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Two treatment approaches for young children with autism : common ground?

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Two treatment approaches for young children with autism : common ground?

Abstract

Students with autism display extreme difficulties with communication skills, social interactions, and often engage in restrictive and repetitive patterns of behavior (DSM-IV, 1994). As a result of these behaviors, and the often comorbid mental retardation, students with autism have many complex educational needs.

This paper will provide a complete literature review of the historic development of autism, possible etiologies of autism, and current diagnostic criteria. In addition, specifically the literature regarding one current behavioral approach to intervention, the Lovaas Method, and one method of antecedent controlled intervention, the TEACCH model will be reviewed. Additionally, research on other successful interventions for children with autism will be discussed. This paper will be concluded with discussion regarding the possibility of an intervention that combines the components of Lovaas and TEACCH that additional researchers have proven to be effective.

TWO TREATMENT APPROACHES FOR YOUNG CHILDREN WITH AUTISM-
COMMON GROUND?

A Master's Paper
Submitted
In Partial Fulfillment
of the Requirements for the Degree
Master of Arts In Education

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Table of Contents

CHAPTER 1: Introduction.....	3
CHAPTER 2: Literature Review.....	6
Historical Review.....	7
Kanner.....	7
Asperger.....	11
Etiology.....	13
Psychodynamic.....	13
Behavioral Theory.....	16
Biological Theory.....	17
Current Diagnostic Criteria and Differential Diagnosis.....	20
Approaches to Intervention.....	22
Ivar Lovaas.....	22
Eric Schopler	30
Critique of the Research	35
Comparisons: TEACCH and Lovaas.....	41
Effective Interventions and Research Design.....	43
CHAPTER 3: Implications and Recommendations.....	46
References.....	52

CHAPTER 1

INTRODUCTION

The field of education is currently serving large numbers of students who have many diverse needs. Both regular and special educators are confronting students with many challenges in the classroom. One specific disability that educators are encountering is that of autism. This disability was first introduced in the literature during the 1940's. Since that time, a number of research studies have been conducted in this area.

Currently, autism is believed to be a disorder that presents itself very early in life; prior to three years of age. In a recent report, Freeman (1996) reports that autism is generally thought to be the result of neuropathology, affecting the functioning of the brain. The current literature indicates that there may be several different etiologies, largely biological in nature. A small portion of cases, around 10%, even appear to be the result of hereditary factors. Freeman also indicates the incidence of autism to be around 2-4 cases per 10,000 births. Autism also appears to be affected by gender, with four times as many males diagnosed as females. The DSM-IV (1994) reports that around 75% of all children diagnosed with autism have a comorbid disability of mental retardation; typically in the moderate range (IQ 35-50).

Students with autism display extreme difficulties with communication skills, social interactions, and often engage in restrictive and repetitive patterns

of behavior (DSM-IV, 1994). As a result of these behaviors, and the often comorbid mental retardation, students with autism have many complex educational needs. Over the last fifty years, since the disorder was initially studied, numerous intervention strategies have been developed for students with autism. Some have included behavioral therapy, drug therapy, music therapy, sensory integration therapy, facilitated communication, vitamin therapy, holding therapy, and auditory integration therapy. The empirical research on many of these interventions is quite limited, and some have been quite controversial within the educational arena.

One issue that has been proven effective regarding interventions for children with autism is the importance of early intervention. Several researchers have discovered that children who are subjected to interventions at an early age experience greater gains than those who do not receive early intervention (Fenske, Zalenski, Krantz & McClannahan, 1985; Lord, Bristol, & Schopler, 1993). Early intervention programs, supported federally through Part H of PL 99:452, have been very helpful in obtaining services for students with autism. This has been especially beneficial because many children are often identified at a very young age prior to entering formal education.

