2016

Examining Paraprofessionals' Use of Video Self-Modeling in Teaching Students with Autism Spectrum Disorders

Derrainnya Raquel Fuentes
Walden University

Walden University

College of Social and Behavioral Sciences

This is to certify that the doctoral dissertation by

Derrainnya Fuentes

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Steven Little, Committee Chairperson, Psychology Faculty
Dr. Arcella Trimble, Committee Member, Psychology Faculty
Dr. Rodney Ford, University Reviewer, Psychology Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2016

Abstract

Examining Paraprofessionals' Use of Video Self-Modeling in Teaching Students with Autism Spectrum Disorders

by

Derrainnya Fuentes

MA, Capella University, 2009

BS, University of Maryland at College Park, 1997

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

School of Psychology

Walden University

April 2016

Abstract

The number of autism spectrum disorder (ASD) cases has surged in the U.S. educational system since the mid-2000s. At the same, paraprofessionals who work with these students are not being given adequate training, especially in how to implement applied behavior analytic services. To address paraprofessional's inadequate training, new behavioral treatments have surfaced, including Video Self-Modeling (VSM). VSM is an effective intervention tool derived heavily from Bandura's social learning theory. VSM uses edited video clips in which paraprofessionals view him or herself correctly performing target skills. This study used a single-subject, modified multiple baseline design to evaluate whether VSM could improve the accuracy of procedural integrity when implementing DTI. A sample of 5 novice paraprofessionals was used; all participants worked directly with ASD students with 6 months to 2 years experience, supported an ASD student in an inclusive setting for at least 75% of the school day, and had no previous training in DTI. Three of the 5 participants exhibited immediate and significant gains in DTI implementation, and those gains were maintained during follow-up. One participant demonstrated moderate gain during the follow-up. To determine effective significance, visual analysis, combined with level of performance, non-overlapping data points, and effect sizes were used. VSM treatment was rated as an acceptable treatment according to the social validity scale and the Intervention Rating Profile (IRP-15). This study contributes to positive social change by offering a viable treatment approach that can be used to train paraprofessionals who instruct students with ASD.

Examining Paraprofessionals' Use of Video Self-Modeling in Teaching Students with Autism Spectrum Disorders

by

Derrainnnya R. Fuentes

MA, Capella University, 2009

BS, University of Maryland College Park, 1997

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

School Psychology

Walden University

April 2016

Dedication

I dedicate my dissertation project to my loving and wonderful husband, Ricardo, and my two beautiful daughters, Taina and Thalia, who stood by me these past 7 years with words of encouragement and a push for tenacity in my ears. I appreciate all they have done and being there for me throughout the entire dissertation journey. Special thanks to my committee chairperson, Dr. Little, for his inspiration, encouragement, countless hours of reflecting, reading, patience, willingness and hope throughout my dissertation journey. In addition I am indebted to have had an extremely beneficial co-advisory committee, Dr. Trimble and Dr. Ford, who have given their generous time and expertise.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

Background

Autism spectrum disorder (ASD) is one of the most complex disabilities. It is characterized by language, social skills, and behavioral deficits, which require well-trained and knowledgeable professionals to aid in intervention (Victor, Little, & Akin-Little, 2010). Over the past 5 years, researchers have noted a precipitous rise in the prevalence of this disorder (Centers for Disease Control and Prevention [CDC], 2012). As a result, the number of students with ASD enrolled in special education programs has increased significantly (Newschaffeer & Gurney, 2005). With the increasing rates of students diagnosed with ASD, inclusive programing rates, and a shortage of special education teachers (CITE), educational systems have noticed an increased need for well-trained paraprofessionals (Catania, Almeida, Lui-Constant, & Digennaro Reed, 2009). Add concluding sentence.

According to Suter and Giangreco (2009), paraprofessionals help to facilitate the inclusion of students with ASD in the general classroom. Typically, paraprofessionals rather than special education teachers implement the intensive behavioral interventions common for ASD students. Consequently, paraprofessionals are an integral part of the education system and the lives of ASD students (Suter & Giangreco, 2009). A well-trained paraprofessional increases the chances that intensive interventions will be implemented at a higher level of procedural integrity, which increases educational success for students with ASD (Catania & Almedia, 2009). However, paraprofessionals are often not well trained to work with students with the complex and significant

impairments of ASD. They also are often provided with limited resources. Perhaps, it is not uncommon for paraprofessionals to lack the necessary training needed to be effective in teaching students who have ASD.

Currently, applied behavior analysis is the most commonly used technique by professionals working within inclusive schools for students with ASD (Delano, 2007). Paraprofessionals play a significant role in the application of this technique. One of the most challenging hurdles for the educational systems is ensuring that paraprofessionals have the necessary performance skills to help students with ASD succeed within their daily life activities (Suter & Giangreco, 2009). Paraprofessionals often provide direct applied behavior analytic services to students with autism; however, majority paraprofessionals receive minimal or no training. Researchers have also noted a crucial need for identifying effective educational intervention for students with ASD (Delano, 2007).

Recently, researchers have explored video self-modeling (VSM) as a useful educational intervention for training paraprofessionals to confront the academic and behavior problems of ASD students (Bellini & McConnell, 2010). According to Morgan and Salzberg (2009), VSM is well established and has been used in a wide range of contexts, across many ages, with multiple stimulus and response exemplars, and standardization training conducted in school-based settings (as cited in Catania et al., 2009). Subsequently, experts have declared VSM to be beneficial in promoting high treatment integrity in the implementation of instructional techniques and conducting functional analyses (Catania, Almeida, Liu-Constant, & DiGennaro-Reed, 2009; Moore & Fisher,

2007). Catania et al. (2009) found that VSM procedures may be useful for promoting behavior change among students with ASD. Green, Rollyson, Passante, and Reed (2009) contend that VSM can be a promising tool for training paraprofessionals working directly with ASD students. According to some researchers (see Thomson, Martin, Arnal, Fazzo, & Yu 2009), paraprofessionals require training in VSM when working directly with ASD students.

Problem Statement

The purpose of this study is to evaluate the effectiveness of VSM on the accuracy of novice paraprofessionals conducting Discrete Trial Instruction (DTI). The effectiveness of VSM as a training method was difficult to document due to major gaps presented in recent literature (Green, Rollyson, Passante, & Reed 2009). First, minimal research has been conducted on providing novice paraprofessionals with VSM and DTI to improve students' academic proficiency and behaviors. Second, few researchers have validated VSM as an evidence-based practice for training novice paraprofessionals. Third, the majority of research has focused on one specific area of social validity, evaluating the acceptability of an intervention within the classroom with a student or paraprofessional. It is crucial for social validity assessment to be continuous on teaching novice paraprofessionals how to conduct VSM. The dependent variable in this experiment will be paraprofessionals' accuracy in implementing DTI after receiving training. The independent variable will be VSM performance feedback.

Few Studies of VSM with DTI as a Training Tool

Effective programs using VSM alongside DTI as a training tool for paraprofessionals who support ASD students are limited. Bingham, Spooner, Bowder (2007) implied that paraprofessionsl who were given training packets which included self-evaluation are better able to prompt ASD students to use augmentive communication devices to communicate. Mazunick-Charles and Stefanou (2010) found that social skill training by paraprofessionals within a general classroom has contributed to gains in social skills of ASD students. The authors found evidence that 1 or 2 hour training was sufficient for paraprofessionals to achieve immediate and dramatic change in the behavior of ASD students. Therefore, I believe that further research in expanding training for paraprofessionals may result in significant improvement in practice.

Validation of VSM as an Evidence Based Treatment

As a relatively new emerging technical strategy, VSM has been found to be effective in treating ASD (Buggey, 2007). For students with ASD, VSM for the most part is a logical extension of previous methodologies that uses a medium of instructions for which immerse are within their classroom setting. VSM is a method that does not instantly cause improvement (Buggey, 2007). Paraprofessionals who use this technique are better able to target behaviors that are within the student's capabilities. Buggey (2007) found VSM to be effective because of the individual's role in video sequence, which builds on his or her confidence and is highly motivating.

In contrast, Bellini and Akullian (2007) conducted a meta-analysis of 23 studies that compared VSM and video monitoring (VM) techniques used by paraprofessionals

with ASD children. The authors found that VSM was not sufficient to be considered an evidence-based practice. Bellini and Akullian (2007) indicated that further studies were needed to examine the efficacy and social validity of this procedure. Further studies should also examine factors that contribute to the most beneficial outcomes for children with ASD.

Social Validity

The third issue deals with social validity of behavior analytic treatments. Little research has been conducted on this topic. Wolf (1978) revealed his personal experience with the developing a definition of social validity. His efforts to meet an unforeseeable deadline marked the starting point for the *Journal of Applied Behavioral Anaylsis* (JABA). Consequently, Schwartz and Baer (1991) wrote that "[*JABA*] is for the publication of application of the analysis of behavior to the problems of social importance" (p. 189). Schwartz and Baer (1991) summarized that the main point of social validity is to evaluate the problems relevant to the target population to make sure that treatment programs have positive outcomes.

However, Wolf (1978) described major concerns about subjective measurement of values versus objectives, which is highly used within the applied behavioral field. Kazvin (1977) and Wolf (1978) proposed three ways in which society would need to establish social validity: (a) social significance of goals of treatment intervention, (b) the social appropriateness of the procedures, and (c) the social importance of the effects. In a review of 20 studies, Fazzio (2009) identified only seven studies where formal social validity assessment had been conducted. In comparison, Delano (2007) examined five

studies dealing with specific measures social validity that revealed positive results in social initiations. Despite the encouraging findings, only a few studies reviewed by Bellini, Akullian, and Hopf (2007) assessed the social validity and intervention procedure. In summary, there are limited studies that have looked at ways to examined efficacy and social validity in VSM interventions.

Bellini and Akullian (2007) identified positive gains of social validity when implemented with behavioral analytic treatment for students with ASD. They offer support for VSM intervention being viewed as a socially valid and a noninvasive approach to education and treatment of students with ASD. So far, there have been an encouraging number of methods to evaluate social validity, however, the majority of the studies only questioned consumers indirectly or directly, depending on the use of questionnaire information to evaluate social validity (Schwartz & Baer, 1991). If practitioners were to use social validity as standard procedure for evaluation, there would be no need to just adhere to the laws. Furthermore, reviews have suggested that social validity is a key piece to treatment selection, treatment effectiveness, and well being of consumers (Mackintosh, Goin-Kochel, & Myers, 2012).

Purpose of Study

This study will assess the effectiveness of VSM on the accuracy of DTI intervention by novice paraprofessionals working with children with autism. The second purpose of this study is to examine the impact of video self-modeling and direct performance feedback on procedural implementation.

Research Questions and Hypotheses

RQ1: What effect does video self-modeling training have on a novice paraprofessional's ability to implement advance discrete trial instruction skills to children diagnosed with autistic disorder?

$H_0$1: The video self-modeling training for novice paraprofessionals working with children diagnosed with autistic disorder will demonstrate no improvement in their ability to implement advance discrete trial instruction skills as measured via direct observation.

H_a1: The video self-monitoring training for novice paraprofessional's working with children diagnosed with autistic disorder will demonstrate an improvement of 75% or more in their ability to implement advance discrete trial instruction skills as measured via direct observation.

RQ2: What effect does video self-modeling training have on novice paraprofessional's ability to decrease the amount of incorrect novice paraprofessional responsiveness to children diagnosed with autistic disorder errors in a discrete trial instruction lesson for on task behavior?

$H_0$2: The novice paraprofessional will demonstrate no decrease in the amount of incorrect novice paraprofessional responsiveness to children diagnosed with autistic disorder errors in a discrete trial instruction lesson for on task behavior via direct observation.

H_a2: The novice paraprofessional will demonstrate a 75% decrease in the amount of incorrect novice paraprofessional responsiveness to children diagnosed with autistic

disorder errors in a discrete trial instruction lesson for on task behavior via direct observation.

RQ3: What effect does video self-modeling training have on the level of correct responses by children diagnosed with autistic disorder during the discrete trial instruction lesson?

$H_0$3: The children diagnosed with autistic disorder will demonstrate no effect on the level of correct responses over the baseline measure via direct observation and other single-subject design observation.

H_a3: The children diagnosed with autistic disorder will maintain a positive effect or level of 50 % over the baseline via direct observation and other single-subject design observation.

RQ4: Will the novice paraprofessionals rate the social validity test with a minimum score or higher assessing that video self-modeling intervention is reliable?

$H_0$4: The overall score of the novice paraprofessional's social validity test will not be a minimum score or higher implying that they find video self-modeling implementation not reliable.

H_a4: The overall score of the novice paraprofessional's social validity test will be minimum score of higher implying that they find video self-modeling implementation reliable.

Theoretical Framework

The theoretical framework for this study is Bandura's (1977, 1997) social learning theory. This theory's main focus deals with observational learning (modeling) and self-efficacy. Bandura's (1977) theoretical framework demonstrated self-modeling as a unifying contribution in behavioral procedure that used the individual own model. He described the effectiveness of the model as providing essential elements of self-efficacy. According to Bandura, the observers have ability to organize and perform the behavior in setting other than the setting it was originally observed required reaching certain goals (Bellini & Akullian, 2007).

However, Bandura discussed that learning does not always happened with reinforcement (Schaffer, 2009). For instance, an individual mimics behavior by modeling or observing others, which in turn has been found valuable in expanding his or her skills and knowledge. Through the famous bobo doll experiment, Bandura (1961) was able to illustrate how children observe their peers, family members, and people in different settings. Within society children are exposed to numerous amounts of models from immediate family members, external family members, teachers, and peers at school. Models have the ability to imitate either female or male behaviors, and normally the same sex will be imitated. Next, the individual within the child's environment need to reply accurately to behaviors that need punishment or reinforcement. A key thing to remember here is that a child is more likely to model the behavior that is more rewarding (McLeod, 2011). For instance, a paraprofessional sees a student comforting a baby doll and says to him or her "You're a good child," which in turn reinforces the child's behavior. In

looking at VSM for child with autism it offers a way for the child to come face to face with his or her own behavior. In particular, VSM has been found to be a beneficial function for improving self-efficacy for children with autism (Bandura, 2001). Overall, VSM offers a child successful gain in self-efficacy through an observer's lens.

Finally the child makes a conscious choice to imitate the paraprofessional's behavior known as vicarious reinforcement (McLeod, 2011). Throughout everyday life the child has various amounts of models with whom they may identify with teachers, paraprofessionals, peers, parents or family members, which in turn motivates for adopting the ideal behavior. Ideally the child imitates the behavior of the individual with whom he or she feels most comfortable.

Nature of Study

The nature of this study will be a single-subject, multiple-baseline design with a quantitative focus to assess participants' knowledge, skills, attitudes, and beliefs. A single-subject research design will be presenting across participants hypothesizing that the intervention package incorporating technology shall improve staff performance. A brief synopsis about this design will occur below, as well as later in chapter 3 there will be an overview about single-subject design and its application. Over the years the use of single-subject experiments have evolved considerably especially within the field of psychology and special education. By its very nature single-subject design allows for straightforward analysis of the relationship between an individual interventions and change in the values of outcomes (Shavelson & Towne, 2002). In part, by duplicating this methodology there is room for testing of the external validity of findings.

It is important to note that single-subject research designs are commonly used dating back as early as the 1960s within 45 professional journals (Cornell & Thompson, 1986). At first single-subject research were primarily seen as a behavioral principle within psychology and then later described as a fundamental element of applied analyses behavior (Sidman, 1960). With that said surprisingly, the use of single-subject designs has expanded for the past 40 years across an array of disciplines such as special and general education, social work, science and rehabilitative therapies. In fact, single-subject design had an extensive and worthwhile history, which had furnished information for special education at the level of the individual learner. This in turn has emerged researchers from special education to complete a systematic and precise analysis of individual's behaviors by using single-subject design.

Within this research project, I will analyze data collection only by the school psychologist trainer who recruited all participates, performed trial sessions, and conduct a social validity test. The special education director from Riverside School District is going to perform a single-subject multiple-baseline design across participants. For this study the sampling data in conjunction with Acceptability Rating Scale are to be gathered formally by special education director. A checklist that includes 10 DTI trial instructions will measure if the participant is able or not able to demonstrate skills with student actors at the initial baseline, during the intervention, and post follow-up phase, to ensure treatment.

DTI checklist has been extensively researched with good results in contributing to the continuous growing filed of early behavioral intervention (EIBI) for students with

autism bringing paraprofessionals up to speed. The 10 DTI checklist skills include (a) arrange environment, (b) direct student to session, (c) orient student, (d) secure student's attention, (e) present discriminative stimulus, (f) deliver level of prompting designated in learning, (g) reinforce student's accurate response, (h) as warranted correct student's inaccurate response, (i) between trial presentation a 3-5 second pause, and (j) data recorded after every completed trial (Leblanc, Ricciardi, & Luiselli, 2005).
Later, Chapter 3 will have a brief of set DTI verbal instructions explaining components needed to complete the target skill and checklist outlined.

Prior to this study no training on how to conduct DTI was received by any of the participants. To establish initial level of performance for each participant, baseline sessions are employing for DTI. Each baseline session will occur within the sampling timeframe of 15-20 minutes following by a short break. The participant will implement teaching sessions with assigned student actor, not given or shown the DTI skills checklist**.** During the video intervention it shall take the school psychologist trainer 8-10 minutes to implement the performance feedback intervention. In order for termination of training to be complete it is must require that participants demonstrate within two consecutive sessions DTI skills correctly. Following the termination of the performance feedback session the participants will conduct 2 and 4 weeks observation DTI session with their assigned student actor. A copy of the DTI skills checklist will be analyzing by the school psychologist and this author for the raw data.

For this research study the independent variable is the VSM performance feedback. The dependent variable in this experiment is examining paraprofessionals'

accuracy in implementing DTI after receiving training. After the final follow-up session the school psychologist trainer shall send out an email to participants to complete anonymous 15-item Likert-type instrument, Acceptability Rating Scale.

Definitions

Autistic spectrum disorder: A significant and complex neurodevelopment disorder, which is usually evident and diagnosed in early childhood that impacts one's reciprocal relationships. People with ASD have significant difficulties in practical verbal and nonverbal social communication and repetitive patterns of behavior interest and activities (American Psychiatric Association, 2013).

