A SURVEY STUDY ON THE ABA-DIR INTEGRATED TREATMENT MODEL IN AUTISM INTERVENTION

A thesis submitted in partial fulfillment of the requirements
For the degree of Master of Art in Education, Educational Psychology

By

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DEDICATION

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ABSTRACT

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Children with Autism diagnoses exhibit a wide range of clinical expressions, including impairment in social behaviors, delay in speech development, deceleration of head growth, loss of previously acquired language, and social skills deficits. The primary goal of this study is to explore and document the strategies utilized by autism interventionists using Applied Behavior Analysis (ABA), Developmental, Individual Differences, Relationship-based (DIR) and Integrated model (ABA-DIR) treatment approaches in a hypothetical scenario case. The scenario is designed to represent a situation that is common in treatment sessions when working with children on the autism spectrum. The secondary goal of this study is to explore the extent to which there are similarities and differences between interventionists’ responses across treatment groups. Seven autism interventionists practicing in the ABA, DIR, and ABA-DIR treatment approaches were surveyed. Their responses were analyzed and further discussed in this thesis. Findings of this pilot study suggested that prior education level and practice experiences might contribute to each interventionist’s choices in deciding what specific strategies to utilize during treatment session. However, due to the relevantly small sample size and non-representative participant pool, further investigation was necessary to support the conclusion of this thesis.
CHAPTER ONE
INTRODUCTION

The increasing prevalence, wide range of symptoms, and unknown etiology make Autism Spectrum Disorders (ASD) a complex matter to address. According to the National Autism Center, in 2012 one in 88 children are diagnosed with an Autism Spectrum Disorders (ASD) in America (Baio, 2012). More recently, the Yale Child Study Center reported a much higher prevalence rate of ASD in a total population study conducted in South Korea; one in 38 school-age children are on the Autism Spectrum. (Kim, Y. S., Leverthal, Koh, Fombonne, Laska, Lim, Cheon, Kim, S., Kim, Y., Lee, Song, & Grinker, 2011). There are five disorders under the current structure within the classification of ASD according to American Psychiatric Association (DSM-IV-TR): (a) Autistic Disorder (AD), (b) Pervasive Developmental Disorder, Not Otherwise Specified (PDD-NOS), (c) Asperger's Disorder (AS), (d) Rett's Disorder, and (e) Childhood Disintegrative Disorder. The five disorders are technically mutually exclusive and relatively static (2000). Children with ASD diagnoses exhibit a wide range of clinical expressions, including impairment in social behaviors, delay in speech development, deceleration of head growth, loss of previously acquired language, and social skills deficits. The observable behaviors in children with any one of the Autism Spectrum Disorders (ASD) generally reflect deficiencies in social awareness, verbal/non-verbal communication skills, and atypical levels of interest in others (Autism and Developmental Disabilities Monitoring Network, 2009). Indicators of a child with ASD are their delay in meeting typical developmental milestones. They may include the absence of babbling, pointing, or making meaningful communicative gestures by the age
of one year old; the lack of one-word communication by 16 months; the lack of two-word communication by two years old; as well as an overall absences of social skills and the lack of desire to make social contact with others (National Institute of Mental Health, 2008). Even though the disorder was first documented by psychiatrist Leo Kanner in his article, *Autistic Disturbances of Affective Contact* (1943), the etiology of ASD is still unconfirmed (NIMH, 2008).

To support families with children on the autism spectrum, service providers in the community commonly practice following treatment models such as Applied Behavior Analysis (ABA), Developmental, Individual Difference, Relationship-based (DIR), and an integrated approach that combines features from Applied Behavior Analysis and the Developmental, Individual Difference, Relationship-based models (ABA-DIR) as reported by the *Time Magazine* ("A tales of," 2006).

**Statement of Need**

The ABA and the DIR are supported with empirical evidence of their efficacy in improving skills in the areas of cognition, language, adaptive/self-help behaviors, compliance, social functioning, emotional functioning, and information gathering, respectively, in children with ASD (Ryan, Hughes, Katsiyannis, McDaniel, & Sprinkle, 2011). Though it is reported by mainstream media that the integrated model is also utilized by service agencies in the community ("A tales of," 2006), a limited amount of research was found on the ABA-DIR treatment model to examine the model’s execution and effectiveness. Only a few comparative studies on the Applied Behavior Analysis (ABA) treatment model verses the Developmental, Individual Difference, Relationship-based (DIR) treatment model were retrieved through the California State University,
Northridge’s Oviatt Library’s electronic databases: ERIC, Primary Search, PsycARTICLES, PsycCRITIQUES, and PsycINFO. And, to the best of the researcher’s knowledge, there has been no research conducted on the ABA-DIR integrated treatment model. Findings of this thesis study may contribute to the body of knowledge about how the integrated model is executed in practice and in what ways the intervention techniques from the ABA and the DIR treatment models intermingle to meet the Office of Special Education Programs (OSEP)’s expectation outcomes ("Office of special," 2004). As this study will also document characteristics of all of the three treatment models, findings may inspire future research topics to better support the development of each treatment models; as well as, inspire future studies on the effectiveness of the ABA-DIR integrated treatment model.

**Purpose of Study**

The primary goal of this study is to explore and document the strategies utilized by interventionists using ABA, DIR and ABA-DIR treatment approaches in different hypothetical scenario cases developed for this study. Scenario cases are designed to represent situations that are common in treatment sessions when working with children on the autism spectrum. The secondary goal of this study is to explore the extent to which there are similarities and differences between interventionists’ responses across treatment groups. There are four research questions in this study.

**Research Questions**

**Question 1.** How do interventionists using the Applied Behavior Analysis (ABA) treatment model strategize session activities with children on the autism spectrum?

**Question 2.** How do interventionists using the Developmental, Individual
Difference, Relationship-based (DIR) treatment model strategize session activities with children on the autism spectrum?

**Question 3.** How do interventionists using the Applied Behavior Analysis and Developmental, Individual Difference, Relationship-based (ABA-DIR) integrated model strategize their session activities with children on the autism spectrum?

**Question 4.** To what extent are there similarities and difference between how ABA, DIR, and ABA-DIR interventionists strategize session activities with children on the autism spectrum?

**Terminology**

Understanding of the following terms are important to the make sense of this thesis study.

*Reinforcement* describes a relationship among events in which the rate of a targeted behavior’s occurrence increases when some environmental condition is manipulated (Alberto & Troutman, 2009).

*Compliance Goals* are a set of learning goals taught in ABA treatment sessions, (i.e. “sit down”, “come here”, “give me”, “please wait”, “look at me”, “ask me”, etc.). Each goal is to be taught through learning trials to prepare child to learn more complicated goals later on.

*Establish Rapport* can be understood as the establishment of trust, respect, and a feeling of comfort in a relationship (Cormier & Hackney, 1993).

*Pre-mack Principle* “states that individuals engage in certain behaviors at low frequencies, so these behaviors have a low probability of occurrence. Other behaviors are engaged in at high frequencies and therefore have a high probability of occurrence. When
low-frequency behaviors are followed by high-frequency behaviors, the effect is to increase the probability of the low-frequency behavior.” (Alberto & Troutman, 2009, p. 227)

Parallel Play: A form of play that occurs at the age of 2 to 3 in typically developing children. Children would graduate from playing alone (solitary play) to play alongside other children without much interaction with each other (“Child development institute,” 2012).

Picture Schedule/Visuals: Picture schedule is a type of visual aid that is commonly used in treatment sessions and classroom settings. “(Picture) schedules help an autistic student prepare for the transition by allowing them to see the upcoming activity and understand the sequence of activities that will occur.” (“National autism resources,” 2012, p.1)

Significance of Study

This study explores the treatment session activities, intervention strategies, techniques, materials, tools, and/or props that are currently employed by interventionists using an ABA, DIR, or ABA-DIR treatment model. This study is an effort to elicit interest in future studies on the similarities and differences in the ABA, DIR, or ABA-DIR integrated treatment models explored in the current study. It may also provide families of children on the autism spectrum and/or other developmental disabilities a more systematic way of understanding and comparing the currently available treatment models available in the community and whether a particular model will more appropriately meet their children’s’ and families’ specific needs.

It will also provide information about how each treatment model; especially the integrated model is executed in practice and in what ways that the intervention techniques
from the ABA and the DIR treatment models intermingle in practice. Findings of this study may inspire future research topics to better support the integration of the two treatment models with empirical evidence and support each of the three treatment models investigated in this current study.

**Preview of the Thesis**

Chapter Two will review the following topics in greater details respectively: Autism Spectrum Disorders (ASD) and the Desired Results Developmental Profile (DRDP), An Overview of the Treatment Models, Applied Behavior Analysis (ABA), Developmental, Individual Difference, Relationship-based (DIR), and Applied Behavior Analysis and the Developmental, Individual Difference, Relationship-based integrated (ABA-DIR).
CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter provides the necessary background information cited from literature that help illustrate the most current understanding on the following topics: Autism Spectrum Disorders, Desired Results Developmental Profile, the Applied Behavior Analysis (ABA) treatment model, the Developmental, Individual Difference, Relationship-based (DIR) treatment model, the ABA-DIR Integrated (ABA-DIR) treatment model and the Pivotal Response treatment model.