Quite possibly, behavioral methods of early intervention might have received the single most amount of attention in the literature over the years. This particular method of intervention focuses on the use of operant conditioning

techniques to shape behaviors. As a result of behavioral treatment methods, many adaptive behaviors (i.e., language and social skills) have increased, while many negative behaviors (i.e., aggression) have decreased in occurrence (DeMyer, Hingtgen, & Jackson, 1981; Newsom & Rincover, 1989).

This paper will provide a complete literature review of the historic development of autism, possible etiologies of autism, and current diagnostic criteria. In addition, specifically the literature regarding one current behavioral approach to intervention, the Lovaas Method, and one method of antecedent controlled intervention, the TEACCH model will be reviewed. Additionally, research on other successful interventions for children with autism will be discussed. This paper will be concluded with discussion regarding the possibility of an intervention that combines the components of Lovaas and TEACCH that additional researchers have proven to be effective.

CHAPTER 2

LITERATURE REVIEW

Children who have displayed characteristics that would now be classified as autistic like, have been discussed in the literature for centuries. Quite possibly the first child reported to display these characteristics was Juan-Marc-Gaspard-Itard's "Wild Boy of Aveyron." In 1801, when he was a young adolescent, this child was found in the wilderness of France. Itard (1962, 1801) would later name him Victor and described him as being unable to focus attention, showing little affection, and even appearing deaf at times. He went on to describe him as seeing without noticing and hearing without listening. By focusing on routine and teaching self-help skills, which are of vital importance in special education still today, Itard was able to help Victor gain many skills and improved his quality of life.

Bruno Bettelheim (1967) refers to another early report of a possible autistic child. This report, made by John Haslam in 1809, discussed a boy admitted in 1799 to the Bethlehem asylum (Bettelheim, 1967). Reportedly, the boy was described as possessing good physical appearance, but exhibiting stereotypical motility, gaze avoidance, disinterest in social interaction, compulsion for object manipulation and a phenomenal ability to recall musical tunes (Wing, 1981). In 1911, over 100 years later, Swiss psychiatrist, Ernst

Bleuler, gave the first definition to autism. As a psychiatrist, he primarily worked with people diagnosed with schizophrenia. He discovered that people with severe schizophrenia live in their own world, virtually cut off from contact with the outside world. It would later be this detachment from society and focus on inner self, that Bleuler would identify as autism (Bleuler, 1911). Bleuler felt autism was really a symptom of childhood schizophrenia, as opposed to its own disorder. Some thirty years later, in 1943, this definition of autism by Bleuler, falling under the umbrella of schizophrenia, would be challenged.

Historical Review

Kanner

The first person to systematically research the disorder of autism was Leo Kanner. In 1943, he published an extensive report of eleven children aged 3 to 11 years, who displayed similar behavioral characteristics. He felt these children did not fall under the then current diagnostic criteria for autism. This definition, previously established by Bleuler, was essentially a schizophrenic diagnosis.

In his research, Kanner (1943) studied eight autistic boys and three autistic girls. He discovered that even though there were differences related to degrees of disturbances, the family make up, and stages in development, there were clearly a number of common characteristics among these children. He

ultimately found nine primary areas of similarities among these children. Each is described below.

Extreme Aloneness. Kanner (1943) concluded that the most apparent disorder of these children was their lack of ability to relate themselves in a typical manner to people and situations. There appeared to be an extreme aloneness experienced by these children manifested in the very beginning of life. Parents involved in Kanner's study reinforced this idea by reportedly referring to these children as "like in a shell," "happiest when left alone," "acting as if people weren't there," "perfectly oblivious to everything about him," and "failing to develop the usual amount of social awareness" (p.242).

Delayed Speech Acquisition. Eight of Kanner's original eleven subjects reportedly developed the ability to speak either at the typical age, or after some delay. Three of the subjects, however, remained mute, never developing the ability to speak.

Noncommunicative Speech. Another characteristic identified by Kanner (1943) involved those children who acquired the ability to speak. Kanner reported their language lacked meaning and did not appear to have a communicative function. Much of their speech appeared to be "parrot-like." Kanner also spoke of the echolalic speech in many of these children.

