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EARLY INTERVENTION FOR CHILDREN WITH AUTISM

by
Jody M. Classen

A Thesis

Submitted in partial fulfillment of the requirements of the
Master of Mental Health Counseling and Applied Psychology Degree
of
The Graduate School
at
Rowan University
4/24/08

Approved by _____
Roberta Dihoff

Date Approved 5/29/08

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ABSTRACT

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EARLY INTERVENTION FOR CHILDREN WITH AUTISM
2007/2008
Dr. Roberta Dihoff
Mental Health Counseling and Applied Psychology

The purpose of this study was to examine early intervention programs for children with autism to determine if the program will have a successful outcome. This study involved 34 children from birth to three years of age. Each child participated in an early childhood intervention program in Southern New Jersey. The children were divided into two groups. An independent sample t-test was conducted from the data to find a statistically significant difference within the children. It was not, however, significant in the children of the early intervention program.

Acknowledgements

I would like to begin by thanking Dr. Roberta Dihoff for her expertise and generous time invested in this project. Her interest in this topic has made my experience in research more exciting and worthwhile. For that, I am grateful.

I would like to thank my family, friends, and fellow graduate students in this program for their encouragement. I am especially grateful to my husband, Dave, for his understanding during the times I was off working and going to school.

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CHAPTER I: INTRODUCTION

Need

Early childhood is an important time for children physically, cognitively, emotionally, and socially. It is essentially the formative years for brain development, language acquisition, and developing problem solving skills for which all are confirmed to be important throughout their entire life (Park, Peterson, & Michigan, 2003). That is why the early identification of disorders and early intervention in developing children are both very important in successful treatment. Early intervention is essential, for time is of the essence, especially in children with autism. The earlier a child is diagnosed the more time can be devoted to reinforcing positive behaviors. "Autistic spectrum disorders are present from birth or very early in development and affect essential human behaviors such as social interaction, the ability to communicate ideas or feelings, imagination, and the establishment of relationships with others (National Research Council, 2001)." This will then result in increased frustration within the child. Sometimes, however, the frustration cannot be avoided but rather worked through. The All Handicapped Children Act in 1975 states that children with autism are a public responsibility. The Individuals with Disabilities Act (IDEA) states that children with autistic spectrum disorder have the right to appropriate education. The malleability of this acts' provisions have led to many court cases which can result in restructuring and financial increases for a school district to implement programs. However this act has committees to help schools and states

deal with developing plans to embrace this issue as a nationwide concern and treat all children in the local schools. This committee advises a variety of steps to be carried out and completed by state and local levels. Many school districts and states already have programs and models for children with autism and those that do not are now beginning to because of this act. States have learned they can achieve this without restructuring as a whole. Early intervention programs for children with autism is costly and most local schools need assistance from state and local programs to afford appropriate services (National Resource Council, 2001).

According to the Diagnostic Statistical Manual of Mental Disorders Fourth Edition, Text Revision, Autistic disorder affects five cases per every 10,000 individuals. It is also four to five times more common in males than females. Females, however, more generally show evidence of further severe mental retardation. Autism is a disorder that is complex and combines all different types of theories involving child development such as; cognitive, social, behavioral, affective and neurobiological. These all can be functional when trying to understand the autism disorder. Autism is illustrated by impairment in communication, social cognition, and behavioral flexibility. Hillman (2006) describes the behaviors of children as nonfunctional rituals, and stereotypical, repetitive movements; for example, hand flapping. Erba (2000) found that over the past decade research has shown an increase in achievements in positive outcomes with children with autism by children receiving early intervention

programs. If such interventions are not implemented early enough, the child may miss opportunities to move closer to a more normal life.

The first step is diagnosing the autism disorder. This may not be an easy task however for it can vary with each child by symptom severity, presence of symptoms, and existence of a variety of features, including mental retardation. There is a difference between screening and diagnosis which needs to be clarified when looking at early intervention with children. Screening is done by a child's primary care physician and may be first questioned by the pediatrician discussing the need at that point for further assessment to look at developmental disabilities, specifically autism. Autism includes such a broad spectrum of different symptoms that it can be somewhat difficult to determine which type of intervention will work for each child. Often times results may not be evident at first because such interventions may need to be modified as time goes by. Diagnosis is a course which is carried out by a team of professionals or specialists that would include testing and observations to diagnose the disorder. Autism is diagnosed according to the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition, Text Revision as "the essential features of Autistic Disorder are the presence of markedly abnormal impaired development in social interaction and communication and a markedly restricted repertoire of activity and interests." The onset of autism is prior to three years of age. Appearances of these symptoms in infancy are more subtle and difficult to define than those manifestations seen after two years of age. There are cases where a child may

have developed normally for one to two years of life before the symptoms or signs were noted and or seen. The two strongest features in the diagnosis of autism are language skills, usually noted mostly by communicative speech, and the overall intellectual level. These two features are seen in people who are at the maximum functioning level with the autism disorder. There is an increased risk of autistic disorder between siblings with approximately 5% of the siblings displaying the condition. There is also a risk for a family with a child with the autism disorder to have another child with other developmental disabilities.