Autism Spectrum Disorders (ASD) and the Desired Results Developmental Profile (DRDP)

According to the American Psychiatric Association (DSM-IV-TR, 2000), Autistic Disorder, Asperger’s Disorder, Pervasive Developmental Disorder Not Otherwise Specified (including Atypical Autism), Rett’s Disorder, and Childhood Disintegrative Disorder are the five disorders currently classified within Autism Spectrum Disorders (ASD). Core symptoms that are shared across all five disorders include: impairment in social interaction, impairments in communication skills, and display of stereotyped body movements. Specific diagnostic criteria that are unique to each of the disorders define the five disorders to be technically mutually exclusive and relatively static (i.e. presence or absence of clinically significant general delay in language and/or cognitive development for Autistic Disorder and Asperger’s Disorder, respectively; late age at onset for Pervasive Developmental Disorder Not Otherwise Specified; deceleration of head growth for Rett’s Disorder; loss of previously acquired skills for Childhood Disintegrative
Disorder).

In May 2013, the publication of the fifth edition of Diagnostic and Statistical Manual of Mental Disorders (DSM-5) will revise the current diagnostic criteria for ASD. The preliminary draft revisions of ASD are available for public review on the American Psychiatric Association DSM-5 Development website (2012). There will no longer be the five disorders on the autism spectrum; hence, “Autism Spectrum Disorder” will become a singular noun in DSM-5. The anticipated diagnostic criteria for ASD in DSM-5 will be inclusive of all core symptoms of the five disorders within the current classification of Autism Spectrum Disorders in DSM-IV-TR: “Persistent deficits in social communication and social interaction across contexts, not accounted for by general developmental delays… Restricted, repetitive patterns of behavior, interests, or activities… Symptoms must be present in early childhood… Symptoms together limit and impair everyday functioning (“American psychiatric association,” 2012)”. Three levels of severity for ASD will also be operationalized (See Table 1).

Considering both the current DSM-IV-TR and the anticipating DSM-5 ASD classifications, this survey study focuses on the treatment of impairments in social skills and communication skills of children with ASD. Interventionists’ difference in treatment execution based on the child’s operationalized ASD severity levels are addressed. Three indicators used to evaluate improvements in preschool children with Individualized Education Programs (IEPs) within the Desired Results Development Profile (DRDP) access Assessment System are incorporated into the design of this study’s survey questions. They are, “positive social-emotional skills (including social relationships), acquisition and use of knowledge and skills, and use of appropriate behaviors to meet
their needs ("DRDP access assessment," 2011). 

An Overview of the Treatment Models

As reported by the Time Magazine, treatment models practiced by service providers in the community to support families with children on the autism spectrum include, Applied Behavior Analysis (ABA); Developmental, Individual Difference, Relationship-based (DIR); and a hybrid model integrating Applied Behavior Analysis and the Developmental, Individual Difference, Relationship-based integrated (ABA-DIR) approaches ("A tales of," 2006).

The ABA and the DIR treatment models both deliver effective interventions in addressing specific impairments of children with autism (Hilton & Seal, 2006). The two treatment models are grounded in two different schools of thought in psychology. ABA models are based on the traditional principles of behaviorism while the DIR approach is derived from principles associated with developmental perspectives of human behavior and change (Alberto & Troutman, 2009; Greenspan & Wieder, 2005). Hence, emphasis and techniques of the two treatment models are fundamentally distinct from one another due to the differences in theoretical framework origins of each treatment model.

The ABA-DIR treatment model is a merge of the two. The presumption is that the integration of the two approaches should create an approach that allows interventionists to deliver treatment “with a broader set of approaches simultaneously” in order to “address the underlying mechanisms contributing to the problems within the entire population” that a single treatment model may not account (Domitrovich, Bradshaw, Greenberg, Embry, Poduska, & Ialongo, 2010, p. 74). When the ABA and the DIR
treatment models are well established, studied, and manualized, a limited amount of studies are conducted on the ABA-DIR treatment model.

The Applied Behavior Analysis (ABA) Treatment Model

The ABA treatment model grounds its theoretical origin in Behaviorism, which was founded approximately a century ago by John Watson (1914). Emotions, such as fear, were interrupted as bodily reactions to *conditioned stimulus*, such as a startling loud noise (Watson & Rayner, 1920). In 1937, Watson’s intellectual descendent B. F. Skinner coined the term *operant conditioning* in his article *Two types of conditioned reflex: a reply to Miller and Konorski*; a kind of learning that a behavior is formed due to the association of the behavior and a stimulus. Skinner (1953) also emphasized that behaviorists ought to be more concerned with describing a behavior rather than explaining it; the increase, decrease, or maintain of the specific behaviors in relation to the environmental factors. Later in Skinner’s career, investigations of the ability to modify behaviors of laboratory animals through the use of operant conditioning set the foundation for later studies on complex human behavior and the application of behavior modification (Skinner, 1948). As the research interests in Behaviorism and its ability to modify behavior flourished, the first volume of *Journal of Applied Behavior Analysis* was published in the spring of 1968.

In “Some Current Dimensions of Applied Behavior Analysis,” Baer, Wolf and Risley (1968) constituted the standards for Applied Behavior Analysis research in stating: “… the study must be applied, behavioral, and analytic; in addition, it should be technological, conceptually systematic, and effective, and it should display some generality” (p. 92). Applied research was defined as study that was constrained to
investigate variables that could be effective in improving the behavior under study, while non-applied research would focus on any variables that may conceivably relate to behaviors.

When conducting a study that aimed to collect behavioral data, a subject’s verbal description of his own non-verbal behavior would not be considered valid; however, his actual displayed behaviors would be considered. “The relevant question is not what he can say, but what he can do” (Baer et al., 1968, p.93). When an analysis of a behavior was achieved, control over it was established. Specific variables that might contribute to the display and/or intensity of a behavior were identified through an analytic approach. And, the techniques used to modify those variables to obtain control over a behavior ought to be “identified and described” (p.95) to be considered technological.

Since, historically, collections of techniques without a well-structured system tended to have difficulties in expanding and teaching due to their complexities. Developing conceptual systems that gave specific well-defined technique operationalized names was “the effort of making a body of technologies into a discipline rather than a collection of tricks.” (p. 96); thus, making the expansion and training of those techniques more efficient as a system. Also, application of those behavioral techniques ought to be effective - powerful enough to generate large enough effects for practical value. “Its practical importance, specifically its power in altering behavior enough to be socially important, is the essential criterion (of applied behavior analysis).” (p. 96). Such behavioral techniques should also be generalizable. “A behavioral change may be said to have generality if it proves durable over time, if it appears in a wide variety of possible environments, or if it spreads to a wide variety of related behaviors.” (p. 96)
To sum up, it was important for an applied behavior analysis treatment to clearly state the behavior changes quantitatively, analyze variables that was contributing to the behavior’s change, describe exact procedures technologically to make controlling the behavior possible, make sufficient behavior changes that are in value of the society, and generalize the behavior change.

Roughly two decades later, O. Ivar Lovaas (1987) pioneered his use of an intensive treatment of ABA to modify behaviors of children with autism in his study “Behavioral treatment and normal educational and intellectual functioning in young autistic children.” Subjects were included if a medical doctor or licensed PhD psychologist diagnosed them with autism. Specifically, participants were included if they were less than 40 months old or 46 months old if they displayed no verbal communication and were echolalic (repeat non-sensible phonics), and had prorated mental age of 11 months or more at a chronological age of 30 months.

Nineteen of the subjects were assigned into an intensive-treatment experimental group. They received more than 40 hours of one-to-one treatment per week. Another 19 subjects were assigned in Control Group 1. They received 10 hours or less of one-to-one treatment per week. Both treatment groups received the same kind of one-to-one ABA treatment for two or more years. However, Control Group 1 received treatment with less intensity and without systematic physical aversive. In Control Group 2, twenty-one subjects received treatment from other sources in the community that was not the same as the experimental treatment group (Lovaas, 1987).

Treatment sessions were conducted by trained therapists who work with children in their home, school, and community for an average of 40 hours per week for 2 or more
years. Throughout the intervention, the child’s parents were included as part of the treatment team to enable treatment procedures being practiced for almost all of the subjects’ waking hours. The treatment was conceptualized on reinforcement (operant) theory and included the use of discrimination-learning data and methods. Separate programs were designed to address specific behavioral concerns of the child. “High rates of aggressive and self-stimulatory behaviors were reduced by being ignored, by the use of time-out, by the shaping of alternate, more socially acceptable forms of behavior, and (as a last resort) by (contingent physical aversive), such as the delivery of a loud “no” or a slap on the thigh contingent upon the presence of the undesirable behavior.” (p. 4).

Treatment goals addressed during the first year of the study included, “reducing self-stimulatory and aggressive behaviors, building compliance to elementary verbal request, teaching imitation, establishing the beginnings of appropriate toy play, and promoting the extensive of the treatment into the family” (p. 4). During the second year, more emphasis was placed on teaching “expressive and early abstract language and interactive play with peers” (p. 4). Functioning within a preschool peer group was taught in the community during a treatment session. The study’s third year addressed “appropriate and varied expression of emotions, pre-academic tasks like reading, writing, and arithmetic; and observational learning (learning by observing other children learn)” (p. 4).

The follow-up data collected after long-term treatment indicated that almost half of the participants (47%) in the treatment group reached normal intellectual and educational functioning levels; contrasting with only 2% of the control group participants who reached normal intellectual and educational functioning levels. Findings of this
study supported the intensive one-to-one ABA treatment’s effectiveness in lowering the rate of inappropriate behaviors, improving communication skills and the overall intellectual and educational functioning of children with autism (Lovaas, 1987).