Rote Memory. Despite the somewhat delayed and noncommunicative function of speech, many of these children displayed excellent rote memory

skills. Many could recite poems, songs, even encyclopedia pages. However, these passages appeared to be meaningless to the children.

Pronominal Reversal. In addition the noncommunicative speech function, many children also displayed pronominal reversals and seldom did they refer to themselves as "I." The child usually would speak about himself or herself in terms of "you;" repeating pronouns just as they were heard by the child.

Stereotypical Behaviors. The subjects thrived on and typically engaged in self-stimulatory, stereotyped and repetitive behaviors. These children appeared to display very repetitive behaviors, especially during play activities.

Maintenance of Sameness. Yet another characteristic Kanner identified was the autistic child's obsessive desire for the maintenance of sameness. It appeared that any change to environment or schedule was very disturbing for these children. Changes in routine often resulted in extreme despair lasting until sameness and completeness had been restored for the child.

Normal Physical Appearance. Kanner noted that physically these children appeared normal, with no instances of congenital anomalies. These children were not physically discriminate from their peers. Despite some clumsiness relating to gross motor skills, all subjects appeared to be skillful regarding fine motor skills as well.

Abnormalities During Infancy. All of Kanner's eleven subjects, reportedly displayed the above characteristics from the beginning of life. Many children

appeared to be reluctant to respond to the outside world in infancy. This was marked by an unwillingness to "assume an anticipatory posture upon being picked up" or failing to adjust the body to the person holding him/her (p.249).

Kanner later reduced all of these characteristics to two major ones; maintenance of sameness in children's repetitive routines and an extreme aloneness. Kanner determined that onset of these behaviors occurred within the first two years of life.

Throughout this seminal study, Kanner (1943) led readers to believe that autism differed from schizophrenia. He argued that schizophrenics withdraw from the world, while the autistic child failed to enter it in the first place. This notion of distinctness was instrumental in establishing autism as a separate disorder from schizophrenia.

Amazingly after more than fifty years of research, this original systematic description of autism, would essentially go unscathed. There were some changes to the definition; however, autism today is described in many of the same terms that Kanner used to describe it in 1943. One major change refers to Kanner's belief that all subjects had a normal potential for cognition. Now we know 75% of autistic children are diagnosed with comorbid mental retardation (Rapin, 1991).

Asperger

During this same time, an Australian researcher, Hans Asperger was also researching the autistic psychopathy. The two researchers, however, were remarkably unaware of each other's research. Unfortunately, Asperger's study was published in German and was not translated into English until more than fifty years later (Frith, 1989). Despite this fact, they encountered surprisingly similar findings. Both saw cases of strange children who displayed similar fascinating features. Foundational to the disorder, both researchers agreed, was the social deficit that these children displayed. They also found that these children exhibited poor eye contact, engaged in social withdrawal or incompetence, delighted in routine, and engaged in stereotypic patterns of word and movement (Happe', 1994).

There were differences, however, in the research findings of these two landmark studies. One area that the two researchers disagreed upon was the significance regarding the lack of meaningful communication. Asperger found that the children he researched spoke fluently; even stating they spoke "like little adults" (Happe', 1994, p. 12). Kanner on the contrary, found language *deficits* in the children with whom he worked. Another disagreement was in the area of motor development. Asperger found his subjects to have poor motor skills, both gross and fine. Kanner, on the other hand reported that although some of his subjects were clumsy, they displayed good fine motor skills. The final point that

the two researchers disagreed upon was that of learning abilities. Asperger believed his clients were abstract thinkers, performing best when able to produce spontaneously (Happe', 1994). Kanner, on the other hand, believed his clients needed to learn in a rote manner.