Early intervention goals vary between the skills of children who have a possibility for developmental delays and the skills of their typically developing peers (Howard, Sparkman, Cohen, Green, & Stanislaw, 2005). No two children are likely to be handled in exactly the same fashion when it comes to such interventions. Howard et al (2005) suggests that early intervention programs that have a long duration, are intensive, and are directly related to the children are to be more successful and make improved outcomes. As each child's impairment will most likely be different, each method of intervention will most likely be different as well. Early intervention programs overall have proven to be an asset to a child for future learning regardless of if the child is normal, has symptoms or has been diagnosed with a specific disorder.

Purpose

The purpose of this study was to examine early intervention programs for children with autism to determine if the program will have a successful outcome.

Hypothesis

By examining the following research it is predicted that the higher the intensity level of treatment of children with autism from birth to 3 years of age, the more likely the intervention will be to produce a more successful outcome within those children. Autism is a disorder that is still not completely understood. The more research conducted on autism however, the closer society comes to truly understanding the disorder.

CHAPTER II: LITERATURE REVIEW

Introduction

There have been a limited number of studies conducted on early intervention with children with autism. However, the research has concentrated on examining these topics separately. The review below summarizes the empirical literature that considers these two topics on early intervention and autism. This review also summarizes commonalities among the literature.

Attachment Theory

Hoffmann, Morvan, Cooper, and Powell (2006) investigated pre and post interventions for toddlers and preschoolers and tracked changes based on attachment theory. The attachment theory looks at patterns of individual differences in attachment by noting significant behaviors of both parent and child. This study consisted of toddler and preschool children and the children's primary caregiver from a Head Start and Early Head Start program in Washington. The study assessed the effectiveness of an intervention protocol called the Circle of Security. This Circle of Security was created by using the dynamics of secure and insecure relationships and attachments. This was based both on individualized and group treatment. This intervention program took place over a twenty week period. The weekly group meeting lasted seventy five minutes and was executed by three psychotherapists. Although this study had the limitation of lacking a control group, the results showed a positive effect that the Circle of Security had on attachment of toddlers, preschoolers, and their caregivers. This study shows

that there is an increase of toddler and preschool age children being referred to early intervention programs. This applies to the caregivers as well as for parenting issues. The Circle of Security is an intervention that has preliminary proof that it is affective in reducing attachment and increasing security for children. Attachment and security are both important in children and without it can be a risk for the child.

Goals for Early Intervention Programs

The National Research Council (2001) states that the agreement about early intervention programs it must be a full time annual program conducted a minimum of 5 days a week with planned instruction for short 15-20 minute time periods and a combination of one to one and small group teaching with specific goals created for each individual. The differences are in the philosophies and styles that different programs offer for families. This specific committee advises that, as soon as a child is thought to have autism spectrum disorder, services should be administered at least all year long for about 25 hours a week, depending on the child's age, level, needs of the family, and developmental stage. The child should be working toward specific goals with objectives building up to these goals. The child needs the objectives to be worked on daily in the early intervention programs in order for the goals and objectives to be achieved. Goals of early intervention programs have been questioned by educators and researchers regarding how the goals should be derived. Traditional goals were based on discrete trials and had a behavioral background. A goal would be based on

following a simple direction to stay in one's seat. Today goals are being developed from more of a functional and contemporary basis. These goals tend to tie into a social interaction piece as well as communication skills.

With the goals includes the measurement and assessment aspect of how success is achieved. Standardized testing can be used and, in formal communication, is a valid tool in measuring language impairments. This can be measured by verbalizing words. For instance, an infant with autism may not verbalize many words but by counting and increasing the vocabulary, one can measure performance of a goal. Functional communication training is another tool commonly used today.

Early intervention programs are also effective for families of those with autism. Many programs have different parts and layers in order to address the needs and supports that the various family members may require. This not only benefits the individual with autism but also the entire family. The siblings' of someone with autism may benefit for instance by understanding the disorder or the early intervention may positively affect the sibling's relationship with the individual with autism. It is also important for the children born after a child already diagnosis with autism to be monitored and checked for any indication as well.

