech or language impairment
    - I don't know
    - Other (fill in the blank)
    - My child is not receiving any form of services or special education (SURVEY ENDS if selected)

3. How intensive would you say your child's needs are?
    - Mild
    - Moderate
    - Severe
    - I don't know

4. How often is your child receiving services?
    - Monthly
    - Once a week
    - 2-3 times a week
    - More than 2-3 times a week
    - Daily

5. Have you ever discussed with your child's provider what teaching strategies are being used?
    - Never
    - Rarely
    - Sometimes
    - Frequently

- Almost always

6. Are you satisfied with the strategies your child is using?
    - Highly unsatisfied
    - Unsatisfied
    - Neutral
    - Satisfied
    - Highly satisfied

7. Have service providers ever tried to tell you if one strategy of teaching is better than another for your child?
    - Never
    - Rarely
    - Sometimes
    - Frequently
    - Almost always

8. Do you think your child is making sufficient progress with their current teaching method?
    - Highly unsatisfied with progress
    - Unsatisfied with progress
    - Neutral
    - Satisfied with progress
    - Highly satisfied with progress

9. Are you familiar with Discrete Trial Teaching?
    - Not at all familiar
    - Slightly familiar
    - Somewhat familiar
    - Moderately familiar
    - Extremely familiar

10. Are you familiar with Naturalistic Teaching?
    - Not at all familiar
    - Slightly familiar
    - Somewhat familiar
    - Moderately familiar
    - Extremely familiar

11. What learning strategy would you prefer between Discrete Trial Teaching and Naturalistic Teaching for your learner?
    - I would prefer Discrete Trial Teaching
    - I have no preference
    - I would prefer Naturalistic Teaching

Group 1: Both descriptions in layman terms
Group 2: DTT description in technical terms, NT in layman terms

Group 3: DTT description in layman terms, NT in technical terms

12. After reading the descriptions, what learning strategy would you prefer between Discrete Trial Teaching and Naturalistic Teaching for your learner?
    - I would prefer Discrete Trial Teaching
    - I have no preference
    - I would prefer Naturalistic Teaching

13. How well did you understand the description of Naturalistic Teaching?
    - Not well at all
    - Not so well
    - Neutral
    - Very well
    - Extremely well

14. After reading descriptions of the two approaches, how likely would you be to select naturalistic teaching for your child?
    - Highly unlikely
    - Unlikely
    - Neutral
    - Likely
    - Highly likely

15. How well did you understand the description of Discrete Trial Teaching?
    - Not well at all
    - Not so well
    - Neutral
    - Very well
    - Extremely well

16. After reading descriptions of the two approaches, how likely would you be to select discrete trial teaching for your child?
    - Highly unlikely
    - Unlikely
    - Neutral
    - Likely
    - Highly likely

Qualtrics presents a video model of DTT and NT

17. After watching the videos, what learning strategy would you prefer between Discrete Trial Teaching and Naturalistic Teaching for your learner?
    - I would prefer Discrete Trial Teaching (if selected question 20 is displayed at the end)
    - I have no preference (if selected question 21 is displayed at the end)

- I would prefer Naturalistic Teaching (if selected question 20 is displayed at the end)

18. Do you still prefer the same strategy after watching the videos?
    - Yes
    - No
    - I don't know

19. Did you find the videos to be influential?
    - Not at all influential
    - Slightly influential
    - Somewhat influential
    - Very influential
    - Extremely influential

20. If you chose one of the methods as more preferred why would you choose that method for your learner?
    - Open question

21. Why did you not have a preference between the two methods?
    - Open question

Appendix D
Video Links

Discrete Trial Teaching Video Link:
https://www.youtube.com/watch?v=dDz2vRxHQvI

Naturalistic Teaching Video Link:
https://www.youtube.com/watch?v=n2oHa4Y29Mk