The research of Hans Asperger would later provide the basis for the current diagnosis of *Asperger's Disorder* or *Asperger's Syndrome*. This diagnosis, first used by Wing (1981) was introduced to encompass those children who did not fall under the umbrella of autism as described by Kanner. Asperger's Disorder was recently cited in the DSM-IV (1994) and given an *official* description under the category of Pervasive Developmental Disorder. Currently, Asperger's Disorder, is generally referred to as higher functioning autism; involving those who appear to have better language abilities, more difficulty with motor actions, and often a capacity for more original thinking than traditional autism (Happe', 1994). Students diagnosed with Asperger's do, however, typically have severe impairments in social interaction, restricted, repetitive and stereotyped patterns of behavior, interests and activities. They, however, do not typically display significant delays in language or cognitive development, or development of age-appropriate, self help skills, adaptive behavior or curiosity about the environment in childhood (DSM-IV, 1994).

The appearance of Asperger's Disorder in the research community has resulted in difficulties with differentially diagnosing Asperger's. Distinctions

between Asperger's and autism appear to focus on matters of degree of characteristics, thus making it difficult to differentiate Asperger's from high functioning autism. Happe' (1994) reports that researchers have yet to conduct a study that has effectively and satisfactorily distinguished Asperger's Disorder and non-Asperger's autistic children. Problems with diagnosis of Asperger's as a distinct disorder, separate from higher functioning autism, is an area in need of further research.

Clearly the works of both Kanner and Asperger were foundational in the development of autism as a diagnosis. Further, their landmark studies led to a substantial amount of research in this field.

Etiology

After the initial definition and diagnostic criteria for autism were established by Kanner in 1943, many researchers turned their attentions from defining autism to attempting to understand why these children were behaving in such ways. Many theories developed surrounding the etiology of autism including psychodynamic theories, behavioral theories, and biological theories.

Psychodynamic

One major school of thought permeating all of psychiatry during the 1950's, 1960's and early 1970's was the psychodynamic theory of disturbance. This theory supported the idea that autism was caused by psychodynamic

conflicts between mother and child or by an extreme existential anxiety suffered by the child (Frith, 1989). Many researchers during this time believed autism resulted from parental attitudes, experiences with the home, relationships with family members, community experiences and even sociological factors.

Kanner was a proponent of this theory, relating causes to parental influence. In his initial study, Kanner (1943) described the parents of his subjects as being highly intelligent, sophisticated, and well educated. However, he went on to describe their personalities as cold, formal, introverted, humorless, detached, highly rational and objective, as well as lacking warmth and affection.

Bettelheim was one of the most notable supporters of the psychodynamic theory. He, along with Kanner, coined the phrase "refrigerator mother" to describe the idea that children develop autism because of a maladaptive response to an unloving and even threatening environment. It was largely believed that the child's mother was the root of the disturbance. Schreibman (1988) reported that Bettelheim also believed there were very early events in behaviors or parents convincing the child that he/she was in danger and the world was a hostile, dangerous place. This, in turn, resulted in the child withdrawing in order to be safe from these dangers of the world. Bettelheim (1967) also believed the precipitation factor for autism was the parents wish that the child did not exist.

The 1970's saw somewhat of a resurgence of the psychodynamic theory of etiology, supported by Tinbergen and Tinbergen. Aarons and Gittens (1992) reported that the Tinbergen's attributed autism to a breakdown in the bonding process between mother and child. Because of this, the child should be forced into a "holding therapy" session where this lost bonding can now take place. The Tinbergen's still have followers today supporting their theory of ethology (Maurice, 1993).

Clearly, the notions of parental causation, primarily the mother, supported by the psychodynamic theory proved to be devastating and very damaging for families of children with autism. Parents who clearly loved their children were led to believe that they were the cause of their child's suffering. Making matters even worse, the most widely recognized treatment options involved total separation of the child from parents. This often resulted in placement of the child into a residential facility where surrogate parents could be provided. Over time, this cruel myth of etiology has been disproven by many researchers. Studies, utilizing adequate experimental controls, have revealed that parents who have children with autism do not differ in terms of personality and social interaction from parents of normal children (Cantwell, et al., 1978; Cox et al., 1975; and Freeman & Ritvo, 1984). Frith (1989) reports that it is actually impossible for a child to develop autism from lack of sufficient love from the mother, or because the child feels threatened in life. She even states there is virtually no reason to

believe that parents of autistic children love their children any less or put forth any less effort to nurture and educate them. For the most part, this theory of etiology has been widely discredited; however, there are still a few proponents even today (Schreibman, 1988). Schwartz and Johnson (1985) report that psychogenic hypotheses are based on implicit assumptions, differing from experimentally based theories, and thus are not amenable to empirical validation.