According to Park et al. (2003), their study examined the early interventions programs for children and preschoolers to determine effectiveness. From birth to age five, children grow and build the physical, cognitive, emotional,

and social skills that are needed for future life. This article discusses that preventing problems is not enough for the goal is to help children at a very young age facilitate positive traits such as optimism, kindness, and curiosity and reduce things like delinquency, school drop out, substance abuse, and teen pregnancy. It found that by emphasizing the positive, such as strengths and opportunities. One of the problems early intervention programs face is that they are costly and must be constructed and conducted with specific outcomes in mind because there is a lot of time, effort, and money invested into these programs. This research suggests twelve points that help early intervention programs succeed more often. These programs have found that more is better and it actually reduces negatives. Earlier is better, meaning the younger the age the more effective the program will be. Timing is important because it must be developmentally appropriate. Structuring the early intervention program will help it to be more successful. Keeping early intervention programs separate and not mixing them together is important. Activity and broadness will encompass everyone and promote skills related to the target goal. Early intervention programs need to be developmentally and culturally suitable. Programs conducted by trained individuals who are all well informed will lead to further success.

Early Intervention Research for Toddler Age Boys

Shaw, Dishion, Supplee, Gardner, and Arnds (2000) tested early intervention programs for toddler age boys. This study suggested that early intervention will play an important role in influencing later problems for these

children who have had early conduct problems. This early intervention study included 120 mother and son dyads. The sons were between seventeen and twenty-seven months old. The measurements used were a demographic questionnaire, Beck Depression Inventory, Child inhibition, Child Behavior checklist and a Home Observations for Measurement of the Environment. The goal was to see if, within the early intervention, family intervention was a successful part in treatment and that the design treated what it was intended to treat. Lastly, it examined whether or not families showed a decrease of symptoms when compared to the control families. The outcome of this study presents beginning support for the efficacy of early treatment of children at risk. The children had significant decreases in destructive behaviors. The early treatment intervention was also successful in reducing the maternal depressed mood. There was an improved level of maternal participation with the child and a reduction in maternal frustration. This study provided insight that early intervention can offer changes in child and parents by brief family interventions.

Discrete Trial Training

Erba (2000) discussed four different early intervention programs for children with autism. The programs are discrete trial training, LEAP, floor time and TEACCH. Discrete trial therapy uses operant conditioning through intensive discrete trial sessions, based on the behavioral treatment approach. Applied behavior analysis is used to apply and assess the principals and techniques of this theory that is readily applied to autism. The young autism project at the

University of California played a significant role in accepting how the discrete trial therapy works with autism by applying it through a specific program called the “Lovaas Program”. When looking at the behavioral background it has to include conceptualizing antecedents, behavior and consequences. It looks at the previous behavior and stimuli that was exhibited and antecedents that may have happened prior to a specific behavior. Within their program they used things like shaping, chaining, discrimination training, and contingency management. The foundation is that positive reinforcement of good behavior will continue with reinforcers, whereas negative behaviors that are ignored or receive little attention will fade. During the Lovaas model they used the instructors or educators presentation of stimuli to which the child replies. The child’s reaction and the consequence to their response are also an important aspect. Lastly, they would take a short pause between presenting new stimuli. It is important to understand that discrete trial therapy and applied behavioral analysis share some commonalities. These approaches are not synonymous of each other and should not be referred to, nor were in this study. During this study positive reinforcement in the type of social praise and parental attention was employed. Another aspect utilized in this study was placing these children in special environments because it was found that autistic children are able to imitate representative learning patterns. The Lovaas model was a 2-3 year long program supervised by the young autism project of UCLA. This model was divided into two phases. The first phase was a forty hour a week, one-on-one discrete trial

training, designed to be taught by both a trained professional and the child's caregiver over a one to two year period. This is where the learning in a special environment occurs. The second phase focuses on four other skill areas. The skill areas are expressive and receptive language, abstract play, and social behavior skills training. During this phase it is done both in one to one and in group sessions. This was done with preschool age children. In this phase they are encouraged to be placed in an inclusive environment to normalize their social abilities. The Lovaas model demonstrated significant success with this model and when compared with two other discrete trials control group had significantly higher rates of functioning when placed in an inclusive classroom. The follow up study however did not have the same significance.

LEAP

Erba's (2000) research on the Leap intervention model reports that it merges developmentally appropriate practice and applied behavior techniques in an inclusive program with numerous varied learning theories that have been combined to generate the conceptual framework. It begins by identifying the needs and strengths of the children with autism. The primary focus of the Leap intervention is the social interactions of the children with autism. The six principals that guide this theory include firstly that every child gains from integrated environments. The second is that autistic children profit when interventions are reliable across their educational, home and neighborhood setting. The third principal is that these children make better gains when

children's teachers and parents work mutually. The fourth is that they can be taught from their peers. The fifth is that they can learn in a variety of ways; planned, systematic and individualized. Lastly, children with and without disabilities would profit from activities that replicate developmentally correct practices. The Leap model, like the Lovass model, also uses reinforcement, fading and prompting techniques to employ their specific model. The Leap model consisted of working in a preschool classroom and combined behavioral skill training components and outreach instruction and coaching. This included ten typical children and six children with autism into the classroom. The program operates three hours a day annually and caregivers are encouraged to take part as well. There are group goals developed for the group as well as individual goals for each student in the class. Peer imitation is used for the children with autism to have a chance to learn and reproduce their peers in a natural setting every day. The outcome of this early intervention program has shown that approximately 50% of the students attending report it to be successful and keep attending mainstream classes. Another outcome was that there was a significant decrease of autistic symptoms subsequent to attending twenty-four months of treatment.