In a more recent study “Using multiple-exemplar training to teach a generalized repertoire of sharing to children with autism,” Marzullo-Kerth, Reeve, Reeve, and Townsend (2011) conducted a study to teach sharing behaviors to children with ASD using the following ABA techniques: video modeling, prompting, and reinforcement. Study subjects were four children with an autism diagnosis: Steven, Isaac, Bobby, and Aiden. Prior to the experiment, none of the children displayed sharing behaviors in the classroom or at home as reported by their parents and teacher after direct observations.

Experimental sessions were mainly conducted in a school office. Approximately every 2 weeks, experimental sessions were conducted in the school’s kitchen to promote generalization. Generalization of sharing in subjects was assessed before and after treatment in their usual daily classroom. Four groups of stimulus used for sharing were art materials, snack foods, toys, and gym materials. Discriminative stimuli materials for non-sharing responses were also used; i.e. “papers to put in a backpack, an academic worksheet, books on the floor that needed to be placed on a table, a dirty tabletop and a towel, and an article of clothing” (p. 282).

A concurrent multiple-probe design across participants was used. There were 18 trials for baseline and 18 trials for treatment session. During baseline, subjects would be presented with stimulus materials with a verbal direction to engage in the target activity. For example, a subject might be presented with a crayon and a blank coloring page and be verbally directed to color the picture. Then, the experimenter would position oneself to
invite sharing behaviors from subject to observe if verbal and/or motor sharing behaviors were displayed. No prompts or models were given, nor reward tokens were given during baseline. During treatment, subjects would also be presented with stimulus materials with a verbal direction. The experimenter also positioned oneself to invite sharing behaviors from the subject. Different from baseline, subjects received an error-correction procedure if they failed to display sharing behaviors.

First, subjects were presented with video models that depicted two peers sharing an activity shown from a third-person viewpoint. Then, the experimenter presented the material for that trial, positioning oneself to invite sharing behaviors again. If subjects offered to share both verbally and physically (i.e. saying, “there you go” and handing the item to the experimenter), they would receive reward tokens and verbal reinforcement, i.e. “thank you”. If subjects did not display any sharing behaviors, they would receive physical prompt by using hand-over-hand guidance to assist the child in handing the items to share physically. At the same time, a voice recorder that emitted a recording of the target vocal response would be activated to prompt child’s verbal sharing behavior. If subjects emitted only one of the physical and verbal sharing behaviors, the experimenter would deliver the corresponding prompt for the absent behavior. The physical and auditory prompts were repeated until the participant display both physical and verbal responses independently.

During probe trials, the experimenter carried out procedures that were identical to baseline. All four subjects showed systematic increases in offering to share during both teaching and probe trials; when no sharing behaviors were observed at any baseline trials. Findings of this study supported the efficiency of ABA treatment models in teaching
sharing behaviors to children with ASD (Marzullo-Kerth et al., 2011). The ABA model has demonstrated efficacy in increasing levels of cognitive skills, language skills, adaptive skills, and compliance skills in children from approximately 2 to 6 years old (Ryan, Hughes, Katsiyannis, McDaniel, & Sprinkle, 2011).

The Developmental, Individual Difference, Relationship-based (DIR) Treatment Model

While the ABA treatment model follows the behaviorism discipline, Stanley Greenspan and Serena Wieder’s (1999) DIR treatment model takes a functional developmental approach. Its origination can be traced back to Sigmund Freud's psychoanalytic theory and Jean Piaget’s cognitive developmental framework (Greenspan, 1979); where the nature of human learning was understood as a gradual and constructive cognitive process (Miller, 2011). With the ABA treatment model, behaviors were targets for intervention. They were modified through the use of rewards and punishment. The progress and outcome of the treatment are assessed based on the increase, decrease, or maintaining of the targeted behaviors.

When looking at behaviors from Greenspan’s (1979) functional developmental approach, observable behavior is only one of the indicators of the child’s developmental progress. The child’s ability to achieve his/her own emotional goal or to satisfy a need is also assessed. In other words, the progression of an individual child’s functional development is the focus of the intervention – not the problematic behaviors. As the Greenspan and Wieder (1999) stated in their paper “A Functional Developmental Approach to Autism Spectrum Disorders”, “using a syndrome to define the research base may be overly limiting… research reviews on autism are often limited to assessment,
intervention, or etiologic studies on children with ASD.” (p. 1). The researchers of the DIR model described their model as “dynamic”; as it: “…Conceptualizes the child’s functional emotional developmental capacities, individual differences in sensory processing and modulation, motor planning and sequencing, as well as child/caregiver and family interaction patterns” (Greenspan & Wieder, 1999, p. 1).

The DIR treatment model is designed to identify, systematize, and integrate the essential functional developmental capacities of children with most non-progressive developmental and learning disorders, including ASD (Greenspan & Wieder, 1999). It accounts for the underlying challenges that individual children with a disorder experience and provide the supportive intervention. In another words, the functional-emotional developmental approach examines how individuals integrate their motor, cognitive, language, spatial, and sensory capacities to achieve emotionally meaningful goals (Greenspan & Wieder, 1999).

Furthermore, the DIR model examines both the biological-based processing profile of children with ASD, as well as the children’s relationships and interactive patterns with their families. “As a functional approach, it uses the complex interactions between biology and experience to understand behaviors” (Greenspan & Wieder, 1999. p. 2). Hence, it is believed that intervention programs constructed from a functional developmental approach will enable clinicians to tailor treatment programs that are specific to the child’s and family’s unique needs, instead of an approach that would “… . have the child fit the program, based on some broad, but nonspecific, diagnostic criteria” (Greenspan & Wieder, 1999. p. 2).

In “Climbing the Symbolic Ladder in the DIR model through Floor
time/interactive play” (2003), Greenspan and Wieder illustrated the process of using DIR treatment model to establish a foundation of shared attention, engagement, simple and complex gestures, and problem solving in the example of a boy with ASD named Joey. Joey received a 4-year-long intensive intervention, central to daily floortime interactions. Accordingly, the component of “floortime” utilized with this child was:

. . . . spontaneous and led by the child, where the caregiver follows the child’s lead and promotes the continuous flow of interactions utilizing affect cues that entice, challenge, soothe and encourage the child further . . . . (Floortime) is the active process of interacting in a continuous and rapid back and further manner at all the levels the child is capable of, from sensory-motor pre-verbal interactions, to problem solving, to symbolic play and abstract conversations (Greenspan & Weider, 2003) p. 427

The purpose of the treatment was to strengthen the child’s functional developmental capacities that form the foundation for higher, more complex abilities learning. Specific key elements associated with each developmental stage are described below.

**Stage 1: Self-regulation and shared attention (interest in the world).**

Development and integration of senses and sensorimotor capacities are the focus in this stage. A primary goal for children at this stage is to develop the capacity to regulate their sensory system (visual, auditory, tactile, olfactory, vestibular, and proprioceptive) so they can engage in shared attention with caregivers. Interaction between children and adults include behaviors such as, looking, hearing, touching, and moving. Making the interaction enjoyable to the child is also a focus in this stage.
Stage 2: Engagement and relating. Children and adults engage in mutually reciprocal interactions that include engaging in early communication in which the child responds to their caregiver’s interactions by smiling, referencing, moving their body, vocalizing, or reaching. An important feature of this stage is to help children associate engagement with adults with pleasure and intimacy. The development of a sense of security, intimacy, caring, and empathy are continually emphasized during this stage of relationship building.

Stage 3: Two-way intentional communication. Through exchanges of gestures and emotional signals children communicate and lead interactions with adults in this stage. Adults assist children in learning communication through facial expressions, eye contact, and other emotional signals or gesture through the use of animated and expressive affect. A continuous flow of communication is encouraged through a process referred to as opening and closing multiple circles of communication. According to Greenspan and Weider (2003), “A circle is opened when the child exhibits some interest or initiates a behavior – e.g. the child looks at a toy, and the parents or caregiver follows the child’s lead by picking up the toy and showing it to the child. The child closes the circle by reaching for the toy, while acknowledging (looking, smiling at) the parents” (p. 428).

Stage 4: Purposeful complex problem solving communication. By Stage 4, thirty or more back and forth circles of communication should have been established by adults and children. Children are encouraged to lead and negotiate with adults to meet their emotional needs.
**Stage 5: Creating and elaborating symbols (ideas).** Engaging children to relate to abstract sensations, gestures, and behaviors in pretend play is the focus of this stage. Adults are encouraged to help children develop a full range of emotional feelings and help them avoid developing a polarizing or dominating feeling state, such as aggression and impulsivity, needy or dependent behavior, or fearful patterns. Adults are encouraged to promote longer conversations with children that communicate interests, feelings, desires, and conflict resolution.

**Stage 6: Building bridges between symbols (ideas).** Adults encourage children to engage in the use of logical reasoning, problem solving and, and negotiation for desirable things at this stage. Adults use pretend play, words, and/or visual symbols to elaborate cohesive thoughts and ideas in child. Encouraging children to figure out motives and feelings that were expressed by others during play can help them practice understanding the theory of mind. The distinction between reality and fantasy is established in this stage through receiving encouragement and support to make reflective thoughts from the adults through their communications. (Greenspan & Wieder, 2003. p. 427-429).

After receiving the described floortime intensive treatment for 4 years, Joey progressed continuously during different stages of his developmental. As his specific processing and affective difficulties were addressed at each stage, the author stated that floortime enabled Joey to “build the structure necessary for each successive achievement” (p. 434). Although “a single child’s progress cannot . . . prove the efficacy of an intervention . . . our observations suggest that play provided the lifeline for Joey’s development.” (p. 434).
The DIR treatment model has demonstrated efficacy in increasing levels of social functioning, emotional functioning, and information gathering in children of the ages of approximately 2 to 5 years old (Ryan et al., 2011). This paper will be reviewed in the next section of this chapter.