Behavioral Theory

During the 1960's another proposed cause of autism developed focusing on behavioral theory or learning theory. This theory, formulated by Ferster (1961) centers around the belief that severe behavioral deficits, characteristic of autism, are the result of a faulty conditioning history. Because parents are primarily the one's reinforcing the child, this theory also implicates parents in the cause. Ferster went on to state that the autistic child's failure or inability to learn was the result of inadequate parenting that prevented social rewards such as praise and attention from becoming reinforcing for children. Consequently, they provide more attention to, and differentially reinforce negative and aversive behaviors. In addition, behaviors that do not impact the parents directly, such as self-stimulatory behaviors, are typically ignored. This results in reinforcement of these behaviors because if not extinguished, the child will often receive environmental motivation to continue engaging in these behaviors.

Ferster went on to study with DeMyer (1961) and found that like behaviors of other organisms, the behaviors of autistic children were lawfully and predictably related to environmental events. Many studies followed the work of Ferster and in 1987, Rutter and Schopler reported that behavioral and educational methods of treatment were most effective for children with autism. Lovaas and Smith (1989) also reported that behavioral treatment has consistently been found to improve functioning in autistic children.

Like the psychodynamic theory, the behavioral theory is not adequately supported by empirical research. Ferster's ideas have proven to be more beneficial in finding *treatment options* for autism, rather than having developed a sound etiological theory. Ferster's work (1961), however, ultimately began the behavioristic approach to *intervention* for autistic children. Lovaas (1987) would later embrace Ferster's findings when developing his renowned Lovaas Method for early intervention.

Biological Theory

During the 1960's, around the time that behavioral theory was originating, there was also a push to explain autism through biological theory. In 1964, Rimland was the first to discount the psychogenic theory of etiology (Coleman and Gillberg, 1985). Rimland (1964), however, unlike Ferster, believed in the neurological theory of autism. He attributed limited response repertoires in autistic children to the underarousal of the reticular activating system that

regulates arousal in the brain. This theory lacks empirical validation; however, the notion that autism has a biological base is widely accepted. Frith (1989) reports that the evidence for organic involvement in autism is overwhelming. She goes on to report that frequent dysfunctions include abnormal EEG's, the presence of epileptic seizures, and the persistence of certain infantile reflexes and stereotypic movements.

Genetic factors have also been explored in the research on etiology. Specific gene anomalies have not been identified; however, Rutter and Garmezy (1983) found that siblings of autistic children have a 50 times greater chance of being autistic than does the general population. Studies conducted with twins have shown that monozygotic twins revealed a 95.7% rate of concordance of autism as opposed to a 23.5% rate in dizygotic twins (Ritvo, Freeman, Mason-Brothers, Mo, and Ritvo, 1985).

More recently, studies have been conducted linking autism to T-cell defects. Warren, Foster, Margaretten and Pace (1986) found that lymphocytes of people with autism essentially have a defective response to the T-cell mitogen phytohemagglutinin (PHA) and reduced responses to the T-cell mitogen con A. The implications of these findings is not yet clear, but further research will likely be conducted in this area in the future.

Studies have also been conducted regarding the neurochemical makeup of people with autism. Freeman and Ritvo (1984) found that nearly 30-40% of

cases revealed elevated levels of the cerebral neurotransmitter serotonin. Many people are treated with fenfluramine as a result of these elevated levels of serotonin.