Video self-modeling: A relatively new cognitive technique used for individuals in self-modifying and training behaviors. In VSM, the ultimate goal is to strengthen and instruct wanted behaviors, lessening undesirable behaviors (Buggey, 2012). VSM intervention involves showing an individual a video of a model performing skill. The individual acts as his or her own model. Within VSM the behavior is videotaped, videotape is edited, and the finish product is displayed to model.

Discrete trial instruction: DTI is a practical instructional method used for implementing social and academic skills to students with ASD. In DTI it incorporates the principle of ABA by focusing on a systematic way to facilitate learning, prompting accurate responding, correcting response errors and delivering positive reinforcement (Lebalnc, Ricciardi, & Luiselli, 2005).

Single-subject, quantitative design: In single-subject research the experiment deals with one participant used both as control and treatment groups. A goal is to

determine the relationship between an independent variable and a dependent variable in a population. The practical use for single-subject design is N=1 trial, referred as a clinical trial where the participant serves as the control and patient (Franenkel, Wallen, & Hyun, 2011). By using a quantitative single design as the experiment it is established as the cause and effect. There is also a descriptive quantitative research design, which normally measures only associates between variables. Quantitative research study tries to recognize numbers and unchanged static data, focusing logic and the objective, detailed and convergent reasoning rather than divergent reasoning, and classify features.

Assumptions, Limitations, and Scope and Delimitations

The focus of this study is to determine the effectiveness of VSM on the accuracy for novice paraprofessionals conducting DTI for students with ASD. There are practical issues warranted discussion here; assumptions, limitations, scope and delimitations.

Assumptions

In this research project one assumption is that the novice paraprofessional did not learn some of the DTI skills prior to training by observing similar paraprofessional and student's interaction in the classroom. With the assumption that this intervention produces positive behavior change among novice paraprofessionals, the corresponding data collection will not be on the student facilitators' performance. A second assumption is that paraprofessional's instructions are to monitor their behavior by completing a self-evaluation. It is the assumption that paraprofessionals are to fill out the social validity accurately and ethically.

A final assumption is that special education director will provide necessary tools that are widely available and software easy to learn. A belief that paraprofessionals are technology savvy to record and edit video all sequences with their best effort. Although, VSM implementation will not always occur due to the paraprofessional's discomfort with the necessary technology. On the other hand VSM is extremely effective in terms of cost and use of time (Buggey, 2007).

Limitations

Even though this current study provides contributions to literature there are limitations worth noting. First, this study is investigated a small number of novice paraprofessionals implementing a few skills to children with autism. The VSM training will be utilize for novice paraprofessionals on motor and visual behaviors within the activity session. Given that further research is needed on incorporating other behaviors such as visual cues and prompting occurring within the training session has the capability to decrease the amount of time while in paraprofessional trainings. A second limitation worth noting is substituting the use of actors for children with autism as the learner during the probes. By using actors instead of children with autism it limits the findings to be generalized questioning if the actors performance during the probe would result just as successful as results when implementing DTI with a true child with autism. Another variable to take into consideration is future research examining the effectiveness of training staff to implement DTI with various children with developmental disabilities.

A final limitation is that only novice paraprofessionals will partake in this study. This study includes a group design, which is crucial to standardize the trials across the

paraprofessional groups. So that the only variable that could account for a difference in scores was the training that the paraprofessionals are to receive.

Scope and Delimitations

This study is specifically for novice paraprofessionals that have been working with autistic students for less that a year within Riverside school district. These novice paraprofessionals had no prior experience administering DTI to students with autism. In defining the scope of this study it incorporates novice paraprofessionals who need training in DTI to support students with autism. Additionally, the scope of this study will assess treatment, using VSM during 5 steps of DTI.

Significance

The paraprofessional support is a fundamental mechanism to function smoothly within an inclusive school practice for students with ASD (Devlin, 2005). With the increasing rates of diagnosed Autistic students, inclusive programing rates, and a shortage of special education teachers there is a need for well-trained paraprofessionals, which is on the rise (Catania et al. 2009). Consequently, paraprofessional have begun their position with minimal or no training which has been a compelling issue facing education agencies. Clearly, dealing with paraprofessionals' performances will have an impacted on the students' behaviors and academics (Giangreco, 2009).

First significance, the use of VSM in this capacity has various benefits of that include a demonstration of skills in relevant contexts, use of multiple stimulus and response exemplars, and standardization of presentation of training that permits consistency (Morgan & Salzberg, as cited in Catania et al., 2009). VSM has proven to be

evidence-based in promoting high integrity in implementing instructional techniques and conducting functional analyses (Catania, Almeida, Liu-Constant, & DiGennaro-Reed, 2009; Moore & Fisher, 2007) and might be beneficial for treatment of challenging behavior. Catania et al. (2009) founded that VSM procedures maybe practical significance for behavior change when used with students who are autism as well as paraprofessionals.

A second significance for this study is that VSM holds much potential as an evidence-based intervention for students with ASD validates its use in the school environment. As a promising practice VSM offers significance to time and cost saving benefit. As a beneficial treatment for students with ASD, VSM has also demonstrated approximately one-third the time in comparison to other video procedures (Corbett & Abdullah, 2005). A final significance, this study validates that several studies have noted when implementing VSM with behavioral techniques such as DTI, results indicated a rapid acquisition in generalization and maintenance of behavior. VSM has had to be more efficient in learning skills due to the internal reinforcement and its assistance to in neutralizing over selectivity (Corbett & Abdullah, 2005).

To contribute to Walden University's commitment toward social change this study points researchers in the direction of creating a viable treatment technology that can be use to train paraprofessionals to instruct students with ASD. Despite the fact that the necessary tools are widely available and user friendly it may not always be readily suitable for paraprofessionals due to difficulty with technology (Buggey, 2007).

Most schools are late adapters regardless of the technology. As technology progress during class instruction, it is plausible that some negative consequences could occur from using handheld technology for self-monitoring (Blood, Johnson, Ridenour, Simmons, and Crouch, 2011). Barriers like this have limited the application of VSM in the schools, which in turn is a critical piece for determining social validity treatment. Overall, numerous research supports as barriers decrease paraprofessionals are provided with the opportunity to promote, advocate, and implement VSM in educational setting (Bellini & McConnell, 2010; Buggey, 2007; McCoy& Hermensen, 2007; Catania, Almeida, Lui-Constant, Reed, 2009).

This author has an invitation to present VSM as an intervention to school psychologists, special education teachers, and paraprofessionals at the summer 2014 new employee training at Riverdale School district. The goal is to address VSM as a potential evidence-based intervention that requires minimal time commitment, easy implemented staff training and a powerful intervention that promotes maintenance, acquisition, and generalization of academic, social, and behavioral skills in students with ASD. With this in mind, the merger of technology like VSM with instructional design DTI has the ability to enhance special education within the classroom. Hope lies that novice paraprofessionals will be VSM competent and technology savvy prior to entering the classroom.

Summary

Taking a look back into Chapter 1 it begins with a brief introduction and context of this study. VSM treatment, in thought, utilization of VSM will occur to improve DTI

skills of novice paraprofessionals working directly with students who have ASD. The 5 participants within this study are novice paraprofessional's employees of the Riverside School District. Only the trainer school psychologist shall choose the participants and perform all the research design. The paraprofessionals are to anonymously partake in 15-item Likert-Type instruments Acceptability Rating Scale, which will be given by school psychologist trainer to assess the treatment validity of VSM.

In conjunction with the main purpose to assess the effectiveness of VSM on the accuracy of DTI intervention, chapter 1 specifies one other research purpose for this study. Other aspect is examining the impact of VSM and direct performance feedback on procedural implementation.

Looking forward Chapter 2 pivots into a brief history of autism, explores the evolution and changes with the diagnosis for the past 70 years, prevalence, etiology, and concluding with newer treatment modalities. In addition there are also attention on the pros and cons of using VSM along with DTI within a classroom setting. In chapter 3 there will be an explanation of the methodology in detail for this research project. Chapter 4 of this research project provides details of the actual data analysis. To conclude this research project chapter 5 discusses recommendations, implications and further suggestion.

Chapter 2: Literature Review

Introduction

The purpose of this study is two-fold. First, I wish to assess the effectiveness of video self-modeling on the accuracy of DTI intervention by novice paraprofessionals working with children with autism. The other purpose of this study is to examine the impact of VSM and direct performance feedback on procedural implementation of DTI. In this literature review, I examine the history and etiology of autism, the roles and responsibilities of paraprofessionals, and the different training methods used by paraprofessionals, such as providing staff with instruction. Researchers have found that these training methods have been inadequate within the school system for achieving suitable levels of procedural integrity. This literature review will also explore recent studies addressing DTI, a behavioral implementation within the special education classroom, and video self-monitoring as evidence-based training tool for paraprofessionals. Chapter 2 concludes with a brief discussion of studies that have used VSM as a model for paraprofessionals in applying DTI.

Literature Search Strategies

I used the databases, ESBCO, Google Scholar, PsycArticles, PsycINFO, Questsia Online Library, ERIC, and Academic Search Premier, to review the literature. The following key terms were used: *video self-modeling*, *video modeling*, *Autism*, and *discrete trial instruction*. The review of literature from the years 1973-2012 included studied published in English.

History of Autism

Autism is a developmental disorder first identified by Kanner in 1943 based on his observations of 11 patients. Reflecting on his initial clinical observations, Kanner (1943) noticed that these patients were socially aloof, with the ability to use language but not to communicate, and exhibiting insistence or sameness or resistance to change. Kanner intimated that parental behaviors caused children's disorders. However, Kanner wondered if the child lived with other relatives who resented as healthy, would this change parents to attach more to their child. Still, the researcher supported genetics as a possible risk factor for autism (Blancher, 2011). Add concluding sentence.

Similar to Kanner (1943), Bettelheim and Whittman, (2004) suggested that children be placed outside their homes to call attention to emotionally cold mothers as the cause of autism disorder. In the mid-1960s, Bettelheim coined the term "refrigerator moms" in describing a child's environment correlated to their diagnosis (Whittman, 2004). Explain. In drawing from attachment theory, Bettelheim theorized that autism resulted from a mother's rejection of, cold behavior toward, and limited bonding time with her child. This theory was popular during the 1960s but has gradually vanished in the late 20th century.

Today, it is not clear whether faulty parenting is a cause of autism. Some observers still attribute autism to faulty parenting (Buxhaum, 2009). However, contemporary researchers find this explanation as harmful and misguided (Buxbaum, 2009). At this time, research suggests that autism may be caused by any one of several factors: the environment, certain type of infections, genetics, disruption of very early

brain development, and problems prior to, during, or after birth (Watts, 2008). Watts (2008) noted that the etiology of autism stems from multifactorial descent making it more complex in dealing with both genetic predisposition and environmental factors.

Add topic sentence. Bleuler (1961) viewed autism was a form of early schizophrenia. But by the late 1970s, that idea was rejected (Whittman, 2004). These early accounts of autism tended to be confusing and a bit unclear, but research by clinicians has provided substantial evidence for better awareness of autism (Whittman, 2004). In fact, the definition of autism has been revamped tremendously by researchers both in definition and concept, which has led to an altered understanding of the autism diagnosis.

For decades, researchers were unable to explain the cause of autism (Currenti, 2009). As a result, the cause of autism remains uncertain and seemingly confusing, but research indicates key risk factors that may play a role including both environmental and genetic factors. Due to the difficulty of the disorder and variations of symptoms and severity, there has been no single trigger that causes autism (Currenti, 2009). Most researchers agree that autism is caused by abnormalities found in several regions of the brain (CITE).

However, children with autism brain scans depict no distinction in the structure and shape than neuro-typical child (Currenti, 2009). There is emerging evidence from twin and family studies that suggest that individuals have a genetic predisposition to autism. Results from identical twin studies revealed that if one twin has ASD it is likely that the other twin will have ASD by 90 percent (Currenti, 2009). Evidence also suggests

that in families with one child with ASD, there is a one in 20 chance that the second child will also have the disorder (Currenti, 2009).

Add topic sentence. To date, no one universal theory has provided the best explanation for the cause of ASD (Buggey, 2005). Buggey noted that symptoms underlying ASD are commonly related to many genetic, environmental, and neuropsychological interactions. In addition, environmental factors such as drugs, environmental chemicals, medical procedure, dietary factors, and medical procedures have played a key role in a considerable amount of children being diagnosed with autism (Dietert & Dewitt, 2011). Interestingly, there seems to be much more research now that shows genetic and neurological abnormalities.in children with ASD. Current research is seeking to find out if a combination of genetic and environmental agents will provide an explanation in the etiology of autism (Currenti, 2009). Add concluding sentence.

Etiology of Autism Spectrum Disorders

Autism is on the rise. Nationally. According to the CDC (2013), 1 in 50 children within the United States are estimated to be on the autism spectrum. Even though many researchers point to genetics and environmental factors as potential causes of autism (CDC, 2103), there is currently no concrete understanding as to the etiology of autism. No one etiology has been singled out as a cause of autism as there is probably numerous possible causes because ASD is multifactorial.

It is likely those risk factors within the environment account for the increased prevalence in autism (Weintraub, 2011). Risk factors surrounding genetics also appear to play a key role. In particular, works by Kanner (1943) suggested, families have

emphasized the importance that genetics play in autism diagnosis. Russell, Kelly, and Golding (2009) also proposed that autism has a genetic predisposition but is expressed by an environmental trigger. Nonetheless, evidence suggests that both genetic and environmental factors are distinctly playing a role in the etiology of autism.

At this point, it appears that there is no clinical evidence that specific toxins in the environment, dietary differences, immunologic differences, or immunization practices cause autism. Although, the etiology may vary from one child to the other which may exhibit a combination of environmental, genetic, and neuropathologic agents explaining the etiology of autism. More specially, the cause and contributing factors of autism remains puzzling with some improvement, but there still needs to be awareness in identifying autism by confining the possible causes.

Diagnostic Criteria

The Diagnostic and Statistical Manual of Mental Disorders (DSM) is the most frequently used system for the diagnosis of mental disorders, including autism. During the 1980s the DSM-III was primarily designed for psychiatrists and psychologists to aid in their understanding of the mentally ill within their community (Crandell, 2009). The DSM-III was revised from a conceptual concept to operationalize changing the dynamics to diagnosing the individual on the presenting problem to meet diagnostic criteria (Crandell). Crandell noticed the importance of the paradigm shift from the DSM-III to the DSM-IV-TR and then to the DSM-5. For instance, the DSM-5 consists of the DSM-IV appendix proposed for further research. The diagnostic criteria for Autism Spectrum Disorder in the DSM-5 (American Psychiatric Association, 2013 pp. 50-59) are

A. Persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following, currently or by history:

1. Deficits in social-emotion reciprocity, ranging, for example, from abnormal social approach and failure of normal back and forth conversation; to reduced sharing interests, emotions, or affect; to failure to initiate or respond to social interactions.
2. Deficits in nonverbal communicative behaviors used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication.
3. Deficits in developing, maintaining, and understanding relationships, ranging for example, from difficulties adjusting behavior to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers.

B. Restricted, repetitive patterns of behavior, interest, or activities, as manifested by at least two of the following, currently or by history.

1. Stereotyped or repetitive motor movements, use of objects, or speech (e.g, stereotypies, lining up toys or flipping objects, echolalia, idiosyncratic phrases).
2. Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior (e.g. extreme distress at small changes,

difficulties with transitions, rigid thinking patterns, greeting rituals, need to take same route or eat same food every day).

3. Highly restricted, fixated interests that are abnormal in intensity or focus (e.g., strong attachment to or preoccupation with unusual objects, excessively circumscribed or perseverative interests).
4. Hyper- or hypo-reactivity to sensory input or unusual interest in sensory aspects of environment (e.g., apparent indifference to pain, temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement).

C. Symptoms must be present in early development period (but may not become fully manifest until social demands exceed capacities, or may mask by learned strategies in life).

D. Symptoms cause clinically significant impairment in social, occupational, other important areas of current functioning.

E. These disturbances are not better explained by intellectual disability (intellectual development disorder) or global developmental delay. Intellectual disability and autism spectrum disorder frequently co-occur; to make comorbid diagnosis of autism spectrum disorder and intellectual disability; social communication should be below that expected for general development level.

Since 1994 the definition of autism has been revised, reinterpreted, and revisited (Campbell, 2012). According to the Center for Disease Control and Prevention (CDC, 2008), autism spectrum disorder (ASD) is a triad of neurodevelopmental disorders with

an onset in the first 3 years of life. Typically ASD encompasses disrupted social interactions and communication as well as restricted, repetitive, and stereotyped patterns of behavior. The American Psychiatric Association (APA) also specifies a clinical diagnostic definition for autism, which is more specific than that proposed by the CDC (Crandell, 2010). As this manuscript is being prepared, we are in the transition period from the DSM-IV-TR to the DSM-5. In the DSM-IV-TR manual autism falls in the diagnostic criteria of Pervasive Developmental Disorder (PDD), the category for disorders for individuals who present impairments in the domains of communication, socialization, and restricted or repetitive patterns of behavior (DSM-IV-TR; American Psychiatric Association, 2000). Basically, the primary change in the DSM-5 is that the ASD is a new name, which reflects a scientific consensus. The four previously separate disorders are placed in a one condition with various severity levels of symptoms in two core areas.

The DSM-IV-TR diagnostic criteria for Autistic disorder (DSM-IV-TR, 2000) state that an individual must demonstrate a minimum of 6 of the 12 symptoms, two stemming from social domain, one from communication, and restricted behavior categories. In order for an individual to meet DSM-IV-TR criteria fully there must be one presenting symptom prior to the age of 36 months. ın comparison, the DSM-5 definition includes two domains of behavior: social communication and restricted/repetitive behavior. In the DSM-IV-TR there were multiple autism categories (i.e., Autistic Disorder, Asperger's Disorder, and Childhood Disintegrative Disorder) but in the DSM-5 there is only one classification of Autism Spectrum Disorder (ASD) with three levels of severity.

Furthermore, there remains a debate over the DSM definition and classification of autism. However, the questions remain as to whether the DSM-IV-TR definition is too vague and is the classification too rigid?