**The ABA-DIR Integrated Treatment and the Pivotal Response Treatment Models**

Similar to the ABA-DIR Integrated Treatment Model, the Pivotal Response Model (PRT) (Koegel & Koegel, 2010), utilizes elements of behaviorism and developmental principles. Derived from ABA, PRT incorporated specific research based procedures (i.e. task variation, rewarding attempts, use of natural reinforcers, etc.) in their treatment. Core areas of the child’s development were targeted and the emphasis of parent involvement were highlights of PRT as well (Koegel & Koegel, 2010).

The treatment model manual, workshops schedules, online parent training, research articles, and other resources on PRT intervention were easily obtained from the internet for PRT’s official website. However, when searching through both the internet and the California State University, Northridge’s Oviatt Library’s electronic databases: ERIC, Primary Search, PsycARTICLES, PsycCRITIQUES, and PsycINFO, no results were found to be on the ABA-DIR integrated treatment model; only a few comparative studies on ABA and DIR treatment models were retrieved.

According to Hilton and Seal’s study “Brief report: Comparative ABA and DIR trials in twin brothers with autism” (2006), the effectiveness of ABA and DIR treatment models in two twin brothers’ functioning domains were examined and compared. The monozygotic twin brothers were 2 years old. They were diagnosed with severe speech-language delays and ASD. Two graduate clinicians delivered treatment sessions under the
supervision of the first author of this study for two 1-hour weekly sessions. After attending 16 of 18 sessions (absences due to illness), the study concluded that ABA intervention appeared to be superior to DIR in the following areas: gestural and vocal communication and social-affective signaling. However, DIR had more desirable treatment outcomes than ABA in reciprocity and symbolic behaviors. Also, there was no crying observed in the DIR trial with one of the two twin brothers; however, there was an increase in both frequency and duration of crying episodes in the ABA trial.

At the end of the study, the authors found it difficult to interpret their findings to the parents. Regardless of the gains associated with ABA approach, or losses associated with DIR, the family chose DIR as a better fit for their family. The contrasts in strengths and weaknesses of the two treatment models found in this study, as well as the parents’ choice of treatment model after trying out both for their twin sons, suggest a benefit of the integration of ABA and DIR (Hilton & Seal, 2006).

A limited amount of empirical research was found on the ABA-DIR integrated treatment model as of the date when this thesis was composed, when relating keyword such as, “ABA-DIR integrated treatment model”, was entered on the electronic periodic journal article database through the Oviatt Library at California State University, Northridge.

This thesis study seeks to provide more information on the ABA-DIR integrated treatment model, on how it is executed by interventionists trained on this approach, as well as, how the ABA-DIR integrated treatment model compares to the more established research-based treatment models such as the ABA and the DIR models.
CHAPTER THREE

METHODOLOGY

Description of Initial Study

There are two main goals in this study. First, this study explores the strategies utilized by interventionists using ABA, DIR and ABA-DIR treatment approaches in different hypothetical scenario cases developed for this study. Second, this study explores the extent to which there are similarities and differences between interventionists’ responses across treatment groups. The four research questions in this study investigate within group agreement in participants’ responses to the survey questions and illustrate contrasts across the three treatment model groups’ responses:

**Question 1.** How do interventionists using the Applied Behavior Analysis (ABA) treatment model strategize session activities with children on the autism spectrum?

**Question 2.** How do interventionists using the Developmental, Individual Difference, Relationship-based (DIR) treatment model strategize session activities with children on the autism spectrum?

**Question 3.** How do interventionists using the Applied Behavior Analysis and Developmental, Individual Difference, Relationship-based (ABA-DIR) integrated model strategize their session activities with children on the autism spectrum?

**Question 4.** To what extent are there similarities and difference between how ABA, DIR, and ABA-DIR interventionists strategize session activities with children on the autism spectrum?
Participants

Human Subjects

The protocol for this study was submitted to the Standing Committee for the Protection of Human Subjects at California State University, Northridge on February 7th, 2012. After making required minor changes, the researcher received committee approval on March 20th, 2012 (See Appendix A).

Sample Population

A convenience sample of participants was recruited for this interview study. The participant inclusion criteria were as follows: (a) experience practicing either the ABA model, the DIR model, or the ABA-DIR integrated model, and (b) a minimum of one-year experience working with children on the autism spectrum between the ages of 3 and 5 years old. It was important to point out that the ABA-DIR model described in the current study might greatly resemble the contemporary Early Start Denver Model (ESDM) that was conceptually supported by both developmental and applied behavioral analytic principles (Dawson, Rogers, Munson, Smith, Winter, Greenson, & Varley 2010). Participants in the ABA-DIR group were recruited on the contingency that they had not received any formal ESDM training. They must have been trained and have been practicing the ABA-DIR integrated treatment model. Participants in this study were classified into the following 3 groups:

ABA group. The ABA group included interventionists who were practicing (or recently practiced) the ABA treatment model.

DIR group. The DIR group consisted of interventionists who were currently practicing (or recently practiced) the DIR treatment model.
ABA-DIR group. The ABA-DIR interventionist group was currently practicing (or recently practiced) the ABA-DIR integrated treatment model. Responses from the participants in each of the treatment model groups were documented and analyzed to determine the extent to which there were similarities and differences in the responses between the ABA, DIR, and ABA-DIR groups.

Recruitment

Participants using the ABA, the DIR, or ABA-DIR integrated model were recruited from agencies in the community (Los Angeles area) that provide treatment to children with Autism Spectrum Disorders using the ABA, DIR, or ABA-DIR integrated model. Professional connections were utilized to reach these agencies. An invitation to participate in the study was sent by email to potential participants who fulfilled the criteria for inclusion, as described above (see Appendix B for the recruitment email). Those who were interested in participating were instructed to contact the researcher via email. Then, the researcher sent an email with instructions for completing the survey, which was attached as a word document (see Appendix C). Participants were instructed to fill out the response surveys and return the completed surveys promptly via email. All emails and data files related to the current study are stored in a password-protected driver located in a password-protected Macintosh computer. All paper documents are stored in a locked drawer at the researcher’s home office. All electronic files and paper document will be secured until the end of the study and destroyed no later than the month of December 2012.
Instrumentation

Participants were provided with information sheets and survey questionnaires in the survey packet. Information sheets such as, Pictures of the Treatment Setting (Appendix D), and Child Description Sheet (Appendix E) were to serve the purpose of illustrating the hypothetical scenario to the participants. Survey questionnaires packets (Appendix F) included Part I and Part II, where Part I presented participants with the prompted questions to answer by filling directly onto the survey, and Part II collected demographic data from participants. The following sections would discuss each instrument in greater depth.

Materials

Pictures of the treatment setting. Participants were provided pictures of the treatment setting, which could have been interpreted as a room at the client’s home or a treatment center therapy room. Participants would gain a better understanding of what props, materials, and furniture made available to people present in the treatment room. There were toys, including the specifically identified toy that the child preferred, crayons, set up on a child-size table that is lower to the floor.

Client description sheet. It described a child with a high level of severity on the autism spectrum. The child’s social communication levels, restricted interests, and repetitive behaviors were described as he functions with severe deficits in verbal and nonverbal social communication skills cause severe impairments in functioning; very limited initiation of social interactions and minimal response to social overtures from others. Additionally, this study examined the preoccupations, fixated rituals, and/or repetitive behaviors that markedly interfere with functioning in all spheres of
development. Marked distress when rituals or routines are interrupted; very difficult to redirect from fixated interest or returns to it quickly. The language used to describe each child’s functioning levels was adopted from the American Psychiatric Association official website of the *Diagnostic and Statistical Manual of Mental Disorders: DSM-5* (2012). The official website serves a purpose of communicating the manual’s tentative changes and development upon its previous edition; the publication date of DSM-5 is in the month of May 2013.

**The Survey**

A two-part survey was developed by the researcher to obtain specific information pertinent to this study and as such, did not meet criteria for validity and reliability. Part 1 of the survey was designed to collect participants’ responses related to the treatment scenario and Part 2 obtained participant’s demographic information.

**Part 1 of the survey.** On the cover page, Participants were provided with definition of the following stages of treatment: Introductory Stages, Mid-treatment Stage, and Mastery Stage. For Introductory stage, the client is unfamiliar with the treatment outcome expectation; the client demonstrates almost no ability to meet the treatment outcome expectation. During the Mid-treatment Stage, the client is somewhat familiar with the treatment outcome expectation; the client demonstrates some abilities to meet the treatment outcome expectation. And in the Mastery Stage, the client is familiar with the treatment outcome expectation; the client demonstrates ability to meet the treatment outcome expectation most of the time. Participants were prompted to answer questions as if they were meeting the child during the Introductory stage. The survey consisted of four prompted questions related to the treatment. Participants were instructed to respond to:
1. What session activities, intervention strategies and/or techniques would you use in this scenario? Please describe the session activities, intervention strategies and/or techniques.

2. How would you implement the above intervention strategies and/or techniques during the session with the client?

3. What, if any, materials, tools, and/or props would you use?

4. How would you use these materials, tools, and/or props during the session?

All questions were designed to elicit strategies used by interventionists in each treatment model group for the child who have severe autism. Participants were asked to answer and fill in their answers to the survey questions regarding specifics of the session activities and treatment implementations that each participant would hypothetically utilize to target the specific treatment outcome based on behaviors associated with ASD according to the American Psychiatric Association’s Diagnostic and Statistical Manual-IV, Text revision (DSM-IV-TR) (2000).