Currently, it is generally believed that a number of different biological causes may result in autism (Happé, 1994). The increased research regarding biological causes of autism will likely continue into the future with a focus on brain abnormalities and specific areas of the brain typically affected. The implications for biological findings in autism are crucial to the development of treatment programs and interventions.

Determining the etiology of autism has been a difficult task and continues to be a mystery still today. Lovaas and Smith (1989) address this difficult task when they state that determining etiologies involves events that have happened in the past. These events are difficult to measure and cannot be experimentally manipulated; forcing researchers into correlational or descriptive research, as opposed to experimental research (Lovaas and Smith, 1989).

Throughout the past 50 years, since Kanner's original study, there have been many theories as to the cause of autism. Only a few of the more prevalent ones have been mentioned here. However, most of these theories have come and gone as later research has dismissed previously proposed notions of etiology. The notion that autistic children were the offspring of upper middle class parents was generally dismissed by Schopler, Andrews, and Strupp (1979).

They concluded that autistic children do not come from primarily higher social class families. They go on to state that children with autism can be found in any social class. This notion has been supported in research since that time as well, with children from all racial, ethnic and social backgrounds diagnosed with autism (Freeman, 1996). Although there is no known cure for autism, there is a general assumption that autism is caused by inborn physical factors within the person. The large majority of explanations of autism today are related to biological factors including biochemical imbalances, genetic problems, physical factors, and even brain damage. In general, it is thought to be the result of a neurological disorder that ultimately affects functioning in the brain (Freeman, 1996).

Current Diagnostic Criteria and Differential Diagnosis

Through time and additional research, there have been minor changes in diagnostic criteria for the identification and diagnosis of autism. However, Kanner's definition that was developed over 50 years ago, largely provides the basis for diagnosis today. Many diagnostic manuals, including the DSM-IV, currently provide diagnostic criteria for autism. The most recent version of the DSM (1994) lists autism under Pervasive Developmental Disorders. Rutter and Schopler (1987), report that because autism is a severe mental disability involved in the developmental process itself, and because it arises in infancy that

it is for these reasons that it has been classified under the pervasive developmental disorders category. The DSM-IV reports that the most essential features of autism are the clear presence of abnormal or impaired development in social interaction and communication and a very limited repertoire of interests. To be diagnosed with autism, a child must display at least 6 (or more) items from the three sections described in the DSM-IV. A detailed description of the sections is provided in Appendix A.

For children who meet the criteria stated in the DSM-IV and do receive a diagnosis of autism, approximately 75% of those children will also receive a diagnosis of mental retardation (DSM-IV, 1994). The most probable level of retardation is in the moderate range with an IQ ranging from 35-50.

It is equally important to differentially diagnose autism from other disorders that frequently emulate autistic characteristics. These include Asperger's Syndrome, Semantic-Pragmatic Disorder, Rhetts Disorder, Childhood Disintegrative Disorder, Childhood Schizophrenia, and Receptive Developmental Dysphasia. Along with differentially diagnosing autism, it is also important to look for possible characteristics of comorbidities in children who have had or have PKU (Phenylketonuria), congenital rubella, tuberous sclerosis, lead intoxication, congenital syphilis, and Fragile-X Syndrome (Rutter, 1978).

After a differential diagnosis has been made, often the next step is to discuss educational programming options for children with autism. This paper will

specifically research the past and current literature on two widely known programs for the treatment of young children with autism. The first, the Lovaas Method, was developed by Ivar O. Lovaas and the second, the TEACCH program, was developed by Eric Schopler and colleagues. Clearly both programs have desirable characteristics, however there has been much controversy in schools and families over these two approaches to programming.

Approaches to Intervention

Ivar Lovaas

Ivar O. Lovaas became a dominant force in the field of autism in the 1960's and has remained a force ever since. In the early 1960's treatment options for children with autism were turning to programs based on principles of operant conditioning. Behavioral theory was becoming popular, as the work of Ferster (1961) was becoming widely recognized. It was found that behaviors that were rewarded tended to increase and behaviors that were punished tended to decrease in occurrence. This is the basic notion behind what Ivar Lovaas would develop into the Lovaas Method for children with autism.