Moran (2012) suggested that the definition of autism in the DSM-5 is more confined. For example, in the DSM-IV an individual was diagnosed under PDD in the area of autism, Asperger Disorder, or PDD Not Otherwise Specified (PDD-NOS). All of these diagnoses fall under ASD according to the DSM-5, which was officially released in May 2013. According to Moran (2012) the criteria in the DSM-5 has been revamped with an exclusion of Asperger Disorder and PDD-NOS limiting to one diagnosis of ASD. The DSM-5 supposedly looks at autism from a scientific manner rather than the advocacy manner some say characterized the DSM-IV-TR.

The major issue with the DSM-IV-TR is that everything was considered a diagnosis from behavioral issues to awkward social skills, which caused substantial confusion with insurance companies (Campbell, 2012). Typically coverage by insurance companies for services had been known to vary case by case, so within the criteria there is wide-range for students who have been diagnosed with autism that experience dissimilar behaviors and symptoms making treatment individualized. Campbell (2012) suggested that autism has been over extrapolated for children that are experiencing behavioral or social issues. Basically, there seems to be a wave of children being over diagnosed within elementary school virtually placing a stigma on children with behavioral or social issues as on the spectrum.

Hence, the number of elementary school-age children diagnosed with autism has increased at an alarming rate since the DSM-IV was introduced in 1994 (Campbell, 2012). This in turn has had adversely affect individuals who are appropriately diagnosed with autism by reducing resources available to them. However, Campbell and researchers (2012) from Yale School of Medicine indicated that an ASD diagnosis might become more difficult due to the change in definition in the DSM-5. Despite this, changes in diagnostic criteria were not done to with the intent of lessening the amount of diagnosed cases (Campbell, 2012). Instead it may have a positive benefit by increasing the likelihood that individuals who do receive a diagnosis may be more likely to receive services and funding.

The DSM-5 has consolidated the DSM-IV-TR diagnoses of Autistic Disorder, PDD-NOS, Asperger's Disorder, and Childhood Disintegrative Disorder into one diagnostic category: Autistic Spectrum Disorder (American Psychiatric Association, 2013). The DSM-5 excludes Rett's disorder due to its limited symptoms occurring only in early childhood. The rationale for one category is to have a single classification, which provides a more complete understanding of the clinical and pathology presentation. Yet, the controversy remains due to clinicians not agreeing with the diagnostic group changes of autism and PDD-NOS excluding Asperger's under the newly proposed DSM-5 diagnostic criteria (Crandell).

The DSM-5 focuses on the methodological limitations of autism offering many changes in criteria and categories used in clinical diagnosis. Moreover the DSM-III, DSM-IV, and DSM-5 have been reviewed and changed leaving an opportunity for open

forums discussing the nature of client's problems and how to conceptualize them accurately. Thus far the DSM-5 presents as an appropriate framework for the next evolutionary movement in diagnosing autism based on the past 20 years of clinical experience and research literature in autism (Hyman, 2013). Further, for the purpose of this research the diagnosis of autism will be discussed.

Prevalence of Autism

Interestingly in the face of uncertainty, the true number of children with autism is reportedly unknown. The U.S. Center for Disease and Control and Prevention (CDC, 2013) released a report that the incidence of autism has been increasing over the past decade. But it is unknown if it is due to an increased ability to diagnose the illness or due to rapid growth rates of the illness. For instance, within the schools there has been an increase in the number of students diagnosed with autism. Reports from the CDC indicated that across the nation the rate of autism is nearly 1 in every 50 children between the ages 6 to 17 (CDC). Previous CDC reports indicated that the estimated prevalence of autism were 1 in 88 children which represents a 78 percent increase during a 2008 surveillance report.

According to the CDC, a similar report from a parent telephone survey between 2011-2012 also revealed increases in diagnosis of autism. A previous survey in 2007 completed by the CDC, displayed answers to questions about ASD diagnosis, the age and year the child was diagnosed and severity rating completed a similar study. Results were from 63,976 children in comparison to a small increase of 65, 556 children between

2011-2012. However, the parent's report of autism prevalence vaguely grew in school age children 6-17 years old.

Stahmer (2005) reported that autistic student's enrollment in school has increased by 800% since 1992. The most recent converging evidence suggests a dramatic portion of the increase in autism with school system is due to attributed changes in diagnostic practices, increased awareness of autism overtime, and social factors like parental age (Liu, Zerubavel, & Bearman, 2010). Furthermore there still continues to be a debate whether the prevalence of autism among school age children has significantly increased or whether there is a growth in awareness and recognition of the diagnosis (CDC). Clearly over the past 25 years a considerable number of children have been diagnosed with autism in comparison to previous years.

Treatment of Autism

Over the past decade, autism has been more of prevailing issue within school communities, which has encouraged interventions and programs to assist in the growth of autistic children's everyday activities (Case-Smith & Arbesman, 2008). Parents, educators, and legislators have demanded educational reform and efforts for reorganization of treatment within school system for children with autism. This restructuring consisted of special education teachers and paraprofessionals willing to actively participate in the implementation of treatment. However, within the school system there have been numerous treatments proposed for ASD such as communication training, social skill support, specialized/supportive educational programming, and behavioral intervention. For year's special education teachers and paraprofessionals

utilized behavioral approaches as treatment methods for dealing with deficits and delays commonly found in children diagnosed with autism (Madison, 2005). Lofthouse, Hendren, Arnold, and Butter (2012) acknowledged that the leading support for individual treatment has been Applied Behavior Analysis (ABA), which has been recognized to enhance academic skills, language, and play while reducing behavioral issues common in autism. In support, since the early 1960s behavior analysts like Lovaas have been documenting the effectiveness of behavioral analytic intervention for children diagnosed with autism (Lovaas, 1987).

Between 1987 and 1993 two studies by Lovaas and his colleagues examined children with autism under the age of 4, documenting their growth in areas of language development, school integration skills, and social interaction after receiving ABA. Results indicated after 2-3 years of treatment 47% of the experimental group, 9 out 19 children, were found average or below average in normal educational and intellectual functioning whereas only 2 % in the control group of young autistic children received normal educational and intellectual functioning (Lovaas, 1987). Within the baseline, there was an unstable and small decrease in enormous amount of inappropriate behaviors and the appropriate behavior depicted a slight increase in unstable and small behaviors like language and play. Almost 8 years later Lovaas published a follow-up study on the same nine children from the experimental group at the age of 12, finding that eight of the children were able to maintain the gains made in treatment. A third and fourth follow-up were also completed on the same experimental group as young adults in the late 90's revealing that their growth continued to be normal with no additional treatment

intervention (Smith, Wynn, Lovaas, 1997). Lovaas's studies supports considerable evidence that autistic children have the capabilities to improve and function normally resulting in sustainable growth with the implementation of intensive ABA.

In contrast Buggey (2007) found that students that have ASD tend to present with limited ability to process daily skills in their environment so they demand more on detailed way of learning. For instance ASD students' visual sense is their strength, which makes learning simple and straightforward. Buggey (2012) suggested VSM as a treatment as it has been established as effective in enhancing social and language skills on ASD students. As a form of observational learning, VSM occurs when an individual monitors positive behaviors and then executes the appropriate behavior. As such, this visual technique offers students a solid way of learning skills and academics in comparison to other implemented video technology.

In comparison to VSM there is video self-monitoring also known as live monitoring. Video self-monitoring is a specific application where novice paraprofessional's teaching session video and later is evaluated by a supervisor (Alexander, Williams, Nelson, 2012). Although, both of these models have been resulted in maintaining skills and general results (Bellini & Akullian, 2007). But VSM presents numerous amounts of evidence-based studies that signify VSM as a more effective intervention for teaching positive skills to ASD students (Bellini & Akullian). Further, VSM gives an individual the opportunity to improve on behaviors by providing feedback to the paraprofessional on how to finish the skill as the paraprofessional watches his or her behavior.

Unlike VSM, video self-monitoring tends to have fewer evidenced based studies. Video self-monitoring is different from that of VSM due to additional monitoring section. Within this section of video self-monitoring the paraprofessional monitors his or her behavior by scoring the desired behavior (Knight, 2010). For instance the monitoring consists of how well the paraprofessional is complaining with the task (Knight). There is also a feedback component utilized within video self-monitoring. During the feedback component the paraprofessional only monitors his or her owns on task behavior. Basically the paraprofessional watches a video of his or her behavior while scoring the desired behavior.

Surprisingly, video self- monitoring has been utilized to evaluate procedural integrity of paraprofessionals. Pelletier (2010) analyzed procedural integrity and its success rate. This study focused on the implementation of behavioral plan by three paraprofessionals within a school setting. Each paraprofessional demonstrated low integrity. The paraprofessional learned how to implement the behavioral plan, than watch a video of their skills followed by obtaining feedback on their monitoring skills. Paraprofessionals are than in the self-monitoring phase, feedback was provided when the experimenter noted a score of wrong integrity. All three paraprofessionals in this study were successful in completing self-monitoring.

Although video self-monitoring has been shown to be effective, VSM has specifically been found to be an effective behavioral intervention method (Knight). VSM would be efficient for time and resources versus video self-monitoring due to no individual teaching component. As paraprofessionals are considering VSM planning

options for children with ASD, research questions can VSM be effective as an alone intervention. Typically, school systems often apply VSM to train paraprofessional to conduct DTI with children with ASD. Catania et al (2009) utilized VSM with DTI component to teach paraprofessionals to use DTI with their children with ASD. While studies have demonstrated gains for using VSM, the VSM techniques required extensive time and lacked teaching complete of skills.

In addition a vast amount of research demonstrates great promises for the use of VSM as evidence-based modality for novice paraprofessionals instructing children with ASD. Finally, there has been an emerging body of literature in which researchers validate the notions that paraprofessional skills learned via VSM traditionally within the educational setting and conditions and that the beneficial gains obtained throughout VSM intervention are preserved for several months concluding the intervention (Alexander, Williams, & Nelson, 2012).

Role and Responsibilities of Paraprofessionals

Dating back to the 1950's within the department of education system paraprofessionals were readily used due to the lack of teachers (Giagreco, 2009). Paraprofessionals provide most often the educational instruction and support to students with ASD. For nearly two decades paraprofessionals have aided teachers with the physical care and management of students with autism. This is due to the passage of Education for All Handicapped paraprofessionals. Over the past 10 years the role of paraprofessionals has changed significantly, expanding from being teacher assistant, clerical aide, tutor, support instructor, to behavioral specialist (Giagreco). For instance

French and Cabell as cited in Bingham, Spooner, and Browder (2007) depicted paraprofessionals as individuals working within special education classrooms as direct care servers, behavioral management, implementation, instruction, intervention, programs for treatment implementation, collect and organize data, facilitate integration into the least restrict environment and teach functional skills in natural setting to students with ASD.

According to Giagreco (2009) the paraprofessionals have assumed the primary responsibilities within the classroom by providing a valuable service in the complex process of efficiently educating students with ASD. For years, those same paraprofessional who teach students with ASD have been lacking skills and knowledge needed to deliver applied behavior analysis (ABA) properly, which has dramatically changed the responsibilities of paraprofessionals into benefiting special education services for student with ASD (Giagreco). As key pieces to the puzzle of a student's academic success paraprofessionals continue to fall short of the opportunities for proper training (Malmgrem, Causton-Theoharis, & Trezek, 2005). Bingham, Sooner, and Browder (2007), conferred that there has been a diverse amount of paraprofessionals that feel unprepared to successfully meet their student's needs. Giangreco (2009) suggested that literature finds many paraprofessionals continue to be untrained or insufficiently train to perform their basic daily duties. In some instance, paraprofessionals continued to take on a wide range of roles, helping with individual educational and behavioral goals in which they are untrained. Furthermore, Malmgrem et al. (2005) addressed the high need for efficient and effective training for paraprofessionals to assist within the classroom so

that a student's behavior is not negatively hindered. Moreover, there has been a vast amount of literature that supports the fact that paraprofessionals are deficient skills even though they are directly working with the most complex functioning children (Giangreco).

Similar to Malmgrem, Giagreco discussed "falling through the cracks" (Giangreco, 2009, p 110) there is a call for students within a special education classroom to be furnishes with the highest academic and social skills with the guidance of paraprofessionals. The intention of the school without a doubt is to maintain support for paraprofessionals keeping in mind the best interest of the student academically and socially (Giagreco). Often, paraprofessionals are faced with sharing of duties with an individualized education plan team (IEP) this in turn may cause some confusion with the implementation resulting in hindering the student's educational success. Even though, there is an IEP team in many cases a paraprofessional support model are utilized for ASD to benefit from inclusive school environment.

It is evident that there is a need for paraprofessionals to be trained due to the growth in the number of students with ASD in educational system. Even though, training paraprofessionals in the principles and procedures of ABA aligned within Early Intensive Behavioral Intervention (EIBI) have been found to be rewarding and beneficial in the success of the student. As the previous go to treatment EIBI has demonstrated a decline in behavior problems, an increase in the number of students functioning normally and language skills, and students acquiring average intelligence (Wightman et al., 2012). Yet paraprofessionals who assist ASD students within educational system still lack sufficient

training in how to implement EIBI programs such as Discrete Trial Instruction (DTI). DTI is frequently used for conducting training in rapid successions when a student is in a training session (Wightman et al.)

Luiselli, Russo, Christian, and Wilczynki (2008) address the need for effective programs such as DTI to be delivered by paraprofessionals that are well-rounded because DTI is an intrinsic part of treatment for ASD students. Research indicated that there is an apparent need for paraprofessionals to take part in DTI training, even though there is minimal research supporting the effective and cost-efficient strategies on instructing paraprofessionals to implement DTI sessions (Wightman, Boris, Thomson, Martin, & Fazzio, 2012). Several investigations have indicated immediate changes in paraprofessional's behavior following DTI training (Bingham, Spooner, & Browder, 2007).

Perhaps, staff training using the DTI manual that includes self-evaluation might increase the chances of success for students with autism. Bingham et al., (2007) study strengthens the findings in the strategy of using self-evaluation to improve overall performance of paraprofessionals within the classroom. It is important to note these researchers also suggest when paraprofessional monitors their own behavior it has be found to contributed to increase in student use of DTI and drastically decreasing behavioral problems. In conclusion the next section addresses using DTI as a training component and intensive implementation for students of ASD.

Discrete Trial Instruction

Since the early 1960s the United States Surgeon General has been supporting ABA as the treatment model of choice for students with autism. Prior research on ABA demonstrated enhancing the chances of students with ASD to improve similar to their peers in a general educational setting (Eikeseth, Smith, Jahr, & Eldevik, 2007). As a common method of ABA, DTI is an early intensive instructional program implemented with autistic students. Over the years DTI has established a history of effectiveness as the primary method used in early intensive behavioral interventions for ASD students (Eikeseth, Smith, Jahr, & Eldevik, 2007). This type of intervention individualized and simplifies teaching for children with developmental disabilities. DTI is an evidenced based instruction, which was driven from learning theory, and especially valuable for teaching children with ASD.

Due to the increase in the number of diagnoses of ASD within educational system (Eggleton & Keon, 2007) there is a high need for early behavioral interventions that are affordable, evidence based research, quick and easy way to administer DTI training procedures. However, DTI must be implemented at a higher integrity to produce beneficial and successful learning. In turn it is essential to development of effective and efficient training methods that teaches all paraprofessionals to administer DTI in a productive manner (Liu-Constant & DiGennaro, Reed, 2009). Leblanc, Ricciardi, and Luiselli (2005) evaluated DTI by using performance feedback as a training technique when implementing DTI, efficiently measuring staff's responsibility in completing task within the classroom, and proper documentation of goals. In this study there were three

teacher assistants and three students diagnosed with autism participants used from a private school. The three teacher assistants were employed at the school for less than 6 months. A treatment package was given to each participant, which contained a verbal review of a skill checklist and performance feedback given. Results indicated immediate skill acquisition and maintenance of skills during the follow-up evaluation. In addition, all three-teacher assistants demonstrated sufficient growth in their skills after utilizing performance feedback while implementing DTI to students with autism.

Likewise, a study by Salem and colleagues (2009) examined the use of alternative training model for carrying out DTI, expanding on the previous research in numerous ways by using a self-instruction manual. In this study researchers first analyzed the modified self-instructional manual. Secondly, the instructional manual included detailed observations of the instructional video. Thirdly, the researchers reviewed their previous two studies utilizing a 19-component checklist for assessing DTI (Salem et al.). Four participants demonstrated clear advancement in DTI performance after receiving the self-instructional manual. Salem et al. noticed that participants made gains over the baseline of 33% while administering DTI to teaching an assistant who role-played a student with autism. There was a tremendous development with two of the participants. DTI performance was averaged 88.8% when teaching with an assistant and 74% while teaching the student with autism, indicating generalization of the behavior to working with students with autism (Salem et al.). To some degree it was expected to be a decrease in the performance from teaching the assistant to teaching the student with autism. This is due to self-instruction strategies possess significant capability for training

participants to implement DTI to autistic children. In a similar study Dib and Sturmey (2007) focused on the unintentional effects of DTI on three student's maladaptive behavior. Within this study data indicated that increasing accuracy of implementation of DTI resulted in a decrease in autistic student's maladaptive behavior across participants. Both studies support and expand on earlier literature, increasing on teaching accuracy of DTI illustrating the ability to lessen student's unwanted behavior during implementation.

Finally, in comparison to the researchers' previous studies, which included self-instructional manual only, another study of an instructional package with a manual plus an observational video indicated that participants one and three performed similar to participants in the two previous studies, whereas participants two and four performed better than participants in the two previous studies (Salem et al. 2009). The authors concluded that it was not clear as to why the added video was consistent with enhancement in the performance of only two of the four participants. Nevertheless Salem et al. suggested that for all four participants presented with growth in skills, which occurred after exposure to the self-instructional manual with an observable video that demonstrated favorable results for teaching a student with ASD. Within the post-treatment phase part two and four performed more favorable than participants one and three. Despite this, self-instructional packets have been found beneficial a need still exist for evaluating the efficacy of staff teaching a child with ASD by using VSM training program.