Floor Time Approach

According to Erba (2000), the floor time approach is based on the developmental interactive theory, in which cognitive skill development in the early years of life are founded on emotions and relationships. According to the floor time model it is important that children master six functional emotional

skills. The first is for the child to be able to self-calm and process environmental information. The second is that the child be able to connect in interactions with others. The third is to participate in joint conversations. The fourth is to generate multifaceted gestures and employ a complex series of problems solving sequences. The fifth is for the child to bring into being ideas. Lastly, the child will build connections linking the ideas so the ideas become reality based and logical. During the floor time approach the children are directed to play throughout the entire session and the therapists try to design a developmentally interactive plan to teach the skills. This model is more child-directed and informal but teaches slowly the specific goals as well as teaches the parent how to do them while completing this floor play directed by the child. This model identifies the need for intensive early intervention, suggesting eight or more 20-30 minutes sessions daily to employ this technique for success. This study was done over a two to three year period and had outcomes where 58% of the children fell into the good to outstanding category by being able to carry out those six skills discussed earlier. The outcome of 24 % of the participants fell into the medium category of achieving the first four and being able to use them successfully and the last 17% continued to have difficulties with ongoing relationships.

TEACCH

The last early intervention program Erba (2000) studied was the TEACCH program, which is the Treatment and Education of Autistic and Related Communication Handicapped Children program. This is a statewide program

helping individuals with autism in North Carolina. The unique aspect regarding the TEACCH program is that it affords a lifetime of support for these persons with autism. This program provides the assessment and diagnosis all the way through to supported employment and living support. This model has five key principals that form its base. The first principal is the application of strengths and interests to make a connection between the two cultures. The second is cautious continuing assessment that optimizes chances for independence and accomplishments. The third principal is the funds that will help persons with autism to recognize meaning. The fourth will be a reframing of noncompliance as a lack of ability of individuals to recognize what is probable of them. The last principal is the participation of caregivers as partners on their specific support team. This intervention program is specifically designed for each person with autism. There are no actual outcomes specific to this model because they treat all ages and cases differently. This model does encourage structured teaching when early intervention is assessed, which is part of the plan for that specific child. However, the IQ of three to four year olds improved and will therefore need continued monitoring and data collection to find out a better understanding of the effects of this model.

The National Resource Council (2001) discusses the TEACCH program as a model taught as an individualized program, both in and out of the home. The overall concern is teaching the families the model and giving them the training to employ these at home. This program has shown success by decreasing depression

symptoms in mothers. This has an impact on the family causing less stress and more of a positive and measurable impact on the family by gains in the areas of leisure and time spent interacting. This program has shown success because it is a program where school, home, and community are working together.

The National Resource Council (2001) also discusses the Leap program which is the Learning Experiences and Alternative Program for Preschoolers which was opened in 1982. Its original classrooms continue to operate in Pittsburgh, but now new programs are also being developed in the Denver Public School System. This program comprises both a preschool curriculum and an education training program for parents as well as nationwide outreach. It includes autistic children as well as children without disabilities and has courses that include social skills interventions. The Leap program has an individualized plan for each child that has different goals and objectives including some or all and different levels of social, emotional, language, adaptive, behavior, cognitive, and physical, developmental areas.

Intensive Behavior Therapy

Hillman (2006) suggests that intensive behavior therapy is a useful treatment for children with the autistic spectrum disorder. It also supports the need for early intervention and parental involvement. Intensive behavior therapy, also referred to as applied behavior analysis, is a treatment that has accomplished success in the treatment of autism. The results of the data reviewed by Hillman showed that if intensive therapy consists of twenty to forty hour a week based on the applied

behavior analysis standards across all settings in combination with parental support there are more positive outcomes. Along with intensive behavior therapy it is noted that the earlier the children receive treatment the better the outcome. Those that have lower language functioning have demonstrated not to do as well with this treatment approach. The eclectic treatment approaches are to have less effective outcomes, when not used in conjunction with intensive behavioral therapy. The research conducted by parents is found to be limited and is unclear as to how many accept the treatment without exploring the research that is available. A challenge to parents of children with autism is that they participate fully in the child's early intervention and plans. This can not be done to the fullest by the parents without asking the psychologists for more information and specialty providers. Specialized training is needed to administer applied behavior analysis and is a board certified graduate program. For this treatment there are barriers of limited providers and financial resources. Overall, autism needs early intervention and through resources can be found. Schools and other professionals will lead families with resources to find their child with the treatment with the best outcome.