The treatment outcome was, as followed:

Increase the child’s spontaneous seeking to share enjoyment, interests, or achievements with others as evidenced by the child’s ability to show bring or point to objects of interest in order to help establish positive social relationships.

**Part 2 of the survey.** Once participants answered the questions in the first part of the survey, they were instructed to complete Part 2 of the survey designed to collect participants’ demographic information, including participants’ highest level of education, years of experience working with children on the autism spectrum, and prior training received related to their respective treatment model. An open-ended question at the end
of the survey asked participants to provide additional comments and/or information they would like to add.

**Data Management and Analyses**

Surveys were returned via mail; therefore complete anonymity of participants was not possible. Confidentiality was maintained by making sure that information connecting the participant to the survey was kept separate during data analysis. Participants were instructed to not write any identifying information on the survey (e.g., their name, name of agency, address location of interview meeting). The interventionists’ treatment strategies implemented and reported on in Part 1 of the survey were carefully reviewed and analyzed for categories, themes, and frequencies of responses. In the following chapter, the results of the surveys will be reported.
CHAPTER FOUR

RESULTS

Introduction

The primary goal of the current study is to explore treatment approaches that ABA, DIR, and ABA-DIR interventionists would utilize during the introductory phrase of a hypothetic child’s treatment period. The secondary goal of this study is to contrast the three treatment approaches and to explore the extent to which there are similarities and differences between interventionists’ responses across treatment groups. Each of the four research questions will be discussed in relation to the findings gathered from the seven completed surveys. The research questions examined for this study are as follows:

**Question 1.** How do interventionists using the Applied Behavior Analysis (ABA) treatment model strategize session activities with children on the autism spectrum?

**Question 2.** How do interventionists using the Developmental, Individual Difference, Relationship-based (DIR) treatment model strategize session activities with children on the autism spectrum?

**Question 3.** How do interventionists using the Applied Behavior Analysis and Developmental, Individual Difference, Relationship-based (ABA-DIR) integrated model strategize their session activities with children on the autism spectrum?

**Question 4.** To what extent are there similarities and difference between how ABA, DIR, and ABA-DIR interventionists strategize session activities with children on the autism spectrum?
Demographics Information

Education Level

The two ABA Participants’ had bachelor degrees (ABA1 and ABA2), two of the three participants from the DIR treatment model group had master degrees (DIR1, DIR2 and DIR3), and one of the three participants from the DIR method treatment model group had a doctoral degree (DIR3). Both the ABA-DIR participants had bachelor degrees (ABA-DIR1 and ABA-DIR2).

Prior Practice Experience in Treatment Models

Participant ABA1 reported having practical experience with the ABA treatment model for four years while Participant ABA2 had experience with both ABA (four years) and ABA-DIR integrated treatment models (three years). As for the DIR treatment model group, Participant DIR1 was the one participant reported to have both experience with the DIR treatment model and ABA-DIR mix treatment model, for ten years and four years respectively. The other two participants (DIR2 and DIR3) reported having experience with only the DIR treatment model. Participant DIR2 has five years of DIR experience and Participant DIR3 has 15 years experience in DIR treatment model. In the ABA-DIR mix method treatment group, all two of the participants (ABA-DIR1 and ABA-DIR2) had experience with the ABA-DIR mix method treatment model for one and a half and one year respectively (Figure 1).

Other (Age, Gender, and Ethnicity)

Information regarding the ages of participants revealed that the average age of all participants was 33 years old, and the median age was 30 years old (Mean=33.3 years, Median=30 years). The within group age average for ABA, DIR, and ABA-DIR mixed
method treatment models are 28.5 years old (Mean=28.5, Median =28.5), 40.7 years old (Mean=40.7, Median=36), and 27 years old (Mean=27, Median=27) respectively. There were six female participants and one male participant in this study. Five of the participants were Caucasians, one was Asian, and one participant was Latino/Latina in this study.

![Figure 1. Participant’s Prior Practice Experience in Treatment Models](image)

**Figure 1.** Participants’ prior practice experience in ABA, DIR, ABA-DIR treatment models in years.

**Responses from Participants**

In Part I of the survey, each interventionist reported methods, strategies, materials, and tools they would utilize to support child’s learning to achieve a specific treatment outcome. Each interventionist was given the following treatment outcome for the case scenario: Increase the child’s spontaneous seeking to share enjoyment, interests, or achievements with others as evidenced by the child’s ability to show, bring, or point to objects of interest in order to help establish positive social relationships.

The child is described as a four-year-old male, standing three feet two inches tall, and weighing 38 pounds. His interest is drawing with crayons. He is diagnosed with Autism Spectrum Disorder with severe deficits in verbal and nonverbal social
communication skills resulting in severe impairments in functioning, such as limited initiation of social interactions and minimal response to social overtures from others, preoccupations, fixated rituals and/or repetitive behaviors markedly interfere with functioning in all spheres, marked distress when rituals or routines are interrupted, and difficult to redirect from fixated interest.

**Research Question One: Applied Behavior Analysis (ABA) Treatment Model Participants’ Responses**

Research question one asked how do interventionists using the Applied Behavior Analysis (ABA) treatment model strategize session activities with children on the autism spectrum? The two ABA participants (ABA1 and ABA2) reported their treatment approaches in supporting the child in achieving the treatment outcome. All responses are reported verbatim as stated by the participants.

**Strategies and Methods**

When asked the questions of what strategies and methods they would utilize and how would they implement them. ABA1 Participant reported,

I would first gain the child’s compliance by teaching him learning to learn goals (sit down, come here, give me, clean up, pointing responding to name). I would gain rapport with client and find out what his interest are and reinforcements. I would have session in multiple places of the room and generalize these skills with other family members, keeping the child motivated to gain compliance is most important.
Participant ABA2 reported, 

Use [of] highly desirable activities (e.g. drawing with crayons). Play. Objects of interest. Pairs of interest. Pair self with highly desirable activity. Animated facial expressions/affect. Use highly desirable activity in order to join his play and to be able to interact with others. Playing with child to establish rapport, relationship.

Both ABA participants’ responses reflected agreements on the emphasis of establishing rapport with the child and the use of the child’s interest to incorporate in session activities. Participant ABA1 focused more on teaching specific compliance behaviors using the language of a behaviorist such as, highlighting the importance of gaining the “compliance” of the child, mentioning strategies to “generalize” learning across settings by “having session in multiple places” and practicing skills with other family members.

Whereas, Participant ABA2 used languages that reflected more of a relationship-based approach in her responses, such as, joining in the child’s play, using animated facial expressions and affect to draw the interest of the child, and playing with the child with the goal of establishing a relationship. ABA2 Participant also mentioned the child’s specific interest of drawing with crayons; however, ABA1 Participant only mentioned it indirectly, “find out what his interest are and reinforcements”.

**Materials and Tools**

When asked the questions of what materials and tools they would utilize and how they would implement them during the session. ABA1 Participant reported,

Toys, food, timer, whatever is reinforcing. Table to do ssn (session) on. Also non-reinforcing items for him to "give me" the work my way up to neutral and reinforcing items. These would be used to reinforce the child.
Participant ABA2 reported,

Drawing, crayons. Playing with him. Drawing next to him. Using crayons in a playful way (ex. Putting on head, dropping them) to draw him to specialist.

ABA1 Participant’s response demonstrates the use of a behaviorist’s language, such as the use of “neutral and reinforcing item” during teaching trial to teach specific learning goal. ABA2 Participant’s responses focus on “playing” to build a relationship. Similar to the strategies and methods responses, in this section, ABA1 Participant did not mention child’s specific interest, drawing with crayons, while ABA2 Participant mentioned “crayons” twice in this section.

**Summary**

ABA1 Participant’s responses reflected a strong orientation towards the applied behavior analysis approach in that suggested strategies contained elements of being *applied, behavioral, analytic, technological, conceptually systematic, and effective*, and minimal evidence of *generality* as described by Eaker, Wolk, and Risley (1968). Conversely, ABA2 Participant’s response contained a minimal amount of those elements.

The contrast in responses between the two participants within the ABA treatment group might be a result of the two different training backgrounds of the participants. ABA1 Participant had practical experience equivalent to four years in the ABA-DTT approach and held a B.A. degree in Child Development. Whereas, the ABA2 Participant had a more diverse experience; a B.A. degree in a major that is not relevant to Child Development and/or Psychology, four years of practical experiences in ABA-DIR mixed method model, and three years in the ABA model.
Although ABA2 Participant was prompted to respond to the survey strictly from a behaviorist’s approach, ABA2 Participant’s response reflected more of a relationship-based approach. In addition, she commented on the survey that all the ABA, DIR, and ABA/DIR models are successful programs. In determining which treatment model she would utilize, she expressed that it would depend on which learning goals were to be addressed. For example, if aggression and tantrums were to be addressed because they can be harmful to the child and others, she would use a behavioral approach (ABA). When the child has developed a good foundation of communication skills, with a decreased level of undesirable behaviors, ABA2 Participant would use DIR approach to motivate child to develop social skills. Her comments reflected her thoughts as more of an interventionist with ABA-DIR integrated model training.

ABA2 Participant’s response suggests that perhaps she was not answering the survey question strictly from a behaviorist’s perspective, but was combining elements from both the ABA and DIR treatment approaches. Prior practical experiences and expressed comments about choosing a treatment approach based on the behavior being addressed offer an explanation for ABA2 Participant’s relationship-based responses. Her comments are similar to Domitrovich et al. (2010) who describe allowing interventionists to deliver treatment “with a broader set of approaches simultaneously” in order to “address the underlying mechanisms contributing to the problems within the entire population” that a single treatment model may not account (p. 74).