Video Self-Modeling

VSM is consistent with Bandura's (1977) theoretical framework revealing self-modeling as a thinking behavior that uses oneself as the model. He argued that through self-efficacy an individual view his or her own behavior with or without the presence of reinforcement, and will perform the behavior in setting other than the setting it was originally observed (Bellini & Akullian, 2007). In other words, VSM is a versatile intervention that implies learning through observation it may affect an individuals' behavioral or cognitive skills by clearly observing a mirror image of self in same behavior (Delano, 2007).

Another fundamental ABA is that of Dorwick (1977) who is known as the father of VSM; he defines VSM as a snap shot picture of an individual's own behavior. Dorwick described VSM as a form of video modeling which provides an individual the capability to mimic the ideal behavior by observing her or himself successfully performing behavior. Schmidt and Raacke (2013) suggest VSM is a method that allows an individual to observe desired behaviors by watching a video demonstration and then performing the new task. There are two styles of VSM positive self-modeling and feed forward. Positive self-modeling focuses on building skills that are were previously acquired by enhancing the skill more accurately. So, an individual performs a skill that he or she finds difficult. As for feed forward it focuses on learning newly acquired skills. For example, an individual explores a skill that he or she is unfamiliar with (Bellini & Akullivan, 2007). Specially, both categories of VSM are intended to improve performance and skills of individuals participating in evidence based training.

There has been a dramatic increase in training paraprofessionals to use VSM in recent years. This may stem from VSM implementation being simple and cheap (Bellini & Akullian). To date previous studies of VSM have demonstrated it as a promising and effective intervention for students with ASD. Research also supports the notion of VSM as an instructional modality for addressing the behavioral functioning, functional skills, and social-communication skills for students with ASD. Despite these encouraging finding there has been limited research on VSM intervention alone. In conclusion the next section will discuss if VSM would be the most efficient in expanding in the DTI implementation for students with ASD.

Video Self-Modeling a Model for Preparing Novice Paraprofessionals to Implement Discrete Trial Instruction

Recent research suggest that VSM can be an effective training model for academic and behavior change when used with students who have ASD as well as their paraprofessionals staff (Catania, et. al 2009). Pickett et al. (2007) explained that under the Title I section in NCLB and IDEA, provide a guideline to educational agencies that outlines professional development options for paraprofessionals and under Part B of the IDEA. The legislation discusses in detail the responsibility of each state to make certain that paraprofessionals aiding students with disabilities have the essential tools needed to help build a strong foundation for knowledge and skills of their students (Katsiyannis et al., 2000; Sexton et al., 1996). Due to the legislation requirements to comply with state laws, as well as with the demand for considerable and urgent trained paraprofessionals in schools, it was recommended by NCLB and IDEA that school districts depends on

didactic workshops. This complexity, of shortage of fully trained paraprofessionals working with students diagnosed with ASD has been a persistent concern for school districts. This is an important consideration for novice paraprofessional training programs and school districts because of the increased positive relationship within the classroom setting Ghezzi, 2007). Having proper training for novice paraprofessionals in methods like Discrete Trial Instruction (DTI) can be a source of support, but a paraprofessional without that same training cannot offer the same level of support as veteran paraprofessionals. Consequently, Ghezzi (2007) noted that researchers have disagreed on the rigid protocol used in DTI and if it has been more or less challenging to apply across classrooms with novice paraprofessionals working with children diagnosed with ASD.

Ultimately, early studies evaluated training packages for instructing staff on how to deliver DTI and incorporated VSM demo into as a portion of the training (Koegel et al., 1977, 1978). VSM consist of a teaching method video modeling that solves some of the hidden difficulties of performance feedback by permitting the paraprofessionals the ability to compare themselves to their own performance feedback. (Alvero, Bucklim, & Austin, 2001). In particular, Mechiling (2005) addresses the use of video technology for training paraprofessionals working with ASD students has had considerable exposure since the early 1990s. Graff and Karsten (2012) suggested that inexperienced paraprofessionals couldn't properly implement DTI with written instruction alone. Thus, a current study by Ryan and Hymms (2012) demonstrates VSM training that incorporates written instructions in addition to feedback from a professional with mastery in

administering DTI has proven to be effective, even though a proficient facilitated direct training may not be easily accessible.

A small body of research is emerging that uses VSM as a method of support for paraprofessionals. Ryan, Hughes, Katsiyannis, McDaniel, and Sprinkle (2011) applied video instruction as a portion if the training manual. The following training series of steps were administered (a) verbal instructions in a presentation format, (b) videotaped instruction, (c) role-playing, and (d) in-vivo training (Arco, 1998 as cited in Ryan et al). As for DTI, responses were tagged and functioning as defined previously (a) distraction-free, (b) materials, (c) attending, (d) verbal direction, (e) voice tones, (f) wait, (g) praise statement, (h) contingent reinforces, (i) prompting and correction procedure, (j) pause for inter-trial interval, (k) incidental or additional teaching responses, and (l) data recorder (Ryan et al.). During home-based early intervention teaching session with ASD students' systematic measurement of the discrete trial target were acquired. This study evaluated the effects of a detailed training packet outlines to turn out high-levels of precise teaching responses through the practice of performance criteria. Further all four instructors in this study who participated performed at high mean levels. In consideration the data from the normative sample were tremendously lower than those instructors from this study. Results of this study suggest that training procedures were beneficial in training instructors and other paraprofessionals to verify and continue DTI skills.

Additionally, Catania et al. (2009) evaluated the used VSM to train participants to conduct DTI. A group of participants were given a brief discussion about all sections within the lesson plan for DTI, actually not given the step by step on the procedure how

to administer DTI. Next, a participant was given by the trainer materials used to implement a DTI; materials included a data-recording sheet and two sets of cards with the numbers of one through three on them. Each participant was advised to teach the primary researcher to the highest of their ability with the intention to use the lesson plan as their guide. During the participants' trials the researcher furnished random responses based on a number generator, which included correct, incorrect, and no responses. There was no feedback furnished during the baseline and data was not acquired on the correct implementation of the discrete trial lesson plan. Within the VSM analysis the participants observed one video of two researchers imitating a DTI session precisely. A 10 min time-framed was provided after viewing the imitated DTI task, participants were asked to teach the researcher using these DTI procedures. VSM was performed until participants displayed stable responses. Results indicated that after the VSM participants demonstrated an increase in their performance, establishing elevated levels of implementation accuracy.

To address another way to implement antecedent only training, Moore and Fischer (2007) discussed the pros and cons of partial VSM versus full model self-modeling while using a functional analysis (FA) procedure. During baseline three participants were provided with written instructions beforehand on how to implement FA procedures. Next all three participants were introduced to three different forms of FA training procedures, dealing with one FA conditions with verbal instructions, the partial VSM portrayed 50% of all paraprofessionals behavior, as for full self modeling videos incorporated multiple examples of the most practical behaviors for the paraprofessionals.

The study discussed above was unique in that Moore and Fischer (2007) noticed with or without verbal instructions, partial VSM was inadequate in training paraprofessionals to precisely apply FA procedures. Ward-Horner and Sturmey (2012) found that partial VSM had no effect on paraprofessional's skill performance. While the basic components of VSM have shown too effective, many investigations on VSM have noted the VSM alone was not an efficient teaching method (War-Horner et al.). Unlike partial VSM, full VSM has a substantial amount of applicable discriminative stimuli, which resulted into proficiency of target skills in the lack of expert feedback. Each study documented VSM has been validated to being beneficial in contributing to high integrity in administering functional analyses (Cantania, Almedia, Lui-Constant, & DiGennaro-Reed, 2009; Moore & Fischer, 2007). As noted previously, VSM is an effective evidence based and practical procedure that could be used to train paraprofessionals to improve on their proficiency skills, contributing to the education of children with ASD.

Effectiveness of Video Self –Modeling Interventions

In many VSM studies researchers have focused on comparison of the efficacy of different staff training methods. To date there is limited published research on the training of staff to conduct VSM. Earlier research has solely investigated VSM, as the method to increase levels of procedural integrity without feedback is limited. Richman, Riordan, Reiss, Pyles and Bailey (2013) examined the effects of on task behavior for staff VSM and the 10 staff member compliance to activities and the application of subject design across multiple baselines. In this study VSM was found to beneficial in intensifying levels of on-task behavior, especially when feedback was included. Further,

this study validates that VSM conceivably need supplemental tools to be of significance for training staff procedures.

At this point in time, a vast amount of theories have attempted to explain why VSM has been effective for children with ASD. Bellini and Akullian (2007) conducted a meta-analysis study comparing VSM and VM, which suggested that both interventions are effective. VSM, in particular has highly motivated an individuals' central role in video sequence, reinforcing inherent social deficits. In turn this aligns alongside with Bandura's theory on self-modeling. A child has the capability to attend to their own behavior remember and reproduce it, changes future behavior based on previous behavior learned behavior from the modeled behavior. Collectively, numerous studies have illustrated VSM to be an effective intervention for paraprofessionals to teach skills to children with ASD (Bellini & Akullian, 2007).

In a recent examination of VSM training, Pelletier, McNamara, Braga-Kenyon, and Ahearn (2010) noted the effect VSM has on procedural integrity with three staff participants in learning the effective programs implemented for students with ASD. In this study, baseline sessions included a VSM treatment package that was reviewed to evaluate the procedural integrity of staff. Staff was employed with the school for at least 1 year or presented with declining procedural integrity scores. These staff members were issued written behavioral guidelines on how to score self-modeling form.

As well a standard training procedure at the school, which included 3 hours of observing a skilled teacher working with the intended student and 3 hours working with the student while being overlooked by chief staff. During intervals within the training

written evaluations of positive and corrective feedback were given to the staff which was distributed a minimum of two times a year. Further, participants were video taped while working with the intended student. In the course of the baseline for each staff member three to five pre-treatment video observations were conducted within student's classrooms at varying hours throughout the school day. Overall the results of this study, for all three staff participants, indicated that using a VSM treatment pack and feedback was successful at intensifying procedural integrity for children with ASD within classroom.

Moderate to strong outcomes have demonstrated that VSM is considered an effective tool within school environment due to powerful history positive behavioral supports and their effect on successful academic performance. However the use of VSM within the classroom has been steadily evolving due to the technology video editing skills needed to make a video (Buggey, 2012). Nonetheless, it is interesting VSM has been demonstrated in many classrooms to be a useful medium for positive gains in behavior, social skills, and academics for ASD children.

By applying VSM as a teaching and learning modality within the educational system it addresses Bandura's theory that individual are likely to pay more attention to a model similar to themselves profoundly (Buggey, 2007). The core explanation for the effectiveness when using a VSM reportedly relates to observational learning, the process of visual stimuli and learning process. Nevertheless, VSM has been found to be effective due to the individual's major role in video order structure, which aids in motivation, building self-efficacy and self–confidence.

Despite, the vast amount of support for VSM as an evidenced based procedure, it is important to note to determine whether VSM appropriate implementation for training novice paraprofessionals. However, accordingly, training paraprofessionals to use VSM has the potential to increase the student's skill and academics reducing problem behavior occurrences (Moore & Fisher, 2007). For the purpose of the current study, the effectiveness of VSM on the implementation of DTI by novice paraprofessionals who work directly with ASD students within a therapeutic school day will be evaluated.

Methodology

In this research project a single subject design, single-subject case, intra-subject replication or *N*=1 was used for investigation (Kazdin, Kratochill, & Levin, 2010; Sharpley, 2007). Typically, in a single case design the control data is evaluated to contrast solely within the participant, versus from subjects to subjects design (Kazdinet al.: Sharpley). A single subject design is a rigorous flexible and evidence based methodology, which plays an important role in documenting experimental effects rather than descriptive or correlational, and the focus is to document relationships between independent and dependent variables. Horner and Spaulding (2010) noted that the defining feature of single subject design is the control data that are evaluated to contrast solely within the subject, versus from subjects to subjects design. Traditionally, within a single subject design it depends on methods that usually do not affiliate with statistical assumptions or visual analysis (Solomon, Hintze, Cressey, & Peller, 2011). Further, single subject design is an approach that documents experimental control similar to that of randomized control-group design.

This approach of research arose early from the founders of psychological science, Wundt Ebbinghaus (1885/1913) and Pavlov focusing on careful experiments of single subjects design. Ebbinghaus defined in detail how learning and memory over the course five years used only one research subject himself. Additionally the founders of behavioral psychology in the 1940s and 1950s conducted groundbreaking work on single case research designs to make key advances in research and practice and psychopathology (Skinner, 1938). Over the past 40 years single subject design has been widely used across several disciplines including educational schools, clinical, behavioral medicine, and sports rehabilitation for an individual (Kratochwill et al. 2010). For instance, within education structuring individualized educational plans has been noted to be effective when using a systematic form of experimental analysis of single subject research permits. In fact, single subject design has the potential to give innovative rigidness unlike the traditional case design.

Perdices and Tate (2009) argue that single subject design has a key role in evidence based clinical practice. Even though, a tremendous amount research areas noted randomized control treatment (RCT) methodological as the "gold standard" necessary for validating best practice for intervention (Byiers, Reiche, & Synrone, 2013). According to Tate, McDonald, Perdices, Schultz, and Savage (2008) RCT represents essential methodology with a clear cause and effect, functional relationships, and hierarchy of evidence rigor. Often RCT is found as establishing a strong avenue for rigid knowledge for effective treatment in comparison to single subject design.

On the other hand, single subject design lays out substantial progression of knowledge and exceptional clinically sound evidence (Tate et al. 2008). Commonly in literature single subject design holds the position of infrequently used, only when situations do no allow RCT. RCT typically are preferred method that illustrates demands for large-scale prevention, which shows beneficial outcome. In contrast, Sidman (2006) noted that within ABA large groups has not made significant progress or impact addressing health, education, social policy, and public safety. In general, RCT's logistics have been found challenging to implement and manage effectively. On the other hand, single subject design is essential sources of evidence, differing from RCT, which entail several subjects and small amount of observations (Clay, 2010). Clearly, single subject design requires fewer subjects and great deal of observations.

In deciding which methodology approach of single subject design there are several commonly used; (a) reversal design, (b) withdrawal design, (C) multiple-baseline design, (d) multiple-probe design, and or (e) alternating treatment design (Kratochwill, 2010). A multiple–baseline design allows potential rapid comparisons of two or more conditions. Basically within this design prior to the baseline two separate interventions are altered. Within this literature review 15 studies used multiple-baseline designs and two used multiple-probe designs. Finally, both designs were applied to compare the effects of VSM on the transitions and performance of on task-behaviors of the 4 students.

In consideration, there are three different types of multiple baseline design a single subject, one single behavior, and a single setting is considered (Wasson, 2010). Whereas multiple probe design are similar to multiple base design but tend to differ in the

beginning of the experiment intermittent measures are taken and continuing once a subject has mastered one of the behaviors. In the reversal design it deals with repeatedly introducing and withdrawing the experimental variable by extending indefinitely showing the effect of the experimental variable. On the other hand an alternative design occurs when two or more treatments are alternated in a rapid succession to assess differential effects (Schmidt et.al). It is useful for evaluating effect of several treatments. Finally, within this research project a multiple baseline design was chosen to evaluate the effects of treatment.

As mentioned above multiple baseline design have three different approaches; across behavior which focuses on two or more behaviors of the same participant, across subjects focuses on different participants or groups; and across setting focuses on same behavior of same participant in two or more different settings, situations, or stimuli (Wasson). For this research project a multiple baseline design across subjects was used to assess the effects of VSM on improving delivery implementation of DTI by paraprofessional working with autistic students. Even though multicomponent styles may be required for to obtain ideal outcome, it would be favorable to distinguish a style less rigorous but similarly effective.

In sum, single subject design is better suited for comparison of treatment effect. Single subject design is beneficial to structuring a research study that needs to develop and validate individualized interventions. Later within Chapter 3 the detailed of this research project will be discussed.

Summary

Chapter 2 explored history of autism, etiological theories, the roles and responsibility of paraprofessionals, and different training methods of paraprofessionals. Within Chapter 2 also there are recent studies addressing DTI as a behavioral intervention within special education classroom and VSM as evidenced based training tool for paraprofessionals. Clearly, from this literature review VSM is a strength-based, durable, and efficient intervention used to train novice paraprofessionals to implement DTI when working with children with ASD. In particular, an emerging body of research supports considerable promises for the use of VSM within the educational system (Celbar, Anderson, & McCarthy, 2012).

Notably, VSM is cost-effective, small, non-stigmatizing technology, user friendly to train novice paraprofessionals in the moment, and non intrusive (Moore & Fischer, 2009). To date, VSM has been found to be time and resourceful model that has a profound impact on social communication skills, functional skills of ASD children. Ultimately, it is important to note the potency of VSM when used with ASD children as an intervention modality according to Delano (2007). For example, small and non-stigmatizing technology that allows paraprofessionals to create in the moment learning (Baker, Lang, 2009). In sum these reasons make VSM a suitable option in the training of novice paraprofessionals who will be working with children with autism.

Currently, there are very few studies that have investigated of pre-intervention abilities to intend or mimics affect the child's capability to succeed from VSM. In addition, there is paucity of information backing why VSM is motivating for children

with VSM, but more research is needed to know why VSM is effective, which ASD children benefit from VSM, and under what circumstances does VSM predict to more acceptable. However, within the educational system VSM is a promising strategy that is easily used with a wide range of children with ASD with equivalent gains.

After a brief opening, Chapter 2 looks more closely at a rundown of this research project proposed methodology. Next, a single-subject design study integrated quantitative methodologies underpinned the research in this project. Later Chapter 3 explores more in detail the methodology used within this research project.

Chapter 3: Research Method

Introduction

The purpose of this study was to assess the effectiveness of video self-modeling on the accuracy of DTI intervention by novice paraprofessionals working with children with autism. In this study, I also examined the impact of video self-modeling and direct performance feedback on paraprofessionals' procedural implementation of DTI**.** In this chapter, I describe the research design, sample size, and the process for recruiting participants. This chapter also discusses the population, sampling procedure, procedure for recruitment, participation, data collection, and conduction of VSM intervention, instrumentation and operationalization of constructs, interobserver agreement, and social validity within this study. To conclude Chapter 3, this study's limitations and ethical considerations are discussed.