Intensive Behavior Analytic Treatment

Howard et al. (2005) evaluated the effects of three treatment approaches on preschool age children with autism. The three treatment approaches were intensive behavior analytic treatment, eclectic intervention services, and non intensive public education early intervention programs. Intensive behavior

analytic treatment was treatment given across all settings, home, school and the community. This consisted of 25-30 hours per week of one to one sessions for children less than three years of age and 35- 40 hours per week for children over three also receiving the same one on one session. There were fifty to a hundred learning occasions obtainable per hour presented by means of discrete trial, incidental teaching, and additional behavioral techniques. Training took place both formally and informally and during structure and less structured sessions. They, for instance, may have been supervised playing with a sibling. Each child had individualized goals and objectives that were created by standardized testing as well as direct observations. When working on these goals they employed the most to least prompt and prompt fading to decrease errors and ability achievement. Each child's programming included four to five assistants each who worked six to nine hours a week with the child and were supervised by a board certified behavior analyst, licensed psychologist, and licensed speech and language pathologist. Parents received fundamentals of behavior analytic training and applied these outside of the program's scheduled hours, and the parents also met with the team one to two times a month.

Eclectic Intervention Services

The eclectic intervention services which included autism educational programming where enrolled in public school classrooms intended for children with autism. The staff child ratio was 1:1 or 1:2 depending on the child's needs and the arrangement of the particular program in which each child participated. A

credentialed special education teacher oversaw the work of four to eight paraprofessional aids in each classroom. Each child received twenty-five to thirty hours of interventions each week, employing an assortment of methods intended chiefly for children with autism. This integrated discrete trial training utilized the picture exchange communication system and activities drawn from the TEACCH model. Seven of these sixteen children had speech therapy one to two times per week.

Generic Educational Programming Group

The generic educational programming group was enrolled in neighboring district special education classrooms recognized as early intervention or community handicapped preschool programs. Those programs provide children with all diverse disabilities as well as autism. The children were afforded with about fifteen hours of intervention per week with a one to six adult ratio. Each classroom was staffed by a certified special education teacher or certified speech language pathologists who oversee one to two paraprofessional aides. The activities were explained as “developmentally appropriate”. The children participated in language, play activities, and an assortment of sensory familiarity. Thirteen of the sixteen children in the group were also given small group speech and language therapy. At intake all three groups of children were scored by standardized testing and were found to be alike. At follow up there was only significance for the intensive behavior analytic intervention group which had higher mean scores in all the domains. Three in that group had children with IQ’s

in the near to normal range. This study showed that children receiving intensive behavior analytic treatment for about fourteen months outperformed similar children. The results are comparable to other data which shows 30 hours of proficiently conveyed intensive behavior analytic treatment generated more progress.

Further Applications

Sallows and Grauper (2005) revealed that an early intensive behavioral treatment program could be replicated and applied in a clinical setting outside of a university. This study took place over two to four years of treatment and included twenty four children with autism. The children were between the ages of twenty-four to forty-eight months at intake and were employed through their local special education programs. The Bayley Scales of Infant Development, second edition was used to establish pretreatment IQ. They were randomly assigned to a clinic directed group or to a parent directed group. The clinic directed group imitated the intensive behavioral treatment developed at UCLA. The parent directed group also received concentrated hours but a smaller amount of supervision by equally well trained supervisors. Subsequent to two to four years of treatment, (48%) of the children accomplished Full Scale IQs in the average range, this similar to data from the UCLA project. At the age of seven these students were successful in standard first or second grade classes, confirming standard educational aptitude. The parent directed group obtained three hours of supervision every other week. This was believed to be due in part to the parent

directed group parents stepping into the role of therapist, filling schedules, enthusiastically targeting generality, and following educators and acquaintances to locate peers for daily play dates with their children, which was not an expected outcome. Even though many parent directed group parents at first made decisions regarding treatment that affected their children progressing slowly, several parents then sought knowledge from treatment supervisors and quickly became skilled at avoiding the same mistake twice, and becoming competent after a few months.

Comparing Operant and Standardized Interventions

Delprato (2001) examined ten controlled studies in which traditional operant behavioral procedures were contrasted with more recently developed standardized interventions for educating language to children with autism. The comparison between these consisted of the breakdown between language intervention for young children with autism and discrete trial treatment for children with autism. All children incorporated in these studies met at least one criterion for autism found in the Diagnostic and Statistical Manual of Mental Disorders. The central characteristics of the traditional treatments include extremely ordered concise teaching sessions of discrete trials, teacher initiation, artificial reinforcers, and response shaping. Normalized interventions are made up of inconsistently planned sessions of indirect instruction with daily situations, child initiation, natural reinforcers, and open-minded standards for presentation of reinforcers. The outcome of these was that in all eight studies with language criterion answers, normalized language training was more successful than

discrete-trial training. In both studies that evaluated parental affect, they had similar group size. Both had random group and pivotal response training. Both parental affect groups also had normalized treatment which yielded more positive change than discrete-trial training. The overall outcome of this review was that in all eight studies with language criterion responses, standardized language instruction was more effective than discrete-trial training for young children with autism. Parental affect groups both measured in favor of normalized treatment. Discrete trial and normalized treatments may compliment each other in the area of language development when working with children with autism.