After reviewing the literature and determining that the prognosis for people with autism was very poor, Lovaas set out to research his methods of behavior modification as a treatment option for children with autism. At the time, there were no treatment options that substantially increased the autistic child's

functioning. Rutter (1970) had previously conducted research on children with autism and found that only 1.5% of his group of 63 children had reached "normal functioning" without treatment. As a result of the poor prognosis for children with autism, and the increasing support of learning theory, Lovaas began in 1970 what would become his cornerstone research project for recommending the Lovaas Method.

Lovaas (1987) selected his subjects and began collecting his research data while working at the University of California at Los Angeles. He chose subjects based on the following criteria: (a) the child needed an independent diagnosis of autism from a medical doctor or a licensed Ph.D. psychologist, (b) a chronological age (CA) less than 40 months if mute and less than 46 months if echolalic, and (c) a prorated mental age of 11 months or more at a chronological age of 30 months. After the subjects were chosen, Lovaas placed them into one of two groups; the experimental group or the control group. The experimental group received an intensive treatment consisting of more than 40 hours of one-on-one treatment each week, provided by the Young Autism Project. Lovaas placed 19 subjects into this experimental group. He then assigned the remaining subjects to one of two control groups. Control Group 1, consisting also of 19 subjects, received 10 hours or less of the same one-on-one treatment each week. The other control group consisted of 21 subjects who were treated like

Control Group 1, but they were not treated directly by the Young Autism Project. All groups received treatment and were monitored for two or more years.

At the beginning of the study, Lovaas (1987) carried out several pretreatment measures. He compared the children in terms of mental age scores, behavioral observations recording the amount of self-stimulatory behaviors, appropriate play behaviors, and recognizable words. In addition, he conducted one hour interviews with the parents about the early history of the subject, gaining information about eight specific measures. These included the absence of recognizable words, the absence of toy play, lack of emotional attachment, apparent sensory deficit, absence of peer play, self-stimulatory behaviors, tantrums, and the absence of toilet training. He also probed for information regarding abnormal speech during the interview and rated responses the following way: 0= normal and meaningful language 1= echolalic language used to express needs 2= echolalia and 3= mute. He continued to probe and gained information about the age of walking, number of siblings, socioeconomic status of father, sex and any neurological examinations. Information obtained during these pre-treatment assessments, would provide a framework of comparison for Lovaas's later findings regarding the success of his treatment.

As stated earlier, the experimental group received 40 hours or more of intense one-on-one training each week. The therapists were typically graduate students who had been trained in using the Lovaas approach. One important

aspect of the project was that therapy was conducted within the child's home. Parents were also very active in the treatment process and were encouraged to become trained so treatment could ultimately take place for almost all the subjects' waking hours, 365 days a year (Lovaas, 1987). The first year of treatment typically focused on reducing self-stimulatory behaviors, building compliance to verbal requests, teaching imitation skills, establishing the beginning skills of toy play, as well as promoting the extension of treatment into the family. It is important to note here that in order to reduce self-stimulatory and aggressive behaviors, therapists first tried to extinguish these behaviors by ignoring them. If not successful they used time-out, shaping more socially appropriate behaviors. They also delivered a loud "NO" or a slap on the thigh contingent upon the presence of the undesirable behavior. It is equally important to note that aversives were not implemented in the control group because of "inadequate staffing" concerns.

During the second year of treatment, trainers focused on expressive and abstract language and interactive play with peers. Finally, for those students involved in training for more than two years, the third year focused on teaching appropriate expression of emotions, observational learning, and preacademic tasks. Preacademic tasks included reading, writing, and arithmetic (Lovaas, 1987). After subjects in the experimental group reached Kindergarten, their intensive training was reduced from 40 plus hours each week to 10 hours each

week. Likewise, the involvement was further reduced to a consultative basis after the child reached first grade.