Research Question Two: Developmental Individual Difference (DIR) Treatment Model Participants’ Responses
Research question three asked how do interventionists using the Developmental, Individual Difference, Relationship-based (DIR) treatment model strategize session activities with children on the autism spectrum? Three DIR participants (DIR1, DIR2, and DIR3) reported their treatment approaches in supporting the child in achieving the treatment outcome. All responses are reported verbatim as stated by the participants.

**Strategies and Methods**

When asked the questions of what strategies and methods they would utilize and how they would implement them. Participant DIR1 reported,

Observation [and] discussion [of observation] and Q+A with parent regarding these skills and child’s current functioning progress. Explain floortime to parent and the impact of their direct play skills with their child-setup treatment plan of supporting parent and child dyad. Encourage parent to find child's interest (crayons and . . . ). Join in play, keep it fun. Establish rapport [and] comfort level with both parent and child. Verbal support of parent - direction to play with child. If unable - use of modeling and then passing over play to parent point out successful interactions.

Participant DIR2 reported,

My first step would be to join in the child's interest. I would also spend time observing the child to see what he was drawn to or interested in. I would evaluate how he would respond to my proximity by moving closer to him and observing his response. I would sit back and observe. Looking for opportunities to join in his activity to join in his activity or play parallel to him.

Participant DIR3 reported,
The activities I would want to do is any type of shared attention and pleasurable interaction between mother and child. Since I know he likes crayons, it might involve crayons. Since this is a visually stimulating activity, I might see if he would enjoy other things with visual interest such as the colored blocks or the jenga pieces. The basic strategy is to follow his lead, first helping him to feel safe and regulated, and then look for ways to combine his interest with mom, especially with mom's body. Then I would look for little interaction patterns in which I could support anticipation, and a sense of fun and joy. Playful obstruction can also be used if it’s really playful. Help him do what he likes to do. Prepare the room by removing some of the toys invite mom in with him. Invite her to play however they do at home to have fun. Follow their lead. If he goes to the crayons, encourage mom to join in. At first, if he objects, just follow his affective lead with comments, imitation, and using her affect to make it fun. Look for ways to hide a crayon on her body. Help him do what he wants to do. Maybe entice him into similar play with the colors of the jenga blocks. Much of the play may not involve the toys. It could be singing, dancing, or simple rhythm, movement activities.

Responses provided by all participants in the DIR treatment model group reflected agreement in the use of observation to gather information about the child, establish rapport, emphasis in play, and, instead of leading the play, all participants agreed on joining in the child’s play. Only two participants (DIR1 and DIR3) mentioned parent participation. Both Participant DIR1 and DIR3 focused on observing and facilitating interactions between the parent and child. Participant DIR1 wrote that she would “encourage parent to find child’s interest, join in play, (and) keep it fun” during session.
And, Participant DIR3 wrote, “The activities I would want to do is any type of shared attention, and pleasurable interaction between mother and child”. Both of Participant DIR1 and DIR3 also mentioned being attentive to child’s comfort level. When Participant DIR1 extended her attention to also mother’s comfort level, Participant DIR3 focused on “first helping him (the child) to feel safe and regulated”.

**Materials and Tools**

When asked the questions of what strategies and methods they would utilize and how would they implement them. Participant DIR1 reported,


Participant DIR2 reported,

- Crayons, paper, toy car. This interest is listed as drawing with crayons so I would start with his primary interest I would also have the car out to observe if he was able to play with it purposefully or repetitively.

Participant DIR3 reported,

- I would start by removing most of the toys, and leaving the crayons (and paper, I assume there is some), and perhaps emptying out the Jenga pieces so they are visible in a small area, and/or the colored blocks out of the shape sorter. I would actually prefer to have some sensory/movement material such as a small slide, see-saw, saucer, tunnel or large booster to climb and jump. Or a [bed] sheet for hide and seek. In any way that is playful, and supports shared attention and pleasure. If he makes dots, for example, make dots with him, or do sound effects.
to the dots. Or have my blocks do similar motions. Hand him the crayons he wants, may turn into a game of him reaching to get them from in mom's mouth, behind my ear, etc. into a fun game. All of this through coaching mom, and supporting her ideas. Observe his affect, sensory profile, and intent.

All participants had directly or indirectly mentioned use of preferred activities/materials (drawing with crayons) as well as introducing other activities/materials. Aside from crayons, the child’s preferred material, all DIR participants mentioned sensory/movement-based toys; play dough, toy car, see-saw, respectively. Only Participant DIR1 and DIR3 included parent in participation.

**Summary**

Responses collected from all three participants in the DIR treatment model group reflected the language of interventionists consistent with the relationship-based, developmental approach. As the nature of human learning was understood as a gradual and constructive cognitive process (Miller, 2011), observable behavior is only one of the indicators of the child’s developmental progress (Greenspan, 1979). All participants in the DIR treatment model group reflected agreement in the use of observation to gather information about the child. Participant DIR1 responded to use observation to gather child’s “current functioning progress” and to establish comfort level with both parent and child. Participant DIR2 would spend time to observe the child to see his interest and his comfort to the interventionist’s proximity with him. And, Participant DIR3 responded to “observe child’s affect, sensory profile, and intent”. All DIR participants’ responses adhered to Greenspan and Wieder’s (1999) description of the DIR philosophy, which “…conceptualizes the child’s functional emotional developmental capacities, individual
differences in sensory processing and modulation, motor planning and sequencing, as well as child/caregiver and family interaction patterns” (p. 1). Furthermore, in addition to the child’s preferred material and activity, all DIR interventionists in this study were also mindful of the child’s sensory processing and motor planning development (Greenspan & Wieder, 1999, p.1), as they all mentioned the introduction of sensory/motor-based toys.

However, the lack of mentioning of parent participation from Participant DIR2 stood out in the group, because the DIR model places much emphasis on the importance of parent participation and the bonding of the child with the caregiver (Greenspan & Wieder, 1999, p. 1). This difference may be attributed to the intervention’s individual practice style. In the scenario presented in the survey, participants were prompted to answer questions minding that it was the very beginning state of intervention. Though it was not otherwise noted by Participant DIR2, it is possible that parent of the child might be later introduced into the session to allow time for the child to focus on developing and integrating senses and sensorimotor capacities accordingly to Greenspan and Wieder’s (2003) “Climbing the Symbolic Ladder in the DIR model through Floor Time/interactive play” strategies. It was stated that the primary goal during this first stage of learning was to develop the skills to regulate their own sensory system. This was to prepare the child to engage in shared attention with caregivers, and also to enable the child to have enjoyable interactions with the environment without being overwhelmed (Greenspan & Wieder, 2003).

Research Question Three: Applied Behavior Analysis and Developmental Individual Relationship (ABA-DIR) Integrated Model Participants’ Responses

Research question three asked how do interventionists using the Applied Behavior
Analysis and Developmental, Individual Difference, Relationship-based (ABA-DIR) integrated model strategize their session activities with children on the autism spectrum? Two ABA-DIR participants (ABA-DIR1 and ABA-DIR2) reported their treatment approaches in supporting the child in achieving the treatment outcome. All responses are reported verbatim as stated by the participants.

**Strategies and Methods**

When asked the questions of what strategies and methods they would utilize and how would they implement them. ABA-DIR1 Participant reported,

The child would be observed to see if he showed interest in any objects. If child shows no interests in objects, I would model highly preferred activity coloring with anticipation the child would follow. If the child does not follow I would bring the items to child and demonstrate enjoyment [for] ex. eye contact with child and showing my happy face when coloring. The child will be given minimal play options to choose from and the therapist will also engage in play activity. The therapist will use affect ("wow, good coloring!") in order to assist child with referencing others or engaging in parallel play.

ABA-DIR1 Participant reported,

Coloring, drawing [preferred activities], spontaneous play with new toys, one on one play, pre-mack principle, picture schedule (listing coloring, new activity and color) while the child is coloring the specialist will randomly play with new toys and interrupt the child and try to entice child's attention as a form of introduction. Specialist will engage in activities and engage in exaggerated play to draw child's
attention, positive reinforcement, introduce picture schedule and reinforce schedule at the end of each activity

Both ABA-DIR participants’ responses reflected agreements on placing emphasis on play and the use of preferred activities/materials during treatment, as well as, the use of other activities/materials. Both participants would engage in play with the child. ABA-DIR1 Participant illustrated her use of play with the child is to be restrictive, “minimal play options” would be presented to the child, while at the same time the child would be given the opportunity to “choose”; whereas, ABA-DIR2 Participant would engage the child in “spontaneous play with new toys.” ABA-DIR1 Participant mentioned the use of observation to gather information about the child, model for the child’s learning, and use affect to encourage pro-social behaviors. ABA-DIR2 Participant mentioned using the pre-mack principle, getting the child’s attention, and using reinforcement to shape child’s behavior.

Materials and Tools

When asked the questions of what materials and tools they would utilize and how would they implement them. ABA-DIR1 Participant reported, The materials needed would be variety of toys to assist client with self-selecting desired objects. The toys would be used as method to reference specialist point to desire toy. ABA-DIR2 Participant reported,

Crayons, paper, any toys that can make noise or have lights. Picture schedule. Use the crayons and activity of choice as a way to orient client while introducing new toys, teachings, and dynamics to child. Utilize option board to direct child into new activities.
Both ABA-DIR participants’ responses reflected agreements on the use of preferred activities/materials during treatment (drawing with crayons), as well as, the use of other activities/materials. ABA-DIR1 Participant mentioned the use of other activities/materials was to facilitate the child’s learning with “self-selecting” of desired objects. ABA-DIR2 Participant mentioned the use of visuals (i.e., picture schedule and option board) to help the child transition between activities, and selected sensory-based toys, “toys that can make noises or have lights”, to bring into session.