Methodology

Participants

The special education director of the school referred each participant who expressed an interest in additional training in VSM with DTI beyond new employee training and in-services by the school district. To be included in this study, the participants had to meet specific criteria. They must have been employees of a public educational institution for at least 6 months. A human resource manager not directly apart of this research project verified previous work experience via examining interested participants' resumes. Second, the participants had to support a student in an inclusive setting for at least 75% of the school day. Third, the participants must have had no

previous training in DTI. The final criterion was that participants had to have expressed an interest in the training.

Letters describing the study and inviting selected participants were sent out via email by the school psychologist. Participants acknowledged volunteering to participate in this study by returning the letter of informed consent via email. Participants were asked permission to be videotaped while working directly with an adult confederate who would be role-playing a student with ASD. If participants declined to participate to be videotaped, they were not included in this research project.

Five paraprofessionals who support students with ASD participated in this study. The study setting was .in Southwest elementary school in the United States. At the time of the study, these paraprofessionals were working in self-contained classrooms operated by the special education department of a small urban school district. All were new employees. Each participant held a bachelor's degree and had previous experience working within a classroom for children who have autism. Participants had no previous experience in delivering applied behavior analytic or DTI service to students with autism. Three females and two males participated. Participants' age ranged in from 21 to 32.

In addition, one adult male served as a confederate and role-played a student with AS for each of the participants. During summer orientation, the confederate received DTI training. The confederate was a school psychologist assistant currently employed at Riverside Elementary School. To make certain that the school psychologist director followed the procedure in a precise manner and consistency occurred from participant to

participant, I provided a script with responses for the confederate to use during the encounters with each participant

Materials

The classroom contained typical teaching materials and furniture while the training setting included a table and chair for watching the video and a second table and two chairs for the activity session. Research instruments, along with written responses for the confederate to use during the role-play were stored in the training room locked file cabinets. An IPAD mini, tripod, and a MacBook Air laptop with editing program I-Movie 2011 were used as well.

A modified version of the Intervention Rating Profile-15 (IRP-15) was used to extend on research in measuring educational intervention (Carter, 2007). The IRP-15 includes 20 items, which are rated on a 6- point type Likert-type scale. The rating range from 1 (strongly disagree) to 6 (strongly agree). Total scores were obtained by summing all items with higher scores indicating greater levels of acceptability. Carter (2007) reported that the internal consistency for this instrument is .98 (Carter, 2007).

During the baseline, I provided the confederate with an abbreviated instruction sheet with an outline of procedures for participants to implement DTI. The instruction sheet and outline consisted of four pages of summary guidelines on DTI implementation. I used an iPad Mini to record participants' performance while they conducted DTI with the confederate. A tripod was used to maintain stability of the IPAD Mini. The DTTEF, a 21-item checklist (see Appendix A), was used to score each participant's performance

from a video recording during the intervention phase. Each video vignette was between 1-3 minutes in duration, depending on the number of target behaviors displayed in each vignette condition. Video footage was downloaded to the MacBook Air, and iMovie 2011 software was used to edit the video vignettes. Only accurate implementation of the participants was shown during the video vignette. For each participant, the video vignette was played on the laptop computer.

Procedures

Sessions were conducted in a training room at Southwest Elementary School during the participant's 2-week training. All sessions were video recorded for subsequent data collection and the school psychologist trainer was presented for each session. Participants did not spend any time within the classrooms or observe DTI instruction during training. Each session lasted up to 15 minutes, during which the participants were asked to implement DTI with a confederate. During weekly visits, which were conducted two to four times a week, there were five sessions on DTI intervention. Within the intervention phases, visits were accompanied with an instructional component, following a 1 to 3, 15 min DTI sessions with confederate.

Southwest elementary School was a therapeutic public day school for children with ASD, an early intervention program that included daily teaching sessions within the classroom. The participant previously worked directly with ASD children, spread across two classrooms, and 35 hours a week for the past 6 months. Further, Stephen Neal, a registered and certified school psychologist worked with Southwest elementary in 2012, and currently serves as its school psychologist director. Dr. Neal has over 8 years of

experience in delivering DTI to students with ASD. The Southwest elementary staff has worked with families of ASD children for the past 20 years. During the past school year (2013-2014) Riverside had 75 students with ASD who were receiving intense ABA. These children ranged in age from 5 to 14. The researcher received all raw data once Dr. Neal and all five paraprofessionals from Southwest elementary school completed the phases.

For this research project the paraprofessionals recruited were identified as paraprofessional 1, paraprofessional 2, paraprofessional 3, paraprofessional 4, and paraprofessional 5. The paraprofessionals in this research project continued to receive all their ABA training with Dr. Neal. Dr. conducted the IRP-15 test, collected the entire baseline and post intervention data, and performed the VSM intervention. The design included: baseline, intervention, and performance feedback.

As a piece of the participants' pre-service training at the school, participants were taught basic principles of applied behavioral analysis. The participants did not receive training in how to conduct DTI. A multiple baseline design across participants was used to establish if the intervention were influencing the accuracy of DTI. Each participant different intervention phases, participant 1 received the intervention after 3 days of baseline, participant 2 after 6 days of baseline, participant 3 after 9 days of baseline, participant 4 after 12 days of baseline, and participant 5 after 15 days of baseline. During baseline, each participant was given 15 minutes to read a four-page guideline summary for teaching DTI lesson plan skills and review accompanying data sheet (see in appendix B). Once participates were done reading the guideline, he or she will conduct 10 teaching

trials to attempt to teach DTI to confederate role-playing a child with ASD. The participants implemented teaching sessions with his/her assigned confederate role-player, but not shown the DTTEF skills checklist or given similar information. Each participant implemented teaching sessions of DTI with an assigned confederate role- player actor/student with ASD. The confederate followed a script informing him when to attend to the participant, whether to emit an immediate or delayed response, and whether he should wait for a prompt and what to perform and what level to wait for. All of the confederate's behaviors mimicked the operational definition of behaviors from the script and were balanced across all sessions in order to allow for equal distribution of these characteristics (Salem et al., 2009).

During the DTI participants was video recorded and scored by school psychologist trainer (data collector) using the DTTEF. When all 10 trials were completed, or 15 minute lapsed, sessions were terminated. After a short break, the same process was repeated for the remaining two tasks. Once each baseline session was concluded the participants were acknowledged but no questions were answered and no performance feedback was given. The baseline sessions were repeated from 1 to 4 weeks later, according to the multiple-baseline design.

After a stable pattern was established, a video self-modeling intervention was introduced; similar materials were utilized from the baseline sessions. Participants conducted DTI in role-playing sessions (i.e. 10 steps for five skills) and were recorded with an iPad Mini. The participants actively self-monitored his or her own performance in between sessions. Each participant was provided with a blank scoring sheet, which

were used by the data collector to monitor his or her own performance. However, participants were allowed this sheet as guidance for necessary steps. Video self-monitoring continued until performance was stabilized. Within each session a scoring sheet was used to collect data, monitor behavior, and collect procedural integrity. Lastly, during the video self-monitoring no feedback was provided.

During the performance feedback, similar materials were used as during self-monitoring phase. Participants received feedback within each session; DTI steps completed correctly, DTI steps that were omitted by participant, or steps performed incorrectly by participant. A scoring sheet included the 10 steps needed to complete DTI for skills. The percentage was calculated by dividing the number of correct steps completed by response opportunities. All scoring sheets were utilized in collecting data, monitoring behavior, reliability and collecting procedural integrity. The same process was repeated for each the participants. A synopsis of each stage was provided in Table 1 (clarification of stages for this study).

Research Design and Rationale

As a quantitative study, this research project used a multiple-baseline across participant's design that evaluates the procedural accuracy of DTI intervention with novice paraprofessionals. Each participant was evaluated using an AB within-subject design with baselines of variable duration comparing the effects of procedural feedback for accuracy in the implementation of DTI. Single-subject design was an appropriate methodology when the sample size is one or of small size. This design was known as the most commonly utilized methodology in VSM research (Schmidt & Bonds-Racked,

2013). This study's' design included: baseline, video intervention, and performance feedback. For baseline trials, the participants are going to be completing 30 intervals. To establish stabilization for a pattern within trials, a VSM intervention was introduced to one of the participants, while continuing the baselines of the others participants through daily probes. Once the first participant reached stabilization for the behavior to which intervention was applied, the VSM intervention was then introduced to the second participant.

Research Setting

School psychologist trainer collected all data collection, intervention, and the IRP-15 from Riverside Elementary School. Baseline and treatment phases were completed in training room. The rooms consisted of a table, chairs, treatment materials, and instructional materials. During the sessions, the paraprofessionals provided instruction to confederate at the table and school psychologist trainer presented record sessions and collect data. The videotape review and performance feedback sessions were conducted in a training room with available laptops.

Participation

A multiple baseline across participants evaluated the effectiveness of the accuracy in implementing DTI. Collecting data pre- and post-intervention determined whether VSM was effective in promoting procedural integrity in participants for the targeted teaching behavior. Initially, participants received an assessment to determine baseline levels of behavior. Within all the sessions of baseline, intervention, and follow-up phases, the school psychologist trainer used an iPad to note if the participants did or did

not display the accuracy in the skills as defined for each of the 10 trials demonstrated to participants.

Data Collection

A multiple baseline was utilized in assessing accuracy of procedural integrity. During the training environment, the school psychologist trainer delivers to participants in a group format a precise explanation of the sections of the DTI lesson plan but was not given specific instructions on how to conduct DTI. Also, each participant implemented teaching sessions with his/her confederate student, but was not shown the DTI checklist. The trainer was given participants the materials on how to instruct a teaching sessions. To establish baseline for a minimum of 3 days paraprofessional's performance data was collected for 3 hours between the hours of 9:00 A.M. and 12:00 P.M. In the baseline sessions, participants conducted 10 DTIs trials in a single session with a confederate actor student lasting 10-15 minutes. All training sessions were setup in the same-way as if it is the intervention activity sessions. The experimental control was established when participants reach mastery when treatment was implemented. After two sessions in a row, ninety percent treatment integrity was considered mastery. An iPad was utilized to record sessions. The iPad is 9.50 x 7.31 x 0.37 in. and records up to 180 minutes. Scoring sheets were used to collect data and procedural integrity.

During the baseline session, each participant were given 15 minutes to read a one-page guideline summary for teaching DTI lesson plan skills and reviewed accompanying data sheet. Once participates were done reading the guideline, he or she proceeded conducting 10 teaching trials. Each participant was to work with a confederate role-

player actor/student with ASD to conduct DTI. All of the confederate's behaviors were standardized and scripted across participants. During the DTI teaching participants recorded results from all 10 trials with a confederate role-playing student with autism. When all 10 trials were completed or 15 minute lapse, the session was terminated. After a short break, the same process was repeated for the remaining two tasks.

Treatment Fidelity

To ensure whether the intervention procedure was implemented accurately, treatment fidelity, this author received the raw data from school psychologist trainer once all session are complete. The school psychologist trainer had extensive training and experience implementing DTI. During each session the school psychologist trainer provided daily instruction to each participant orally and via checklist. The procedural checklist was selected based on Leblanc, Ricciardi, and Luiselli (2005) use of 30 trials to assess accuracy of implementing DTI by participants. In this study participants conducted five skills versus the three skills required in LeBlanc et al. (2005) study. The school psychologist used the checklist to evaluate the extent to which the participant follows the procedure as listed on the checklist. To obtain mastery of DTI during all sessions within the baseline, intervention, and follow-up phases, the school psychologist trainer recorded whether participants did or did not display skills as defined on the checklist for each of the 15 trials. This checklist was listed in the appendix.

Treatment

In this study all sessions were videotaped for subsequent data collection. For reliability purposes video recording was utilized. The school psychologist trainer was the

primary coder and transcriber and to score occurrences of the dependent measures from the entire video recording across conditions and participants. Table 1 illustrates the data collection procedure.

Table 1

Components of Discrete-Trials Teaching Evaluation Form

Part I: Before starting a teaching session
1. Determine teaching task.
2. Gather materials.
3. Select effective reinforcer(s).
4. Determine prompt fading procedure and initial step.
5. Develop rapport / positive mood.
Part II: On each trial
A. Manage antecedents
6. Check data sheet for arrangement of materials.
7. Secure the child's attention.
8. Present teaching materials.
9. Present correct instruction.
10. Present prompts (indicate M-T-L step: F, P1, P2, NP).
B1. Manage consequences for a correct response
11. Praise and present additional reinforcer.
12. Record correct response immediately and accurately.
13. Allow brief inter-trial interval (3–5 sec.).
B2. Manage consequences for an incorrect response

14. Block gently, remove materials, and look down (2–3 sec.).
15. Record the incorrect response immediately and accurately.
16. Secure the child's attention.
17. Re-present the materials.
18. Re-present instruction, prompt immediately (guarantee correct response).
19. Praise only.
20. Record error correction immediately and accurately.
21. Fade prompts across trials.

Instrumentation and Operationalization of Constructs

The school psychologist trainer of Riverdale School district made use of an iPad Air, MacBook laptop, and tripod for viewing as well as written instructions for problem-solving training sessions. IMovie software was put into service to edit all of the non-targeted behaviors within the video vignettes.

Accuracy implementation was the dependent measure, the number of steps that implemented correctly divided by the number of steps completed. The skills were implemented across participants may differ but the number/type of steps that were needed to complete the skill is the same across participants. Although the skills were different, the steps were the same. The target behavior for this research project was the accuracy in which participants perform the steps in DTI trials correctly (Pelletier, McNamara, Braga-Kenyon, & Ahearn, 2010). The definitions of the target behavior were drawn from previous paraprofessional research. This task analysis was based off Sarakoff and Sturney's (2004) task analysis. Specially, a trial is scored as correct depending on the

presentation of target responses: (a) distraction-free, (b) materials, (c) attending, (d) verbal direction, (e) voice tones, (f) wait, (g) praise statement, (h) contingent reinforce(s), (i) prompting and correction procedure, (j) pause for inter-trial interval, (k) incidental or additional teaching responses, and (l) data recorded.

Interobserver Agreement

To establish interobserver agreement (IOA), DTI accuracy was assessed during baseline, intervention, and follow-up phases. A school psychologist trainer and the primary researcher practiced role-playing sessions. The school psychologist trainer and the primary researcher independently scored a videotape of session using DTTEF conducted reliability checks. In this study, the school psychologist trainer and the primary researcher compared steps, for an agreement to occur the scored item was the same**.** For a disagreement to occur the school psychologist trainer and primary researcher scored the item differently. An IOA score for a session were calculated by dividing the number of agreements by the number of disagreements plus agreements, multiplying by 100 (Martin & Pear, 2011).

Data Analysis

For this study this writer received all the raw data from the school psychologist trainer who completed the VSM treatment. Gast & Spriggs (2010) discussed using visual analysis, which is commonly used in the field of single subject research. Visual analysis was known for examining trends, levels, and data variables among baseline and treatment conditions (Harjusola-Webb, & Landrum, 2008). These trends dealt with the directional approach of the data and level makes reference to change in data points after the

implementation of the intervention. Visual analysis required recurring analysis of data, commonly aiding in the deciding decisions during a study.

Data were graphed in an Excel spreadsheet and analysed for all five participants. In this study visual analysis was utilized to decide when all five participants proceed to next phase. The summing scores of the dependent variable for all trials within the condition and dividing them by total number trials conducting in a condition calculated the independence average level for the dependent variable.

Even though this current study provided contributions to the literature there are limitations worth noting. First, this study investigated a small number of novice paraprofessionals implementing a few skills to children with autism. The VSM training was utilized for novice paraprofessionals on motor and visual behaviors within the activity session. Further research was needed on incorporating other behaviors such as visual cues and prompting occurring within the training session has the capability to decrease the amount of time while in paraprofessional trainings. A second limitation worth noting was substituting the use of actors for children with autism as the learner during the probes. By using actors instead of children with autism it limits the findings to be generalized questioning if the actors performance during the probe would result just as successful as results when implementing DTI with a child with autism. Another variable to take into consideration was future research examining the effectiveness of training staff to implement DTI with various children with developmental disabilities.

A final limitation is that only novice paraprofessionals were partook in this study. This study included a group design, which is crucial to standardize the trials across the

paraprofessional groups. So that the only variable that could account for a difference in scores was the training that the paraprofessionals received.

Hypotheses

H_0^1: The video self-modeling training for novice paraprofessional' s working with children diagnosed with autistic disorder demonstrated no improvement in their accuracy to implement advance discrete trial instruction skills as measured during video-self-modeling (VSM) intervention.

H_a^1: The video self-modeling training for novice paraprofessional's working with children diagnosed with autistic disorder demonstrated an improve more in their accuracy to implement advance discrete trial instruction skills as measured via direct observation.

H_0^2: The novice paraprofessional demonstrated no decrease in the amount of incorrect novice paraprofessional responsiveness to children diagnosed with autistic disorder errorless in a discrete trial instruction lesson for on task behaviors via direct observation.

H_a^2: The novice paraprofessional demonstrated a 75% decrease in the amount of incorrect novice paraprofessional responsiveness to children diagnosed with autistic disorder errorless in a discrete trial instruction lesson for on task behavior via direct observation.

H_0^3: The paraprofessional will demonstrate no effect on the level of correct responses over the baseline measure via direct observation and other multiple base-line design observation.

H_a^3: The paraprofessional maintained a positive effect or level of 50 % over the baseline via direct observation and other multiple-baseline design observation.

The data from this study were analyzed individually for each participant using excepted standards for evaluating single subject methodology (Kazdin, 2010). The effect of the video self-modeling (independent variable) on the accuracy implementation of Discrete Trial Intervention dependent variable) were determined through visual inspection of the graphic representation of the data as well as by computing the average level and analyzing the range level of independence for each dependent variable across conditions. Visual inspections were used to determine changes in the performance level (mean), the trend or slop, the effect size, and non-over lapping data point's percentage (Kratochwill et al., 2010). The mean was the duration of the change in accuracy of performance across phases.