Research on Language Communication

Yoder and Stone (2005) compared two early interventions for 36 preschoolers with autism. The two early interventions were for language communication. The first intervention was Response Education and Prelinguistic Milieu Teaching. The second intervention used was the Picture Exchange Communication System (PECS). The first intervention has been used with children who are developing normally and children with developmental delay but not specifically on autistic children. It is an intervention that teaches an exchange of objects as a method of taking turns in communication. It is a way for children to have another means of requesting wants and needs. The second intervention Picture Exchange Communication System uses pictures to teach the child to communicate what they want by using this picture system. This intervention has been used and shown to be successful with children with autism. The

participants were all within the same age range, shared the same number of words, i.e. non verbal and passed hearing screening. The parents of these children also agreed and participated by attending three twenty minute sessions per week for six months. The children were randomly assigned to the two treatments. The children's joint attention developed in both treatment interventions, although it was higher in the Responsive Education and Prelinguistic Milieu Teaching. In the Picture Exchange Communication System the children were able to make more generalized requests than the other treatment intervention. Overall, both early interventions were affective in the treatment for children with the autism spectrum disorder and both had a higher achievement in two different skill areas.

The National Resource Council (2001) reports the Picture Exchange System to be the most commonly used exchange of pictures for communication. PECS teaches a child to exchange a picture for an object. It was reported that only two published studies have been conducted on the PECS system. It also did not report on children once maturation occurs. It is also noted that there is no negative results from using this communication strategy. When learning PECS the verbal language is taught with the picture teaching both simultaneously.

Social Attention Impairments

Dawson, Toth, Abbott, Osterling, Munson, Estes, and Liaw (2004) explored the social attention impairments in association to their language ability in children with the autism spectrum disorder. In examining the social attention

impairments, the study explored social orienting, joint attention, and attention to another's distress. Social orienting is referred to when children orientate naturally to social stimuli around them. Social orienting impairments are noted with children who are diagnosed with autism as, for instance, not recognizing their name at eight to ten months of age where as a normally developing child would. Children with other disabilities had some impairment with social orienting however it appeared to be more severe with children with autism. The joint attention refers to the child's ability to organize attention between interactive social partners amid value to things and/or actions. This can be demonstrated by an infant turning their head to watch their mother walk in a different area of the room. Joint attention was found as an early identifier in preschool children when identifying children with or without disabilities. Joint attention skills have been found to be an analyst of present and future language skills of children with autism. Attention to distress was another social attention factor that this study reviewed and researched. Attention to distress can be shown by infants as early as four to six months of age and finds that children developing normally react to the facial expressions and emotions exhibited by others. For instance, happy faces by others may lead an infant to smile. An infant finds that by demonstrating these emotions they receive more visual attention from others. By twenty four months children begin to learn to act in response to distress and react by comforting. Research has shown that children with autism have shown a lesser degree of response and distress when presented by an adult than that of a child

developing normally. The study consisted of one hundred and thirty-five children ranging in age from 12 months old to four years old. The study consisted of seventy-two children with autism spectrum disorder, twenty-four developmentally disabled and thirty-nine typical in development. The measures were collected over the course of three sessions where each child was tested individually. For the social orienting measure it examined four social stimuli, which were humming, calling the child's name, snapping fingers, and patting hands on thighs. For joint attention, three tasks were given. They were blocking, teasing, and active toy tasks. The results found that children with autism spectrum disorder achieved significantly superior than the other two groups of children on the tests that involved focus on narrow details and fixed figures and pattern construction. The study showed that children with autistic spectrum disorder had significant impairments on the joint attention measure than the other two groups of children in this study. The children in all three groups were able to create unplanned pretend play sequences. One reason it was thought that pretend play may not be a good determination was because it did not get into the understanding of a mental state. In the study, verbal functioning in the children with autism spectrum disorder was impaired. The low verbal ability contributed considerably and separately to the prediction of the autism spectrum disorder group connection, a discovery reliable with cognitive deficits causal of autism.