**Summary**

Similar to both ABA and DIR group’s responses, both ABA-DIR participants described the process of rapport establishment through out the survey. However, neither participant in the ABA-DIR mixed method treatment model included parent participation in their responses, even though ABA-DIR1 Participant’s responses reflected treatment strategies that reflected more of a relationship-based approach, where much emphasis on the importance of parent participation and the bonding of the child with the caregiver (Greenspan & Wieder, 1999). ABA-DIR2 Participant’s responses reflected an intervention style that was similar to a behaviorist approach. However, differ from Participant ABA1’s response; Participant ABA-DIR2 did not mention plans of generalizing learned skills with other family members. Hence, both Participant ABA-DIR1 and ABA-DIR2’s response appeared to lack in the DIR emphasis of the importance of the bonding of the child with the caregiver (Greenspan & Wieder, 1999) and the ABA element of *generality* as described by Eaer, Wolk, and Risley (1968). Without formal literature or treatment model manuals to illustrate how treatment sessions will progress after this introductory stage of treatment, it is difficult to make prediction of how ABA-
DIR participants would conduct their future session with the child. Parent participations might or might not be included in the future treatment sessions.

**Research Question Four: Similarity and Differences Across the Models**

Research question four asked to what extent are there similarities and difference between how ABA, DIR, and ABA-DIR interventionists strategize session activities with children on the autism spectrum? All treatment groups’ responses reflected agreements on the use of preferred items during the intervention session. Though without direct reference to the goal, “establish rapport” when filling out the survey, the ABA-DIR group’s responses reflected their effort in establishing a positive relationship with the child through out the survey. Thus, all treatment groups’ responses reflected participants’ emphasis on building positive relationships with the child. Almost all seven participants agreed on the using play, joining the child’s play, and using non-preferred items in addition to the child’s specific preferred items. Participant ABA1 from the ABA treatment group did not mention the use of non-preferred items during the session and did not mention placing emphasis on play or joining in the child’s play. Both the DIR and ABA-DIR groups mentioned the use of observation to gain an understanding of the child’s preferred interests.

**Summary**

Responses of Participant ABA2 are more comparable to both participants from the ABA-DIR group. As mentioned earlier in previous chapter, Participant ABA2 had a mix of practical experiences from two different treatment models; four years of practice experiences in ABA-DIR mixed method model and three years in DIR model. This prior practice experience might contribute to the many disagreements in responses between
participant ABA1 and ABA2 within the ABA group, making it difficult to make comparisons across group. Parent participation was mentioned by participants from both the ABA group (Participant ABA1) and the DIR group (DIR1 and DIR 3). However it was not at all mentioned in ABA-DIR group, when the DIR treatment model emphasizes the importance of the bonding of the child with the caregiver (Greenspan & Wieder, 1999) and the ABA treatment model addresses the element of *generality* as described by Eaer, Wolk, and Risley (1968). Because there has not been formal literature or treatment model manuals for ABA-DIR integrated treatment model to illustrate how treatment sessions will progress after this introductory stage of treatment, it is difficult to make prediction of how ABA-DIR participants would conduct their future session with the child. There is no guarantee of which strategy and from which treatment models, ABA or DIR, the interventionists would be implementing next. The effectiveness of the next implemented treatment strategy might be jeopardized, if not being utilized in sequence supported by formal research.

In Chapter Five, conclusion, limitation, and future implications of this study will be further discussed.
CHAPTER FIVE

DISCUSSION

Overall

Autism Spectrum Disorders (ASD) has a wide range of symptoms, an increasing prevalence, and an unknown etiology (DSM-IV-TR, 2000; Kim et al., 2011; NIMH, 2008). Currently, the Applied Behavior Analysis (ABA) and the Developmental, Individual Difference, Relationship-based (DIR) treatment models are some of the evidence-based methods utilized by service agencies in the community as effective interventions for families with children with ASD (Ryan et al., 2011). Though the ABA-DIR integrated method treatment model is reportedly being implemented by service agencies in the community (“A tales of,” 2006), a limited amount of resources are made available to the public regarding the mixed method’s execution and effectiveness. Choosing the most appropriate program for a child with ASD becomes a challenge to families of children with autism when information about the existing available treatment models in the community are limited and disorganized.

The first purpose of this study was to explore the strategies utilized by interventionists using ABA, DIR, and ABA-DIR treatment approaches when addressing the needs of a hypothetical child with severe ASD. The second purpose of this study was to identify differences, if any, in responses between the three treatment approaches. Four research questions were developed for this study:

**Question 1.** How do interventionists using the Applied Behavior Analysis (ABA)
treatment model strategize session activities with children on the autism spectrum?

**Question 2.** How do interventionists using the Developmental, Individual Difference, Relationship-based (DIR) treatment model strategize session activities with children on the autism spectrum?

**Question 3.** How do interventionists using the Applied Behavior Analysis and Developmental, Individual Difference, Relationship-based (ABA-DIR) integrated model strategize their session activities with children on the autism spectrum?

**Question 4.** To what extent are there similarities and difference between how ABA, DIR, and ABA-DIR interventionists strategize session activities with children on the autism spectrum?

Participants of this study were interventionists in a Southern California community with at least one-year experience working with young children on the autism spectrum three to five years of age. Each participant completed Part 1 the study’s survey related to the strategies and techniques they would use to meet the treatment outcome for the hypothetical child with ASD. Relevant demographic information of participants was asked in Part II of the survey obtain information about to their education qualifications, prior practical experience, ethnicity, gender, and number of years working with children on the autism spectrum.

**Discussion of Findings**

Choosing an effective intervention program for children with autism ought to be an informed decision. When there is a limited amount of literature about the available interventions provided for this population in the community, there is a need to compile a preliminary pool of information about the characteristics of those treatment models. This
study strives to explore treatment session activities, intervention strategies, techniques, materials, tools, and/or props that are currently employed by interventionists using three distinctly different treatment models: ABA, DIR, and an integrated model with aspects of both ABA and DIR approaches.

Part I of this study’s survey explored the techniques and strategies suggested by interventionists with experience in the ABA, DIR, and ABA-DIR treatment models in meeting the treatment outcome for a hypothetical child with severe autism.

In this study, the ABA treatment model group had the lowest agreement within groups. The only areas in which their responses overlapped were related to establishing rapport and using preferred items during session. Though specifically prompted to answer the survey questions using strategies/techniques exclusively from the ABA treatment models, responses from Participant ABA2 reflected terminology more commonly used in relation to the ABA-DIR integrated model (e.g., “Join in child’s play, use of facial expression/affect, emphasis on play”).

The DIR treatment model group had the most overlapping responses. Responses provided by all participants in the DIR treatment model group reflected agreement in the use of observation to gather information about the child, establish rapport, emphasize play, and, instead of leading the play, all participants agreed on joining in the child’s play. All participants in this treatment group had directly or indirectly mentioned the use of preferred activities/materials (drawing with crayons) as well as introducing other activities/materials. Two out of the three DIR participants mentioned parent participation and comfort level as being important when designing treatment strategies and activities. As a group, the DIR treatment model participants held the highest education degrees, had
the highest number of years working with children on the autism spectrum, and were the oldest participants group in this study.

One more point to mention regarding the DIR group is the lack of parent participation from one of the 3 participants’ responses. When the DIR model places much emphasis on the importance of parent participation and the bonding of the child with the caregiver, for the interventionist to not have mentioned it in the survey was an unexpected and alarming finding. Especially because the DIR model views the role of parents in the child’s development to be critical, as their relationship with the child play an importance role ("The interdisciplinary council," 2010). Without interacting with the parents, the interventionist would not be able to transfer any of the DIR techniques to them in order to facilitate stronger bonding between the parents and the child. Though, the lack of mentioning of parent participation from the individual interventionist may be attributed to the intervention’s individual practice style. In the scenario presented in the survey, participants were prompted to answer questions being mindful that it was the very beginning stage of intervention. Though it was not otherwise noted by the participant, it was possible that parent of the child might be later introduced into the session.

For the ABA-DIR integrated method treatment model group, both participants’ responses reflected agreements related to placing emphasis on play and the use of preferred activities/materials during treatment, as well as, the use of other activities/materials. Participant ABA-DIR1 mentioned the using observation to gather information about the child, modeling for the child’s learning, and using affect to encourage pro-social behaviors. Participant ABA-DIR2 mentioned using the pre-mack
principle, seeking the child’s attention, and using reinforcement to shape the child’s behavior.

Even though the ABA-DIR treatment model participants had no prior experience in more than one treatment model, Participant ABA-DIR1 suggested strategies/techniques that reflected a preference toward more of the DIR treatment model’s strategies/techniques (e.g., observation, emphasis on play, and emphasis on affect, involve others in play, etc.); whereas, more of the ABA treatment model’s strategies/techniques were favored by Participant ABA-DIR2 (e.g., Pre-mack principle, reinforcement, pairing, etc.). Despite the differences in which treatment model’s strategies/techniques the ABA-DIR integrated treatment model participants favored, they had more overlaps in responses as compared to the ABA treatment model group’s responses and less agreement in responses as compared to the DIR treatment model group.