Threats to Validity

Social Validity

Social validity measured social relevance, assessed on three levels according to Wolf (1979): social significance of goals, social appropriateness of the procedures, and social importance of the effects. Upon completing the feedback phase, an IRP-15 was sent out to participants to anonymously assess experiment's goals, procedures, and effects by independently answering a brief questionnaire (Appendix C). Similar to Fazzio (2009) questionnaire, this study asked participants to rate their feelings about the importance of the study's goal, procedures, and the effectiveness of training procedures. A 5-point Likert rating scale (1-strongly disagree, 2-disagree, 3-neutral agree nor disagree, 4-agree, and 5-strongly disagree) was use; see Appendix for further details on

the questionnaire. The final acceptance scores of each group were utilized in addressing one hypothesis.

$H_0{}^4$: The overall score of paraprofessional's modified IRP-15 will not be 50 or above implying that they find VSM implementation not reliable.

$H_a{}^4$: The overall score of paraprofessional's modified IRP-15 will be 50 or above implying that they find VSM implementation reliable

Ethical Procedures

In ordinance with the American Psychological Association's (APA) ethical principals and standard this study followed guidelines for protecting all people in this research from any cause of harm. Informed written consent was obtained from participants themselves. The participants' names were left off of any research material. In addition, informed consent letters were kept stored separately from testing materials. Their names were changed in the study to protect their identity. Data was kept in a secure file cabinet drawer and video footage was deleted and destroyed after the duration of the study.

Summary

The purpose of this chapter was to summarize the research design and methodology for this study. Chapter 3 discussed the sample size and the selection process for the research sample. Additionally there was the descriptive statistics such as the participant's age, gender, education, and experience that were analyzed to provide significant description of this study's restrictions and intensify internal validity.

Also, Chapter 3 presented a synopsis of the research setting and how the school psychologist trainer collected the data during the baseline, intervention, and performance feedback phase. To determine social validity the school psychologist trainer distributed a modified version of IRP-15 to all the participants. The modified IRP-15 and DTEF both were found in the appendices. Through out this study the school psychologist trainer conducted the actual intervention and data collection. After the intervention has been completed this author received raw data. A final piece of Chapter 3 analyzed social validity by determining if the participants perceived VSM as an acceptable treatment.

Chapter 4: Results

Introduction

The purpose of this study was to assess whether video self-modeling results in an improvement of discrete trial intervention for novice paraprofessionals working with children with autism. Data on the paraprofessionals' requesting behavior was used as a quality indicator to assure that the requests were delivered in a standard manner**.** The Intervention Rating Profile-15 (IRP-15) provided information about the feasibility and acceptability of the intervention. In Chapter 4, I restate information about the study's sample. I then describe my data analysis procedure, research questions, hypotheses, treatment fidelity, and interobserver agreement. Afterwards, I present results relative to my research questions and hypotheses.

The first two research questions obtained empirical data on whether the intervention had an effect on the participant's accuracy implementation of DTI. To reject the null hypothesis for Research Questions 1 and 2, the participant needed to demonstrate at least a 75% improvement over baseline. Research question inquired as to whether perceived ability would have an effect on the level of correct responses over baseline. In order to reject the null hypothesis, the participant needed to maintain a positive effect or level of at least 50 % over the baseline. Finally, Research Question 4 specifically inquired whether participants would maintain an overall score at a level of 52.5 or higher on the IRP-15, examining the social validity and investigation if participants would find VSM acceptable.

Description of the Sample

Five participants were recruited from Southwest Elementary School. Participants are paraprofessionals who directly support students with autism**.** The participants chosen for this research project met the following criteria: (a) participants had to be employees of a public educational institution for at least 6 months, (b) the participants had to be supporting ASD students in the inclusive setting for at least 75% of the school day, (c) the participants must not have had previous training in DTI, and (e) the participants had to express an interest in the training. Additionally none of the consenting paraprofessionals whose data was analyzed had exposure to DTI manual prior to the study.

Data Collection

Table 1 presents information on the experience of the participants prior to receiving DTI training. Paraprofessionals are labeled as Participant 1, Participant 2, Participant 3, Participant 4, and Participant 5.

Table 1

Participants' Experience Working with Children with Autism and with DTI

	Experience working with children with autism (years)	Experience with DTI
Participant 1	2 years	0
Participant 2	4 years	0
Participant 3	1 year	0
Participant 4	6 months	0
Participant 5	1 year	0

Treatment Fidelity

To ensure that all participants followed the procedure correctly, a procedural checklist was used during all sessions. The procedural checklist was selected based on Leblanc, Ricciardi, and Luiselli's (2005) use of 30 trials to assess accuracy of implementing DTI by participants. The school psychologist director recorded whether the procedure on the procedural checklist was followed as planned for each participant.

Results

For this research project, a multiple baseline design across subjects was used to assess the effects of VSM on improving delivery implementation of DTI by paraprofessional working with autistic students. Each participant was evaluated using an AB within-subject design with baselines of variable duration comparing the effects of procedural feedback for accuracy in the implementation of DTI. Participant 1's baseline data were collected for six sessions, Participant 2's baseline data were collected for eight sessions, Participant 3's and Participant 4's baselines were collected for 10 sessions, and Participant 5's baseline data were collected for 13 sessions.

Variables

This study researched the effects of video-self modeling (independent variable) on participants' accuracy implementation (dependent measure) of DTI steps across three phases (baseline, intervention, and follow-up). Operational definitions for variable are drawn from previous research on paraprofessional working with students with ASD (Pelletier, McNamara, B raga-Kenyon, & Ahearn, 2010). Accuracy implementation was based on Sarakoff and Sturney's (2004) task responses, which are (a) distraction-free, (b)

materials, (c) attending, (d) verbal direction, (e) voice tones, (f) wait, (g) praise statement, (h) contingent reinforce(s), (i) prompting and correction procedure, (j) pause for inter-trial interval, (k) incidental or additional teaching responses, and (l) data recorded. These task responses helped ensure that any changes in participants' accuracy in implementing DTI were due to the independent variable rather than the way in which responses were presented, thus standardizing the trials.

Research Questions 1-3

Research Questions 1 and 2 addressed whether the intervention had an effect on the participant's accuracy implementation of DTI. In order to reject the null hypothesis, the participant had to reach an improvement rate of 75% over baseline. The third research question inquired whether the participant's perceived ability would have no effect the level of correct responses over baseline. In order to reject the null hypotheses the participant will maintain a positive effect or level of 50 % over the baseline. Specifically, this information was assessed by comparing the changes in trends, levels of performance, the percentage of non-overlapping data points and the immediacy of effect between baseline and treatment phases. A calculation of the percentage of nonoverlapping data points (PND) was calculated by examining the sum of scores for the dependent variable for all trials within the condition and dividing them by total number trials conducting in a condition (Parker, Vannest, Davis, 2011). For the measure of effective size, TAU was chosen due to it equally distributes all data points by obtaining the effective size from compared pairwise data across phases (Parker, Vannest, Davis).

The following were the findings from all five participants and analysis of the raw data. In multiple baseline designs there must three demonstrations of the experimental effect at three different points in per section (Kratochwill, Hitchcock, Horner, Levin, Rindskopf, & Shadish, 2010).

As can be seen in Figure 1 Participant 1 had five baseline sessions, five treatment sessions, and five maintenance sessions, The Y-axis depicted the accuracy implementation of participants using DTI with autistic students. There were 10 second intervals used for rounded time. Participant 1's facilitation behavior during the baseline condition was relatively infrequent and variable with mean calculated to be 5.6. After receiving initial training session and access to video models, the frequency of participant 1's facilitative behavior showed a significant improvement in her instructional level of performance mean was calculated at 6.2. During the performance feedback, Participant 1 engaged in facilitating behaviors on the mean increase of 6.6. Overall, frequency of participant's 1 facilitating behaviors was modest but relatively consistent after the performance feedback session. Participant 1's data can be found in Figure 1 and Table 1.

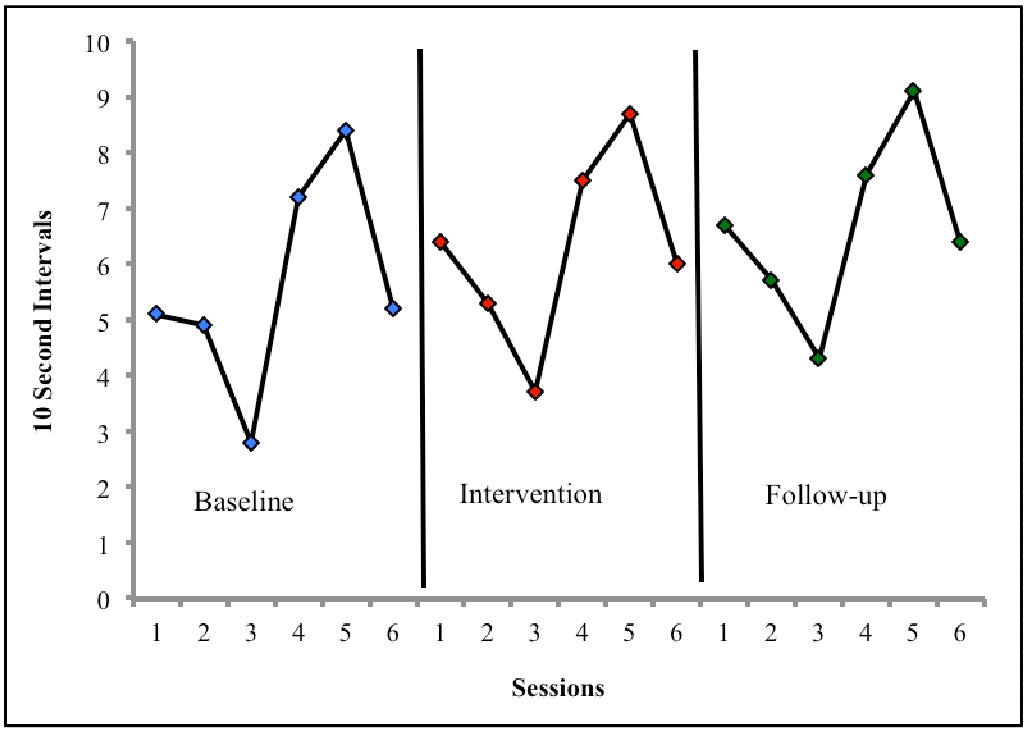

Figure 1. Participant 1's accuracy in facilitating behaviors.

Table 1

Percentage of Nonoverlapping Data Points for Participant 1

Participant	DV	PND (Intervention)	PND (Feedback)
1	Accuracy of behaviors	17%	17%

Table 1 indicates participant 1's PND. As stated earlier, the research question 1 inquired whether participant would increase his or her accuracy time at least by 75% over baseline. Participant 1's PND from baseline to intervention score was calculated at a 17% level, non-effective intervention. Although 17% is low, it reflects unreliable treatment for Research Question 3 concerning maintaining at least a 50%, due to simultaneous measurement of multiple task behaviors (Cooper, Heron, & Heward, 2007). According

to Cooper, Heron, and Heward, 80% is the percentage used as a benchmark, but greater than 90% is what needed to create believable acceptability. When using Cohen an effective size of 0.17 was calculated for Participant 1, suggesting a small effect size between baseline and intervention. Jenson et. al., (2007) classified an ES of .2 as small effect size, .5 are a medium effect size, and .8 or more a large effective size.

Participant 2's data can be found in Figure 2 and Table 2. Participant 2's facilitation behavior during the baseline was highly variable with a mean level of 4.83 There was a significant amount of variability during this phase, specifically in the beginning. After receiving the initial training session and access to the video models, the frequency of Participant 2's facilitative behavior increased to a mean to 5.7. During the follow-up phase, Participant 2 engaged in facilitating behaviors at a slightly increased performance level of 7.29. Overall, Participant's 2 frequency of facilitating behavior slightly increased trend was present when examining the intervention phase as a whole. Participant 2's data can be found in Figure 2 and Table 2.

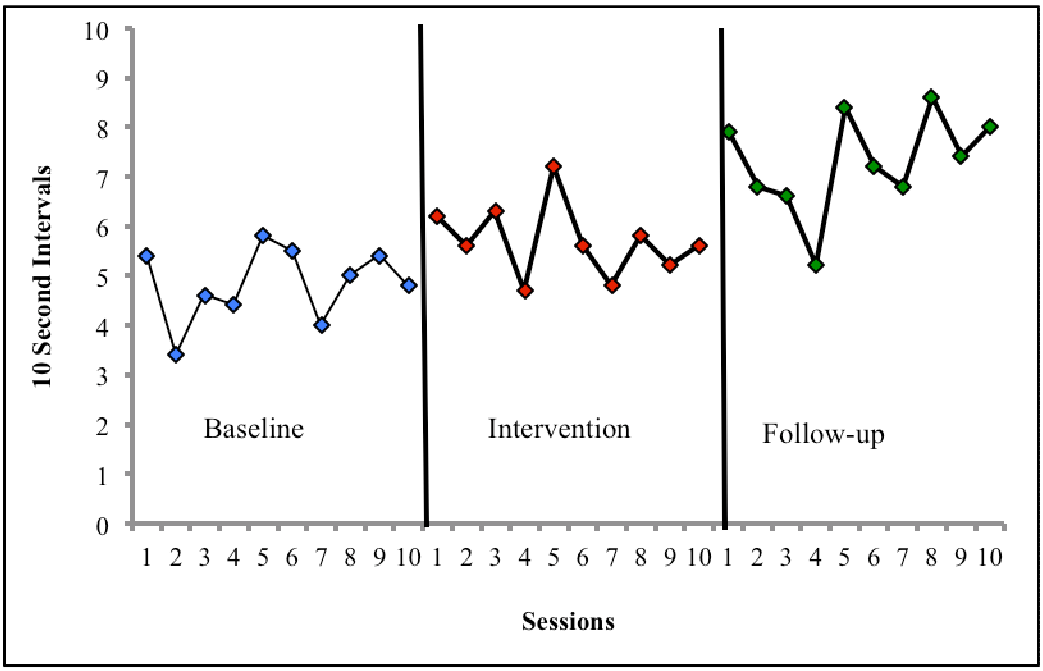

Figure 2 Participant 2's accuracy in facilitating behaviors.

Table 2; PND follow-up phase

Participant 2. Percentage of Non-Overlapping Data Points (PND)

Participant	DV	PND (Intervention)	PNG (Follow-up)
2	Accuracy	30%	90 %

Table 2 indicates Participant 2's PND. For Participant 2 there is a great variability and a significant amount of overlap between baseline and intervention data as is indicated by a PND score 30%, considered an effective treatment, and matching Research Question 2 of 75% or above. Participant 2's baseline to follow-up PND score was calculated at a 90% level, very effective treatment, and above the 50% level for Research Question 3. An effect size of 0.835 was calculated, indicating a large effect for Participate 2 (Jenson et al., 2007).

Participant 3's facilitation behavior during the baseline condition was relatively consistent with a calculated mean of 2.5. After receiving the initial training session and access to the video models, the frequency of participant 3's improved in to a mean of 3.5. An analysis of data during follow-up indicated that Participant 3 illustrated improved and maintained high scores in her instructional performance over time with a mean of 4.39. Participant's 3 performances increased during all three phases.

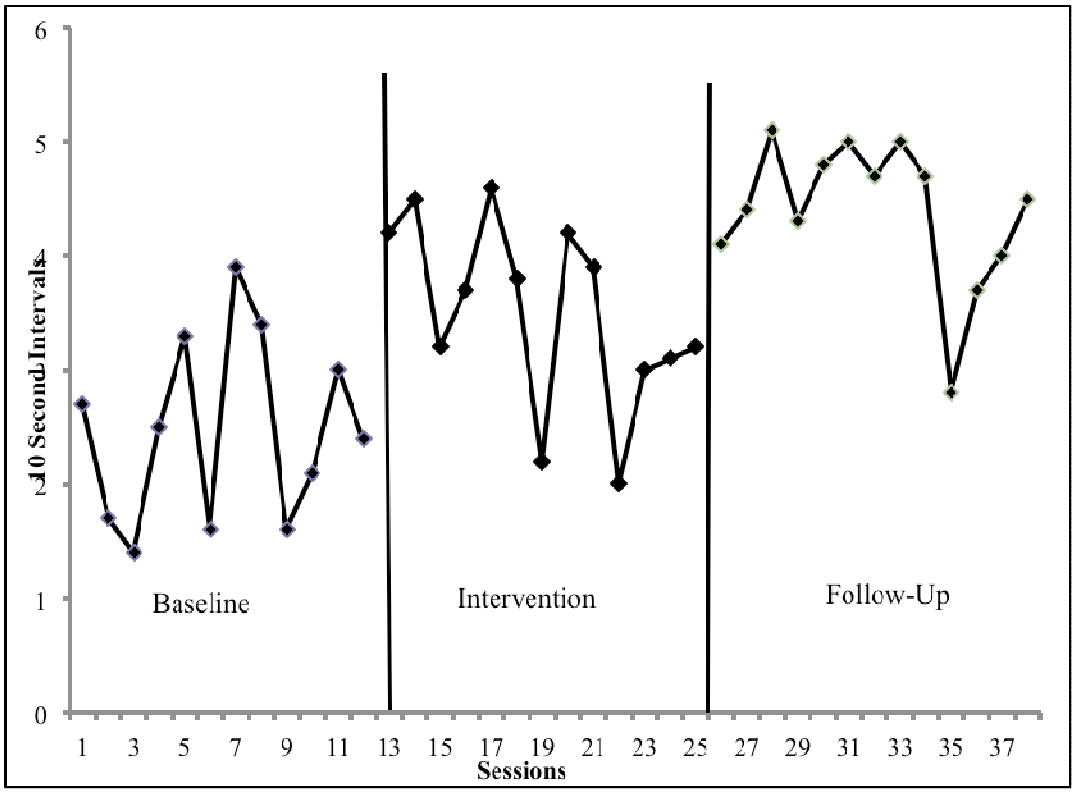

Figure 3 Participant 3's accuracy in facilitating behaviors.

Table 3

Participant 3. Percentage of Non-Overlapping Data Points (PND)

Participant	DV	PND (Intervention)	PND (Feed-back)
3	Accuracy	31%	85%

Table 3 indicates Participant 3's PND. For Participate 3 there is much overlap between baseline and intervention phase as reflected by PND score of 31% which indicated that the intervention as very effective treatment and matching Research Question 2 having at least a 75% or above. Participant 3's baseline to follow-up accuracy PND score was calculated at 85% level, considered fairly effective treatment. The 85% level exceeds what is asked in Research Question 3 maintaining at least 50% level once treatment is removed Participant 3's baseline to follow-up accuracy ES of 0.523 is considered having a medium effect (Jenson et al., 2007).