Leekam, Lopez and Moore (2000) also examined attention and joint attention in preschool children with autism. Joint attention is described as the

relationship between the self, others and objects acting together or in conjunction of each other. The objective of this study was to adapt joint attention task to the learning of preschool children. This study wished to familiarize attention to both people and things. It also wanted to prompt attention to move from one place to another. This study conducted three experiments to look at the relationship between the autistic child and an adult, as well as an autistic child, an adult and an object. The first experiment examined whether children with autism would be able to use a head turn as a cue to find an object that was existing in their visual field. The second experiment examined the prospect that children with autism are capable, in principle, to utilize a cue to direct awareness noting that it would be harder for individual cues. For this experiment it was substituted with non individual cues. The non human cue involved a Thomas the train turning. The third experiment examined the autistic child's capability to separate and move attention to objects. This study included fifty-nine preschool children. The first experiment had twenty autistic children and 20 control children. The second experiment consisted of eleven with autism and 8 with developmental disabilities. The third experiment used the same participants as the first group. In the first experiment the outcome showed an autism specific developmental delay in both relationships with an adult and with an adult and an object. The response was inconsistent to the experimenter. This experiment noted that the autistic children would follow the experimenter's head turn but would fail to realize to follow it to another area or item using it as a cue. In the second experiment the outcome

showed that both groups of children performed worse with the non human cue versus the human cue. In the third experiment the outcome was that both the children with autism and the control children equally changed their attention to a peripheral target and were faster in their reactions. The outcome of this study furthermore indicates the difficulties autistic children have with human communicative cues.

Theory of Mind Impairments

Morgan, Mayberry, and Durkin (2003) examined whether weak central coherence explains for two deficits in two behaviors; joint attention and pretend play. These two behaviors are said to account for the theory of mind impairments. The theory of mind is visible in children between the ages of three and five years old. In the theory of mind it is thought that a person can hold a false belief. It is thought that without the theory of mind, a child will not relate successfully or understand others. It is described that weak central coherence is a predisposition to cognitive processing, meaning that children with autism center their attention on individual pieces of information rather than the overall environment. The two behaviors examined are joint attention which, like the previous study, is between the child with autism and another individual, as well as the child, another individual and an object. In this study joint attention is referred to as dyadic and triadic. As discussed in previous studies, pretend play is another behavior being studied and, in this case, as a precursor to the theory of mind. Pretend play develops around the age of two and some characteristics are utilizing

one object as if it were another object, attributing properties to the object that it does not have and referring to absent objects as if they were present. Autistic children tend to carry out less impulsive acts according to research including pretend play. The study consisted of forty-two children. Twenty-one children with autism and twenty-one control children were matched by age, nonverbal ability and gender. The ages included in this study were age three to five years old. The measures in this study included verbal and nonverbal ability, spontaneous play, joint attention, and central coherence. The outcome of verbal ability was impaired in children with autism. In this study, there was no difference between the groups in nonverbal ability. Verbal ability is autonomous of nonverbal ability. The outcomes of joint attention showed that children with autism were significantly impaired and lower than the control group. This is compatible with the research stated in above studies. The outcome of the pretend play measures disclosed that production and spontaneous play acts were as regular in children with autism as in the control group. This however does not agree with the above studies and discussed in their study why these results may have conflicted with previous studies done by others. One reason was the idea that the toys attracted the children more, other studies have a floor effect, the environment, and that these children were tested in their everyday usual environment. Lastly, this study measured central coherence and it established that autistic children performed considerably better than the control group of children on two tests, which necessitated focus on detail. This study shows that weak

central coherence and poor theory of mind does not sufficiently explain for the multifaceted and pervasiveness of this disorder.

Emotional Understanding

Losh and Capps (2006) examined emotional understanding in autism. Those with autism are identified as having difficulty expressing thoughts and emotions and engaging socially. Fifty children were used in this study. This study consisted of twenty-eight individuals with autism and twenty-two normally functioning children. The study examined the autistic children's approaches, emotional versus non emotional variations, and reflects on the implications for the core emotional understanding in their development. The study investigated the way a child reports back emotions based on memory and language. The results of remembered experiences by the high functioning children with autism were able to talk about contextually correct accounts of simple emotions; however their strategies for understanding and passing on all types of emotional experiences differ from those strategies used by typically developing children. The autistic children group had significantly lower results in organization and conveying the accounts of their emotional experiences in a detailed and personalized narrative paradigm. These results propose that children with autism have less rational representations of emotional experiences and uses of alternative strategies for explanation of these emotional encounters.

Treatment Effectiveness

Sherer and Schreibman (2005) examined individual behavioral reports and analyzed treatment effectiveness for children with autism. This study used twenty-eight children who also participated in another study as well. This study used archival data and deferred two distinct behavioral profiles for responders and nonresponders. The two behavioral profiles were responders and nonresponders. The research predicted a child's reaction to a specific behavioral treatment program called pivotal response training. Pivotal response training is an environment based on the child's likes and is motivated by what the child selects. It focuses on taking turns, selecting, asking for desired items and a direct relationship that a reinforcer is afforded for appropriate responses. There were six children selected for this research, three predicted responders and three nonpredicted responders. All of which received pivotal response training. The responder children had positive changes on the range of outcome variables where as the nonresponders did not display any improvements. This demonstrates that individualized treatments plans would better enhance the lives of children with autism.