When looking at how interventionists’ responses overlap within each treatment group, there were some non-corresponding responses from all groups. This suggested that intervention treatments children with autism receive in the community outside of a controlled research institution might appear differently from one another, despite that they were interventions from the same treatment model group. Though treatment delivery should allow a certain degree of disagreement for interventionists’ stylistic differences, certain essential elements of the treatment models should not be left out. For example, the lack of behaviorist’s languages from one of the ABA interventionists’ responses and the lack of mentioning of parent involvement from one of the DIR interventionists’ responses and both of the ABA-DIR interventionists. When the proper use of terminologies in ABA
model (Baer, Wolf, & Risley, 1968) and parent participation in DIR ("The interdisciplinary council," 2010) are emphasized points in these models, this study’s finding suggested that interventionists working in the community might lack supervision support and/or training to ensure essential elements of a treatment model were delivered during sessions to children with autism. Further investigative research may help addressing this concern.

Furthermore, when looking at how each survey responses overlap across groups, treatment strategies implemented by the ABA group and the DIR group were not completely distinct and many of their responses overlapped. For example, both groups used strategies such as establishing rapport, using preferred items, using other items, placing emphasis on play, parent/peer participations, and joining the child’s play. Treatment strategies implemented by the ABA-DIR group were a combination of treatment strategies from the ABA treatment model and the DIR treatment model; however, they were not necessary a combination of treatment strategies reported by the ABA group and the DIR group from this study. This finding suggested the importance of those overlapping elements. Research topics on those specific overlapping elements may yield studies with significant results.

Despite the findings of this survey study, the relatively small sample size and non-representative participant group may limit this study’s validity and reliability. Especially in the ABA treatment model group in which there were only two participants, and of these, one was not fully responding in the language of a behaviorist, instead in language that reflected more of a relationship-approached.
This thesis served as an exploratory pilot study to help future development of a more polished study model with a more concise survey and a more representative participant pool to answer questions relating to the ABA, DIR, and ABA-DIR treatment for children with autism.
REFERENCES


Appendix A

Informal Approval Document from the Standing Committee for the Protection of Human Subjects at California State University

3/20/2012

Hi Sharon,

This is to confirm that you are approved to move forward with your study. Exemption letter will be out to you in a week to week and a half.

Best,
Suzanne

Suzanne Selken, MPA
Compliance Officer

Research and Sponsored Projects
California State University, Northridge
18111 Nordhoff St.
Northridge, CA 91330-8232
Appendix B
Recruitment Email

Dear Mr./Ms. ______________________________,

Hello, I am a graduate student in the Department of Educational Psychology and Counseling at California State University, Northridge. (I am referred to you by Professor Sloane Lefkowitz Burt and/or Dr. Joannie Busillo-Aguayo.)

I would like to invite you to participate in a research study to better understand the Applied Behavioral Analysis (ABA), the Developmental, Individual Difference, Relationship-based (DIR), and the integrated Applied Behavior Analysis and Developmental, Individual Difference, Relationship-based (ABA-DIR) treatment model. You may participate, if you are 1.) Experienced in practicing either the ABA model, the DIR model, or the ABA-DIR integrated model; and, 2.) Have at least one-year experience working with children on the autism spectrum who are of the age of 3, 4, and/or 5 years old.

As a participant, a survey packet will be mailed to you. The survey will take about 150 minutes to complete. A pre-stamped envelope will also be included in the packet for its return after its completion within 10 to 14 days of receiving. A $20 Target gift card will be sent out approximately 15 days after the packet's returning date. Due to the length of this survey, you will be advised to begin as soon as possible, and take breaks as needed to minimize the risk of fatigue or any other physical and/or emotional distresses.

Though this study will not benefit you as a participant directly, the effort in improving the understanding of the treatment models may contribute in providing all interventionists practicing the studied treatment models with more effective treatment strategies in the future. This study is also an effort to provide families with children on the autism spectrum and/or other developmental disabilities a more systematical way to understand and compare the currently available treatment models in the community.

If you are interested in participating, please reply to ABADIRCSUN@gmail.com with an electronically completed copy or a scanned copy of 1.) The consent form and 2.) The bill of right. (You may find them attached in this email. If you have questions at anytime, please contact me at (626)272-1314 or ABADIRCSUN@gmail.com.

Please respond to this invitation email by 3/30/2012.

Thank you for your consideration.

Sincerely,

Sharon Hui
(626)272-1314
ABADIRCSUN@gmail.com
Hello _______,

It is great hearing from you. Would you please provide me with your mailing address? A survey packet will be on its way ASAP.

The survey will ask interventionists to identify what techniques and strategies they would use in given scenarios during treatment sessions. A pre-stamped envelope will also be provided for its return after its completion within 10 to 14 days of receiving. The survey will take up to 150 minutes to complete. A $20 Target gift card stipend will be sent out approximately 15 days after the packet's returning date.

If you have any questions, feel free to reach me at 626-262-1314 or at ABADIRcsun@gmail.com.

Thank you very much for your participation.

Best,
Sharon
Appendix D
Pictures of Treatment Setting

**Picture A.** Treatment will be taken place at a corner of a carpeted room. There will be three floor-seating cushions, a play table, and a toy shelf. The door is unlocked. The child’s primary caregiver is at the other side of the door.
Picture B. The toy shelf displays the following objects: a Mr. Potato toy, a box of crayons, three storybooks, a box of Jenga pieces, a bag of plastic toy food, a wooden shapes-puzzle, a toy electric piano, a bag of playdo and play tools, a toy car with miniature people, and a box of tissue.
Appendix E
Child Description Sheet

Child A

Gender: Male
Age: 4 years
Height: 3’2
Weight: 38 lb
Interest: Drawing with crayons

Diagnose: Autism Spectrum Disorder – Requiring very substantial support.

Social Communication: Severe deficits in verbal and nonverbal social communication skills cause severe impairments in functioning; very limited initiation of social interactions and minimal response to social overtures from others.

Restricted interests and Repetitive behaviors: Preoccupations, fixated rituals and/or repetitive behaviors markedly interfere with functioning in all spheres. Marked distress when rituals or routines are interrupted; very difficult to redirect from fixated interest or returns to it quickly.
Appendix F
The Survey
(Modified to fit Thesis formatting)

- CHILD A -

Describe how you would implement session activities, intervention strategies and/or techniques with CHILD A to meet the following three targeted treatment outcomes at different stages of treatment:

1) Increase the child’s spontaneous seeking to share enjoyment, interests, or achievements with others; improve the child’s ability in showing, bringing, or pointing out objects of interest in order to help establish positive social relationships;

Here are the three different stages of treatment: Introductory, Mid-treatment, and Mastery:

1.) Introductory Stage – The client is unfamiliar with the treatment outcome expectation. The client demonstrates almost no ability to meet the treatment outcome expectation.

2.) Mid-treatment Stage – The client is somewhat familiar with the treatment outcome expectation. The client demonstrates some abilities to meet the treatment outcome expectation.

3.) Mastery Stages – The client is familiar with the treatment outcome expectation. The client demonstrates ability to meet the treatment outcome expectation most of the time.

What session activities, intervention strategies and/or techniques would you be using? Please describe the session activities, intervention strategies and/or techniques. How would you implement the above intervention strategies and/or techniques during sessions with the client? If any, what materials, tools, and/or props would you be using? How would you use these materials, tools, and/or props during session? What is the rationale of choosing the intervention strategies, techniques, material, tools, and/or props? Why should they be effective in helping this child meeting the specific targeted treatment outcome?

Please fill in your response accordingly in the table on the next page.

Please feel free to write on the back of the page and/or attach additional pages if more space is needed.
<table>
<thead>
<tr>
<th>Different Treatment Stages with CHILD A</th>
<th>Survey Questions:</th>
<th>Treatment Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introductory Stage</strong></td>
<td></td>
<td>1.) Increase the child’s spontaneous seeking to share enjoyment, interests, or achievements with others; improve the child’s ability in showing, bringing, or pointing out objects of interest in order to help establish positive social relationships.</td>
</tr>
<tr>
<td>1. <strong>What</strong> session activities, intervention strategies and/or techniques would you be using? Please describe the session activities, intervention strategies and/or techniques.</td>
<td>Response:</td>
<td></td>
</tr>
<tr>
<td>2. <strong>How would you implement</strong> the above intervention strategies and/or techniques during sessions with the client?</td>
<td>Response:</td>
<td></td>
</tr>
<tr>
<td>3. If any, <strong>what materials, tools, and/or props</strong> would you be using?</td>
<td>Response:</td>
<td></td>
</tr>
<tr>
<td>4. <strong>How</strong> would you use these materials, tools, and/or props during session?</td>
<td>Response:</td>
<td></td>
</tr>
<tr>
<td>5. <strong>What is the rationale</strong> of choosing the intervention strategies, techniques, material, tools, and/or props? <strong>Why should they be effective</strong> in helping this child meeting the specific targeted treatment outcome?</td>
<td>Response:</td>
<td></td>
</tr>
</tbody>
</table>
Part 2. Participant Demographic Survey.

1.) Please fill in the following information:
   a. Gender: ________________
   b. Age: ________________
   c. Ethnicity: ________________

2.) Please fill in the following information:
   a. Highest earned education degree and major/minor:
      ___________________________________________________________________
   b. Numbers of years working with children on the autism spectrum:
      ___________________________________________________________________

Treatment Model practicing or practiced: ABA/ DIR/ABA-DIR. If you have worked with both models and/or a combination of both please specify how long you did for each treatment model:

Reminder: Do NOT write down your name, your email, your practice agency’s name, your mailing address, and/or any other information that may violate anonymity of this survey.

3.) Write down any comments, questions, and/or any additional information regarding this study in the following response box. Please feel free to adjust the size of the response box if more space is needed.

Thank you for taking the time to participate.