Participant 4 started with low scores at baseline, with mean of 0.24. Participant 4 showed improvement in his instructional performance over baseline. After receiving the initial training session and access to the video models, Participant 4's improved his instructional performance to an on average of 3.01. An analysis of the data during follow-up revealed that Participant 4 demonstrated continued improvement in his performance with a mean of 4.59. Overall, Participant's 4 performance scores at follow-up were sustained in the high range over time in support of maintaining DTI skill when VSM was provided.

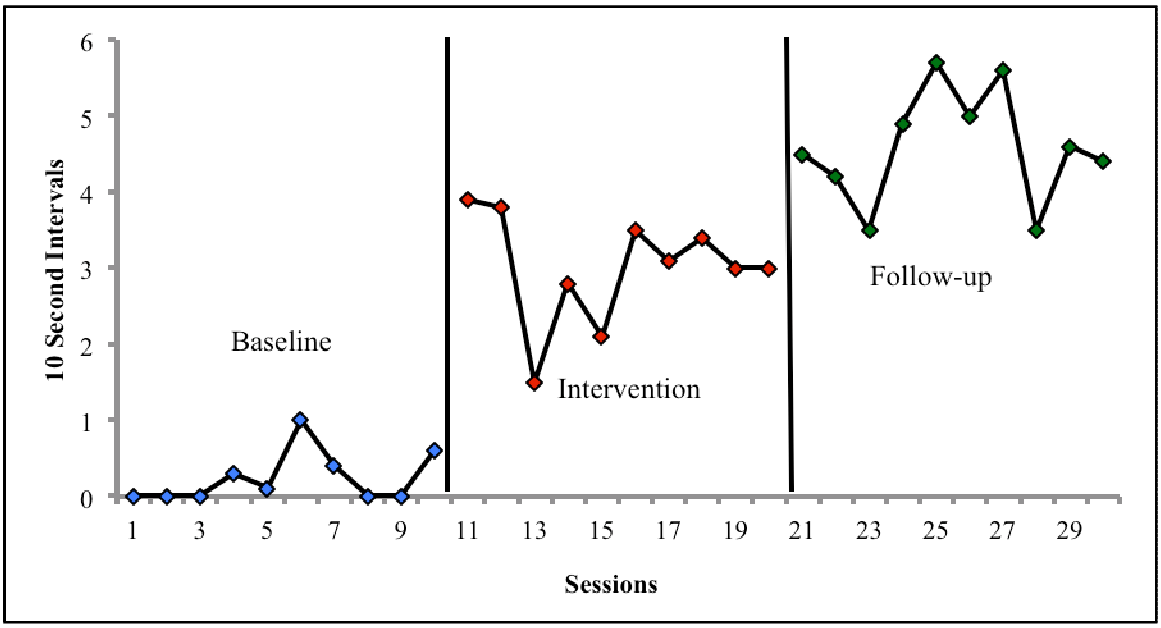

***Figure* 4** Participant 4's accuracy in facilitating behaviors.

Table 4

Participant 4. Percentage of Non-Overlapping Data Points (PND)

Participant	DV	PND (Intervention)	PNG (Feed-back)
4	Accuracy	100%	100%

Table **4** indicates participant 4's PND. For Participate 4's baseline to intervention accuracy PND score was calculated at 100 %. The 100% level of accuracy is more than what is asked in Research Question 2 maintaining at least 75% or above level. Participant 4's baseline to follow-up accuracy PND score was calculated at 100% level, considered an effective treatment. The 100% level exceeds what is asked in Research Question 3 maintaining at least 50% level once treatment is removed. Participant 4's baseline to follow-up ES is 0.928 indicating a large effect size (Jenson et al., 2007).

Participant 5 started with somewhat higher scores during baseline than other participants with an on average of 5.15. After receiving the initial training session and

access to the video models, the frequency of Participant 5's demonstrated minimal variability in performance maintaining the same overall instructional performance at 5.58. An analysis of follow-up data indicated Participant 5's scores were observed to be higher than phase 1 and phase 2 with average scores of 7.18. Overall, Participant 5's performance scores at the follow-up phase maintained in the higher range over time showing strong procedural integrity in skill application when VSM was provided.

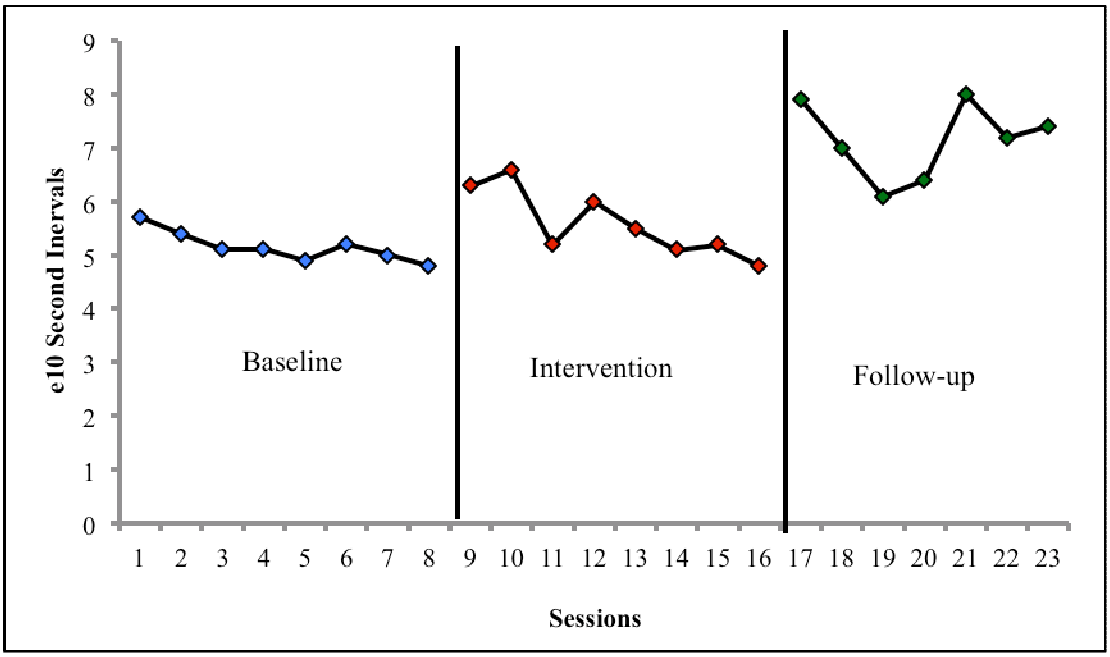

***Figure* 5** Participant 5's frequency of facilitating behaviors.

Table 5

Participant 1. Percentage of Non-Overlapping Data Points (PND)

Participant	DV	PND (Intervention)	PNG (Feed-back)
5	Accuracy	80%	100%

Table **5** indicates Participant 5's PND. For Participate 5's baseline to intervention accuracy PND score was calculated at 38% level, considered a very effective treatment. Participate 5's baseline to feedback accuracy PND score was calculated at 100% level, considered an effective treatment. The 100% level exceeds what is asked in Research Question 3 maintaining at least 50% level once treatment is removed, between baseline and follow-up. Participant 5's baseline to follow-up ES is 0.401 indicating a small to medium effect size (Jenson et al., 2007).

Table 6

Baseline, Intervention, and Performance Feedback Statistics for Each Participant

Participant	Baseline		Intervention		Performance Feedback	
	On Task		On Task		On Task	
	M	SD	M	SD	M	SD
Participant 1	5.6	1.95	6.26	1.73	6.63	1.63
Participant 2	4.83	1.93	5.7	.704	7.29	.957
Participant 3	2.51	.80	3.5	.81	4.39	.637
Participant 4	0.24	.323	3.01	.713	4.59	.713
Participant 5	5.15	.269	5.58	.640	7.14	.711
Total Mean	.984					

Results displayed in Table 6 presents overall effects of the study. All participants' data are summarized using the mean and standard deviations across all baseline and intervention phases. The data was analyzed using Cohen's *d* to calculate

effective size on participant's behavior as displayed. For all the DV and the participants the mean of all the effect sizes was calculated to be at .984, which is considered a very large effect.

Social Validity

All five participants completed social validity questionnaires. Research Questions 4 and 5 evaluate social validity of intervention whether the participants would find intervention acceptable. Specially, Research Questions 4 and 5 inquired whether participants would maintain an overall score at a level of 52.5 or higher. In the current study, participants were sent out an IRP-15 by the school psychologist trainer from a Southwest School in the United States. Consistent with previous research that has measured social validity with paraprofessionals, the participants rated items on a 5-point Likert rating scale (1-strongly disagree, 2-disagree, 3-neutral agree nor disagree, 4-agree, and 5-strongly disagree).

The participants perceived that the treatment was highly acceptable. Participant 1 scored the IRP-15 with 68, Participant 2 score was 60, Participant 3 score was 66, Participant 4 score was 65, and Participant 5 scored the IRP-15 with a 69. All five paraprofessionals found the IRP-15 acceptable, with a mean 65.6.

Interobserver Agreement

To assess the reliability of assessment (*IOA)* the school psychologist trainer and the primary researcher collected data on participant's dependent variables on how to conduct DTI. Based on a trial-by-trial comparison of the 15 trials per session, an agreement was scored if both observers recorded the participant's correct performance

identically. The school psychologist and primary researcher utilized the same measurement system, measuring the same events, and were independent of each other. The method used for calculating the IOA, the total count recorded by observers per measurement period is expressed as percentage. According to Martin and Pear (2011) the average standard for inter-observer agreement is above 90% (mastery). The school psychologist collected data weekly. The primary researcher who used DTTEF for scoring accuracy during baseline and intervention observed videotapes and data. The primary researcher observed each video and scored them using the DTTEFF for all five paraprofessionals that consented to their data and video's being observed. During trials, the raw data received, Participant 1 received an inter-observer level of 93 %. Participant 2 received an inter-observer level of 96% and Participant 3 received an inter-observer level of 91%. Participant 4 received an inter-observer level of 98% and for Participant 5 an inter-observer level of 90% was received.

Summary

This chapter demonstrated findings and results from data analysis to answer the research questions. A single-subject multiple baseline design was used for instruction. Data collected by school psychologist trainer were analyzed, graphed, and interpreted. Results indicated that inter-observer agreement data were used to aid the reality of data, to reduce observer drift, and to support reliability by analyzed and graphed data collected. All data were collected as originally intended by the study and allowed for reliable interpretation.

The present study demonstrated an effective intervention by combining VSM with DTI. Doing so, this study extended the available research on both VSM and DTI intervention in schools. Findings from this study indicated that the purpose add evidence that VSM intervention are effective when combined with DTI. Even though professionals, there have sought after DTI are not enough trained direct care staff to provide this intervention at the alarming rate of the diagnosis. In this study, data collected on the social validity were used to gain a clearer understanding of the level of difficulty of accuracy and if participants grasp training method. All participants reported that using VSM method of training was the cause of improvement and helpful. Chapter 5 discusses this study in full, limitations of study, recommendations for future studies and how this study effects social change.

Chapter 5: Summary, Conclusion, and Recommendations

Introduction

The purpose of the study was to assess the effect of using video self-monitoring to improve the accuracy of paraprofessionals' implementation of DTI when working with children with ASD. Although previous studies have examined VSM with performance feedback (CITE), researchers have not adequately examined the effect of VSM on teaching paraprofessionals to implement DTI effectively. Given that research supports the use of video self-modeling to modify behavior in paraprofessionals, it was hypothesized that a VSM intervention with DTI might increase staff compliance within the classroom.

Findings show that participants delivered DTI accurately and with fidelity and that the outcome for all participants improved during intervention and follow-up phases. Given relatively brief training, paraprofessionals can accurately and effectively administer DTI. In addition, fidelity measures gave paraprofessionals some flexibility. This study adds to the literature on paraprofessional efficiency using video technology (Webster-Stratton, Reid, & Marsenich, 2014) to specifically improve accuracy implementation of discrete trial intervention. Efficiency, accuracy, and flexibility of training practice is critical, as school psychologist report there is minimal time to train and supervise paraprofessionals with so many responsibilities (Suter & Giangreco, 2009). Secondly, findings from this study suggest that professional development featuring promising training strategies can result in paraprofessionals implementing DTI

effectively. In the current study, adding video self-modeling significantly improved the participants' accuracy when implementing DTI.

The main focus of Chapter 5 is to summarize interpretation of the findings and the outcome of social validity, limitations of the study, and recommendations of how future research could address these limitations. The chapter concludes with a discussion of how the results of this study impacts social change.

Interpretation of the Findings

A multiple-baseline design was used in this study to assess accuracy performance of paraprofessionals teaching DTI to children with ASD. Data were analyzed using visual analysis, PND, level of performance, and effect size. The first research question addresses the effect of video self-modeling training on novice paraprofessionals' ability to implement advanced discrete trial instruction skills to children diagnosed with autistic spectrum disorder. In order for the null hypotheses to be rejected, with improvement having to reach a 75% improvement level. The second research question inquired whether a participant's ability would decrease the amount of incorrect responses for on task behavior by at least 75%. The third research question inquired whether the participant's perceived ability would affect the level of correct responses over baseline by at least 50%.

Results of this study reflect modest improvements in accuracy of all five participants. Although a mean increase in percent compliance was found for all five participants, visual analysis and effect size calculations provide consistent evidence for a positive, functional relationship between the VSM intervention and an participants'

accuracy of on task behavior. The effectiveness of intervention varied between the five novice paraprofessionals who participated in this intervention. Participant 1's accuracy performance at baseline level (mean) was 5.6; during follow-up phase her level of performance was 6.6. Participant 1's accuracy for PND from baseline to intervention score was calculated at a 17% level, and the baseline to intervention effect size was a 0.17. A Cohen's *d* score of 0.2 signifies a small ES (McGough & Faraone, 2009). The PND between baseline and intervention revealed small changes in effect size, which demonstrates that the VSM treatment was marginally effective in increasing the accuracy performance of Participant 1 after intervention.

Participant 2's accuracy performance at baseline level (mean) was 4.83; during follow-up phase her level of performance was 7.29. Participant 2 demonstrated high improvement in accuracy during the intervention phase. Visual analysis and PND calculation of 80% indicated that there was overlapping between baseline and intervention. In contrast to the modest level of attention to the intervention video that was seen for Participant 1, on average, Participant 2 only attended the video. Participant 2's accuracy for PND from baseline to intervention score was calculated at a 30% level, and the baseline to intervention effect size was a 0.835. A Cohen *d* score of 0.8 signifies a large ES (McGough & Faraone, 2009). The PND results showed a high effective size, which demonstrates that the VSM treatment, was successful with increasing the accuracy performance of Participant 2 after intervention.

Participant 3's accuracy performance at baseline mean level was 2.5; during feedback phase, the participant's level of performance was 4.39. Participant 1's accuracy

for PND from baseline to intervention score was calculated at a 31% level, and the baseline to intervention effect size was a 0.523. A Cohen's *d* score of 0.5 signifies a medium effect size (McGough & Faraone, 2009). The PND results showed a fairly effective size, which demonstrates that the VSM treatment, was effective with increasing the accuracy performance of Participant 3 after intervention.

Participant 4's accuracy performance at baseline level (mean) was 0.24; during feedback phase her level of performance was 4.39. Visual analysis and PND calculation indicated that there was substantial number of nonoverlapping data points between baseline and intervention. Participant 4's PND from baseline to intervention score was calculates at a 100% level, and the baseline to intervention effect size was a 0.928. A Cohen *d* score of 0.9 signifies a large effect size (McGough & Faraone, 2009). The PND results demonstrated that VSM treatment was effective with increasing the accuracy performance of Participant 4 after intervention.

Participant 5's accuracy performance at baseline level (mean) was 5.15; during feedback phase her level of performance was 7.14. Participant 5's accuracy for PND from baseline to intervention score was calculates at 38% level and the baseline to intervention ES was a .401. A Cohen *d* score of 0.4 signifies a medium ES (McGough & Faraone, 2009). The PND results demonstrate that VSM treatment was minimally effective with increasing the accuracy performance of Participant 5 after intervention.

Overall, results indicated immediate and significant improvements on accuracy at the onset of intervention phase but no significant change from intervention to follow-up phase. An analysis of PND demonstrated that the intervention was labeled very effective.

Additionally, the current study lends further support to the results observed in Leblanc et al. (2009) who found that three of the three paraprofessionals improved their score on DTI implementation to above 80% accuracy and maintained that performance level up to 11 weeks follow-up in response to five sessions training. Social validity scores from all five were very high. The finding from this study may be used to better understand effective interventions for paraprofessionals working directly with children with autism and for future research that compares the effectiveness of VSM used with DTI. For all five participants, results of this study and previous studies related to it indicated the VSM is an effective tool tactic for paraprofessionals to use with their autistic students.

Limitations of the Study

Interpretation of these findings should be tempered by consideration of the study's limitations. The study only includes five participants teaching a small number of skills. These results should be investigated in additional studies to generalize these findings. Single subject design recognizes this limitation and generalization occurs via the accumulation of multiple studies (Cooper, Heron, & Heward, 2007). With additional studies across diverse populations will further the external validity of the results. One other limitation to this study was that the baseline for participant's 2 and 5 was generally at a slightly higher rate during the baseline. In addition, participant 1 demonstrated variability in baseline and slightly increasing trend prior to the intervention. Further, it would be beneficial to replicate this study, in order to demonstrate a true relationship between baseline and intervention.

Recommendations

Although the current study contributes to the literature based on the use of VSM interventions for students with ASD, future research could be conducted to address several questions that still exist. As suggested by social learning theory, the transfer of skills from training does not occur in isolation, it is mediated through relationships between school administrators and paraprofessionals. The constraints of paraprofessional's role greatly prohibit the implementation of effective training. This could be attributed to paraprofessional frequently being taught to implement behavior analytic techniques such as discrete trial intervention. Future training must take into

account the paraprofessionals individualized experiences, preferences, knowledge, and implement practice.