Pivotal Response Model

The National Research Council (2001) reviewed the Pivotal Response Model where the initial goal was to change in certain pivotal areas. The purpose would target communication, self help, academic, and social and recreation proficiency, using naturalistic behavioral interventions. The Pivotal Response

Model seeks directly at the deficits that will give up large changes. The parental training is combined within the standard every day instruction.

CHAPTER III: DESIGN

Participants

The participants in this experiment consisted of 34 children from birth to three years of age. The participants in this sample involved children from an early childhood intervention program in Southern New Jersey. The amount of time each child spent in the program varied as each child entered and exited at different times in their lives. The children were divided into two groups. Group I consisted of children who participated in under 10 hours in the early intervention program. Group II consisted of children that spent ten hours or more in the early intervention program. Each child however was required to leave the program at three years of age.

Materials

In the experiment, the experimenter reviewed archived data based on children's performance in the early intervention program at time of discharge to determine the level of success achieved. These discharge notes were written by qualified staff employed at the early intervention program who work hands on with the children on a daily basis.

Reliability/ Validity of Scales

The discharge notes examined determined whether or not a change was made in student performance. They were not reliable, however, in that the degree to which changes have been made could not be ascertained.

Independent and Dependent Variables

The independent variable in this experiment was the amount of hours of treatment in the early intervention program as it pertains to groups I and II. The dependent variable was the student performance in the early intervention program. The children's performance was assessed by a checklist utilizing a yes or no rating system to determine whether or not there was an improvement in performance. It was hypothesized that the children's performance would show an increase in performance at discharge from the early intervention program.

Analysis of Data

An independent sample t-test was performed using the recorded data. It examined the number of treatment hours and the presence of improvement for each group. The test was conducted initially to determine if there was a statistically significant difference between the groups.

Summary

In this study the data involved 34 children from birth to three years of age. Each child participated in an early childhood intervention program in Southern New Jersey. An independent sample t-test was performed to determine if there was a significant difference in the two groups at the time of discharge from the early intervention program. It was further hypothesized that the children would have an increase in performance at discharge from the early intervention program.

CHAPTER IV: RESULTS

Introduction

The purpose of this study was to examine early intervention programs for children with autism to determine if the program will have a successful outcome and if the number of hours of service impacted the children's results. There were a total of 34 children all diagnosed with autism. The children in the experiment were from an early intervention program in Southern New Jersey. It was hypothesized that the children would have an increase in change and performance at discharge from the early intervention program.

Results

After examining the discharge notes from each child, it was determined that all of the children showed an increase in performance in the early intervention program. Since the dependent variable had no variability, a t-test could not be completed. All of the children made gains in the early intervention program.

Summary

There was no significance difference found in the children's increase in change and performance in the early intervention program. All of the children demonstrated improvement.

CHAPTER V: DISCUSSION

Review of Results

After reviewing the results, it was found that children diagnosed with autism benefit from participating in early intervention program. This finding supports the hypothesis that children would have an increase in change and performance at discharge from the early intervention program. Further comparisons were not possible because the dependent variable was not sensitive enough. For example one would need to look at specific areas amount of gains to get differences. Those areas could include specific performance skills obtained as well as the placement following the early intervention program.

Although a specific hypothesis was not made regarding gender, all children showed an increase in performance and changed at discharge in the early intervention program. This may indicate that gender is not a factor in determining achievement in such programs. However, most children with autism are boys.

Limitations

One limitation was the dependent variable was not sensitive enough. If this study measured specific amounts of gains and specific skill area from the children in the discharge note the study would be more conclusive. The early intervention program may examine employee credentials to assure all children receive an equitable learning experience. Gender information would also be beneficial to include in making the study more specific and add an additional area of measurement.

Another limitation was that the small sample size only consisted of 34 children and was not representative of a generalized sample. Diversity was also a limitation because the children were all from Southern New Jersey.

Conclusion

In conclusion, the results of this study determine that there was not a significant difference in an increase in change and performance for children in an early intervention program. More research should be completed with a larger sample size to determine the effect of early intervention programs on children with autism. It would also be beneficial to include gender information to determine if gender plays a role in determining success.

Implications for Further Research

There is a need for further research in all realms of the autism spectrum disorder beyond the scope of birth to three years. It would be interesting to follow, from birth, children with autism who both do and do not attend early intervention programs prior to preschool to see if there is a difference regarding performance. According to the National Resource Council (2001), their recommendations for further research include at least 25 hours of the early intervention program each week. Educators should also teach children in the early intervention programs with the same curriculum to create consistency among the programs. It is also recommended that the educators meet the same standard of credentials and that the same measurements and tools for scoring the children's performance are utilized. Further research of autism among children

may lead to new and better methods of instruction that educators may find useful when implemented in the school system.

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