It would be useful to conduct replication studies that account for some of the limitations presented in the current study. Specifically, examining whether greater gains in compliance would be obtained if the intervention video depicted the paraprofessional being reinforced. Even though Bandura (1977) theorizes that reinforcement does not increase observational learning as long as the paraprofessional is able to attend to the activity, Dowrick (2012) eludes that the paraprofessional fails to learn from models when the observed behavior does not illustrate outcomes of value. If including the reinforcement in the video increases the value of compliant behavior, the paraprofessional may exhibit higher levels of compliance when watching an intervention video where reinforcement of the targeted behavior is present (Dowrick, 2012).

Implications

Although the natures of multiple baseline design research limits the study findings from being generalized to larger populations. This study's results have several implications that impact the level of paraprofessional training, which in turn impact the students, behavioral and educational experiences. First, results suggest that a VSM intervention can increase improvements of paraprofessional's accuracy for implementing DTI when use with children with ASD to a moderate to large degree. Specifically, the use of VSM as an intervention offers an array of benefits to paraprofessionals who work with students with autism, its ease of implementation and ease of video development and applicability to wide range of behavior (O'Reilly, O'Halloran, et al., 2005). Although, a

major benefit of VSM is the ease of implementation that was reported by all five paraprofessionals through their ratings on the IRP-15. Perhaps, the intervention is feasible to implement in the classroom and socially acceptable way to address the problem behavior, support plan to address paraprofessional's compliance within the classroom.

This study points to the critical need to provide the paraprofessionals with support, using effective staff training as it will most likely benefit the students' performance and enhance their experience and learning. Ultimately, t his author had the opportunity to address this problem by presenting VSM as an intervention to school psychologists, special education teachers, and paraprofessionals during the 2015 summer new employee training at a school in Southwest United States. The goal was to address VSM as a potential evidence-based intervention that requires minimal time commitment, is easy to implement in staff training, and a powerful intervention that promotes, maintenance, acquisition, and generalization of academic, social, and behavioral skills in students with ASD. With this in mind, the merger of technology like VSM with instructional design DTI has the ability to enhance special education within the classroom.

Social Change

To contribute to Walden University's commitment toward social change this study points researchers in the direction of creating a viable treatment technology that can be use to train paraprofessionals to instruct students with ASD. Despite the fact that the

necessary tools are widely available and user friendly it may not always be readily suitable for paraprofessionals due to difficulty with technology (Buggey, 2007).

Most schools are late adapters regardless of the technology. As technology progress during class instruction, it is plausible that some negative consequences could occur from using handheld technology for self-monitoring (Blood, Johnson, Ridenour, Simmons, and Crouch, 2011). Barriers like this have limited the application of VSM in the schools, which in turn is a critical piece for determining social validity treatment. Overall, numerous research supports as barriers decrease paraprofessionals are provided with the opportunity to promote, advocate, and implement VSM in educational setting (Bellini & McConnell, 2010; Buggey, 2007; McCoy& Hermensen, 2007; Catania, Almeida, Lui-Constant, Reed, 2009).

To address the problem, this author presented VSM as an intervention to school psychologists, special education teachers, and paraprofessionals during the summer of 2014 new employee training at Riverdale School district. The goal is to address VSM as a potential evidence-based intervention that requires minimal time commitment, easy implemented staff training and a powerful intervention that promotes maintenance, acquisition, and generalization of academic, social, and behavioral skills in students with ASD. With this in mind, the merger of technology like VSM with instructional design DTI has the ability to enhance special education within the classroom. Hope lies that novice paraprofessionals will be VSM competent and technology savvy prior to entering the classroom.

Conclusion

The literature continues to suggest training for paraprofessionals is described as repetitive, non-existent, or limited (Buggey, 2012; Collier-Meek, Fallon, Johnson, Sanetti, & del Campo, 2012, & McCoy & Hermansen, 2007). Limited studies have investigated the training needs of paraprofessionals supporting students with ASD. The current study sought to add the literature base on VSM as an intervention for novice paraprofessionals implementing DTI to students with ASD. Specifically, the study examined whether VSM could be used to increase accuracy in paraprofessionals implementing DTI to students with ASD. Although modest increases in accuracy were observed across all five participants, it can be concluded that a functional relationship exists between the VSM intervention and increases in accuracy.

This study points to critical need to provide the paraprofessionals with support, using effective staff training procedures, in turn promoting improved performance. Bandura's social learning theory, stipulates the observational learning accounts for behavior learning. People can learn through observation. The social learning theory in this study addresses by utilizing VSM with standard performance criteria against target behaviors measured, and by utilizing self-evaluation with a reflective process.

In addition, this study found that performance feedback a necessary phase for paraprofessionals to effectively and efficiently uses DTI. As the most effective method, performance feedback was found to be the most accepted and preferred method among all five participants. Paraprofessionals felt they would be able to implement DTI and that it was a necessary and successful treatment for students with ASD. In turn future research

should continue to assess the social validity of treatments and the effects on the use of these treatments.

While some aspects of this study shared common methodologies with other studies in literature, the current study takes some unique approaches to professional development of paraprofessionals. Specifically, it is note that multiple baseline study added some information from a methodological point of view lending some to the benefits of adding VSM to DTI in leading to improve paraprofessional's performance and procedural integrity with successful outcomes.

References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., rev.) doi:10.1176/appi.books.9780890423349

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

Arnal, L., Martin, G., Fazzio, D., Yu, D., Kielback, L., & Starke, M. (2007). Instructing university students to conduct discrete trials teaching with confederates simulating children with autism. *Developmental Disabilities Bulletin, 35*, 131-147.

Aryes, K. M., &, Langone, J. (2005). Intervention and instruction with video for students with autism: a review of the literature. *Education and Training in Developmental Disabilities, 40*, 183-196.

Bandura, A. (1977). *Social learning theory.* Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1989). Regulation of cognitive processes through perceived self-efficacy. *Developmental Psychology, 25,* 729-735.

Bandura, A. (1997). *Self-efficacy: the exercise of control.* New York, NY: Freeman. *Education and Training in Developmental Disabilities, 40*, 183-196.131-147.

Bellini, S., & Akullian, J. (2007). A meta-analysis of video modeling and video self – monitoring interventions for children and adolescents with autism spectrum disorders. *Exceptional Children, 73*, 264-287,

Belfiore, P., Fritts, K., & Herman, B. (2008). The role of procedural integrity: using self-monitoring to enhance discrete trial instruction (DTI). *Focus on Autism and Other Developmental Disabilities, 2*, 95-102.

Bellini, S., Akullian, J., & Hopf, A. (2007). Increasing social engagement in your children with autism spectrum disorders using video self-modeling. *School Psychology Review, 36*(1), 80-90.

Bingham, M.A., Spooner, F., & Browder, D. (2007). Training paraeducators to promote the use of augmentative and alternative communication by students with significant disabilities. *Education and Training in Development Disabilities, 42*, 339-352.

Bleuler, P. E. (1961). Dementia praecox or the group of schizophrenias. In T. Shipley (Ed.), *Classics in psychology* (pp. 417-422). New York, NY: Philosophical Library.

Buggey, T. (2005). Video self-modeling applications with students with autism spectrum disorder in a small private school setting. *Focus on Autism and Other Developmental Disabilities, 20*(1), 52-63.

Buggey, T. (2005). Video self-modeling applications with students with autism disorder in a small private school setting. *Focus on Autism and Other Developmental Disabilities.20, (1),* doi: 101177/ 10883576050200010501

Buggey, T. (2007). A picture is worth a thousand words: Video self-modeling applications at school and home. *Journal of Positive Behavior Interventions*, *9*, 151-158. doi:10.1177/10983007070090030301

Catania, C. N., Almeida, D., Liu-Constant, B., & DiGennaro-Reed, F. D. (2009). Video modeling to train staff to implement discrete-trial instruction. *Journal of Applied Behavior Analysis, 42*, 387–392

Center for Disease Control and Prevention. (2013, October 16). Centers for Disease Control and Prevention: Autism Spectrum Disorders (ASD). Retrieved from http://www.cdc.gov/NCBDDD/autis m/data.html

Cihak, D., Fahrenkrog, C., Ayres, K. M., & Smith, C. (2010). The use of video modelling via a video iPod and system of least prompts to improve transitional behaviors for students with autism spectrum disorders in the general education classroom. *Journal of Positive Behavior Interventions, 12,* 103-115.

Cihak, D. F., & Shrader, L. (2009). Does the model matter? Comparing video self-modeling and video adult modeling for task acquisition and maintenance by adolescents with autism spectrum disorders. *Journal of Special Education Technology*, 23(3).

Corbett, B.A., Abdullah, M. (2005). Video modeling: Why does it work with autism? *The Journal of Early and Intensive Behavioral Intervention, 2(1), 2-8.*

Delano, M. (2007). Video modeling interventions for individuals with autism. Remedial and Special Education, 28, 33–42.

Dib, N., & Sturmey, P. (2007). Reducing student stereotypy by improving teachers' Implementation of discrete-trial teaching. *Journal of Applied Behavior Analysis*, 40, 339–343.

Fazzio, D., Martin, G. L., Arnal, L., & Yu, D. (2009). Instructing university students to

conduct discrete-trials teaching with children with autism. Journal of Autism Spectrum Disorders, 3, 57–66.

Giangreco, M.F. (2003). Working with Paraprofessional. *Educational Leadership, 61*, 50-53.

Green, C. W., Rollyson, J. H., Passante, S. C., & Reid, D. H. (2002). Maintaining proficient supervisor performance with direct supports personnel: An analysis of two management approaches. *Journal of Applied Behavior Analysis, 35*, 205–208

Kanner, L. (1943). Autistic disturbances of affective contact. *Nervous Child, 2,* 217-250.

Kazdin, A. E. (2010). *Single-case research designs: Methods for clinical and applied settings* (2nd ed.). New York: Oxford University Press.

Leblanc, M., Ricciardi, J., & Luiselli, J. (2005). Improving discrete trial instruction by paraprofessional staff through an abbreviated performance feedback intervention. *Education & Treatment of Children, 28*, 76-82.

Lofthouse, N. Hendren R., Hurt E., Arnold LE, & Butter E. (2012). A review of complementary and alternative treatments for autism spectrum disorders. *Autism Research and Treatment.* 2012, 1-21.

Luiselli, J. (2011). Teaching and behavior support for children and adult with autisms spectrum disorder: *A practitioner's guide*. New York: Oxford Press.

Mackintosh, V.M., Goin-Kochel, R.P., & Myers, B.J. (2012). "What do you like/dislike about the treatments you're currently using? A qualitative study of parents of children with autism spectrum disorders. *Focus on Autism and Other Developmental Disorders,* 28, 44-53.

Mazurik-Charles, R. & Stefanou, C. (2010). Using paraprofessionals to teach social skills to children with autism spectrum disorders in the general education classroom. *Journal of Instructional Psychology*, 37(2), 161-169

McIntyre, L. L, Gresham, F. M., DiGennaro, F. D., Reed, D. D. (2007). Treatment integrity of school-based interventions with children in the Journal of Applied Behavior Analysis 1991-2005. *Journal of Applied Behavior Analysis*, *40*, 659-672.

Moore J. W, & Fisher W. W. (2007). The effects of videotape modeling on staff acquisition of functional analysis methodology. *Journal of Applied Behavior Analysis*, *40*, 197–202.

Nepo, K. G. (2010). The Use of Technology to Improve Staff Performance. *International Journal Of Behavioral Consultation & Therapy,* 6, 134-141.

Nikopoulos, C. K., & Keenan, M. (2007). Using video modeling to teach complex social sequences to children with autism. *Journal of Autism and Developmental Disorder, 37,* 678-693.

Pelletier, K., McNamara, B., Braga-Kenyon, P., & Ahearn, W. (2010). Effect of video self-monitoring on procedural integrity. *Behavioral Interventions*, *25*, 261-274. doi:10.1002/bin.316

Ryan, C., & Hemmes, N. (2005). Post training discrete trials teaching performance by instructors of young children with autism in early intensive behavioral intervention. *Behavior Analyst Today, 6*, 1-6.

Sarakoff, R. A. & Sturmey, P. (2004). The effects of behavior skills training on staff implementation of discrete- trail teaching. *Journal of Applied Behavior Analysis*, *37*, 535- 538.

Schwartz, I.S. & Baer, D.M. (1991). Social Validity Assessments: Is Current Practice State of Art? *Journal of Applied Behavior Analysis. Special Issue: Social Validity: Multiple Perspectives,* 24 (2), 189-204.

Schultz, T. &, Schmidt, C. (2011). A review of parent education programs for parents of children with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities, 26*, 96-104.

Shukla-Mehta, S., Miller, T., & Callahan, K. J. (2010). Evaluating the effectiveness of video instruction on social and communication skills training for children with autism spectrum disorders: A review of the literature. *Focus on Autism and Other Developmental Disabilities*, *25*(1), 23–36

Sidman, M. (1960). *Tactics of scientific research.* New York: Basic books.

Suter, J.C., & Giangreco, M.F. (2009). Numbers that count Exploring special education and paraprofessional service delivery in inclusion-oriented schools. *Journal of Special Education,* 43 (2), 81-93.

Thomson, K., Martin, G., Arnal, L., Fazzio, D., & Yu, C. (2009). Instructing individuals to deliver discrete-trial teaching to children with autism spectrum disorders: A review. Research in Autism Spectrum Disorders, 3, 590-606.

Victor, H., Little, S. G., & Akin-Little, A. (2011). Increasing social engaged time in children with autism spectrum disorders using video self-modeling. *Journal of Evidence-Based Practices for Schools, 12*, 105-124.

Ward-Horner, J., & Sturmey, P. (2012). Component analysis of behavior skills training in functional analysis. *Behavioral Interventions*, *27*, 75-92.

Wolf, M.M. (1978). Social validity: The case for subjective measurement or how behavior analysis found its heart. *Journal of Applied Behavior Analysis,* 11, 203-214.

Appendix A: Social Validity Scale

Intervention Rating Profile-15

The purpose of this questionnaire is to obtain information that will aid in the selection of in-home interventions. Parents or treatment staff of children with behavior problems can use these interventions. Please circle the number that best describe your agreement or disagreement with each statement. Please circle also whether you are a parent or staff.

1 = Strongly Disagree
2 = Disagree
3 = Slightly Disagree
4 = Slightly Agree
5 = Agree
6 = Strongly Agree

1. This would be an acceptable intervention for the child's problem behavior. 1 2 3 4 5 6

2. Most parents/staff would find this intervention appropriate for behavior problems in addition to the one described. 1 2 3 4 5 6

3. This intervention should prove effective in changing the child's behavior problem. 1 2 3 4 5 6

4. I would suggest the use of this intervention to other parents/staff. 1 2 3 4 5 6

5. The child's behavior problem is severe enough to warrant use of this intervention. 1 2 3 4 5 6

6. Most parents/staff would find this intervention suitable for the behavior problem described. 1 2 3 4 5 6

7. I would be willing to use this intervention in the home. 1 2 3 4 5 6

8. This intervention would not result in negative side-effects for the child. 1 2 3 4 5 6

9. This intervention would be appropriate for a wide variety of children. 1 2 3 4 5 6

10. This intervention is consistent with those I have used in the home. 1 2 3 4 5 6

11. The intervention is a fair way to handle the child's behavior problem. 1 2 3 4 5 6

12. This intervention in reasonable for the behavior problem described. 1 2 3 4 5 6

13. I like the procedures used in this intervention. 1 2 3 4 5 6

14. This intervention is a good way to handle this child's behavior problem. 1 2 3 4 5 6

15. Overall, this intervention would be beneficial for the child. 1 2 3 4 5 6

Curriculum Vitae

School Psychologist Intern (under supervision), Tolleson Union School District, AZ
August 2011- December 2012 full time
Identified and assessed the learning, development, and adjustment characteristics and needs of individuals and groups, as well as the environmental factors that affect learning and adjustment.

Used assessment data about the student and his/her environment(s) in developing appropriate interventions and programs.

Provided interventions to students to support the teaching process and to maximize learning and adjustment.

Provided consultation to parents, teachers, and other school personnel, and community agencies to enhance the learning and adjustment of students.

Assisted in the planning, development, and evaluation of programs to meet identified learning and adjustment needs.
Delivered a planned and coordinated program of psychological services.

Applied ethics and standards of professional practice in the delivery of school psychological services and observed relevant laws and policies that govern practice.

Participated in professional organizations and continually seeks to improve professional knowledge and skills.

School Psychologist Practicum Student, Phoenix Elementary School District, AZ
February 2011- 2012- full time
Completed psycho-educational evaluations to analyze learner characteristics and design appropriate learning objectives
Worked with faculty and students to apply research proven study, behavior and time management programs
Collaborated with school personnel to identify barriers to learning and facilitate problem resolution
Provided comprehensive school psychological services
Psychologist intern for the summer Child Find (developmental evaluations, committee meeting attendance, parent consultation).

Crisis Counselor, Nurse Wise Crisis Line, Tempe, Arizona
July 2009 to Present- Full Time

- Provided comprehensive crisis intervention services.

Assessment Crisis Counselor, Maricopa Crisis Network, Tempe AZ
February 2008 to July 2010

- Provided triage and conducts a comprehensive evaluation to determine clinically appropriate level of care.

EDUCATION

Walden University, Minneapolis, Minnesota
PhD in Psychology in Progress, specialization in school psychology.

Capella University, Minneapolis, Minnesota
M.A., Major in Human Services, Minor in Mental Health Counseling. *September 2007*

University of Maryland, College Park, MD
B.S. Major in Health Education, Minor in Community Health, *December 1998*

Professional Training

Teaching Assistant: Walden University Residency in Minnesota and Dallas. *July 2009 and January 2010.*
Crisis Assessment Counselor Internship: Maricopa Integrated Health System, Mesa, AZ *September 2006 – August 2007.*

Membership

American Psychological Association, Division 16
National Association of School Psychologist
Arizona Association of School Psychologist
Psi Chi Honor Society

Interests

Applied Behavior Analysis
Functional Assessment and Function-Based Interventions
Assessment and Intervention Methods for Children with Learning, Attention and Behavior Disorder
Response to Intervention (RTI)
Positive Behavior Interventions and Supports