In concluding his experiment, Lovaas looked at children's educational placement and IQ scores. He found that 47% of the subjects in the experimental group had successfully passed through normal first grade and obtained average or above average IQ scores. Eight of the subjects in this group passed through first grade in "aphasia" classes receiving IQ scores within the mildly retarded range. Finally, only two children were placed in classes for autistic students, scoring in the profoundly retarded range on the IQ test. This group gained an average of 30 IQ points over the subjects in Control Group 1.

Lovaas also points out that indeed, the use of aversives produced dramatic results in relation to self-stimulatory and aggressive behaviors. In a within-subjects experiment, Lovaas observed four subjects in the experimental group and four subjects in Control Group 1. At first Lovaas withheld the aversive treatment of the loud "NO" and the occasional slap for self-stimulatory, aggressive, and noncompliant behaviors (Lovaas, 1987). He found that during this time of no aversive consequences for behavior, very small reductions in the amount of self stimulatory and aggressive behaviors were observed. He then introduced the contingent aversives and noticed a sudden and stable reduction of the inappropriate behaviors and a sudden and stable increase in appropriate behaviors. He also reports it would be unlikely for treatment effects to be

replicated without the component of aversives. In a previous interview with Paul Chance (1974), Lovaas referred to this use of aversive behavior to cure self-destructive behavior, supporting the merits of aversives.

Essentially, upon analyzing data after his follow up study, Lovaas found that 47% of the experimental group achieved "normal functioning," resulting in successfully passing first grade. In contrast to the experimental group, only 25% of the control group subjects achieved normal functioning. In concluding his study, Lovaas reported that students will simply continue to manifest similar severe psychological disabilities later in life unless they are subjected to intensive behavioral treatment (Lovaas, 1987).

In 1993, when the subjects were between 9 and 16.25 years of age, McEachin, Smith, and Lovaas presented a follow-up study of the original subjects placed in the experimental group and the control group. Results from this study showed that subjects originally placed in the experimental group had retained their previous gains. The authors also reported that eight out of the nine experimental subjects who had achieved best outcome at age seven, were still indistinguishable from their normal developing peers when compared with IQ tests and adaptive behavior (McEachin, Smith, and Lovaas, 1993). Likewise, they report that both control groups achieved less favorable outcomes than did the experimental group and that control group subjects reportedly received IQ scores that were 30 points lower than the experimental group subjects. All of the

control group subjects were placed in special education classes, as opposed to 53% of the experimental group subjects.

The 1990's has seen an unprecedented interest in Lovaas and his program. This is due in part to a book published in 1993 titled *Let Me Hear Your Voice*. This book was written by Catherine Maurice, whom is the mother of two children diagnosed with autism. *Let Me Hear Your Voice* is a very powerful story about one family's experience with intensive operant conditioning or otherwise known as the Lovaas approach. The story of this family, is also the basis for a research article by Perry, Cohen, and DeCarlo (1995). This research is a case study of the two Maurice children who were involved in Lovaas therapy. The authors state that these two siblings "join the nine patients of Lovaas who recovered with intensive behavioral therapy" (p.235). This book and article are very controversial as is Lovaas's original research study. One of the controversial topics surrounds the implications of recovery from autism which is currently classified as a life-long disorder. Shapiro and Hertzog (1995) refute the claims of recovery by Perry, Cohen and DeCarlo, by stating the outcome is based on only a 24 minute video tape of the two siblings playing with their older brother. Because there are no outcome measures and the cases were not seen and adequately evaluated during follow up, authors caution readers to treat these findings as a case study (Shapiro and Hertzog, 1995).

Today, Lovaas's current treatment approach looks much like he described it in his original research study. Steve Buchman describes the Lovaas Method in a 1995 issue of the *Indiana Resource Center for Autism Newsletter*. The program is described as consisting of 30-40 hours each week of therapy, 4-6 hours each day, 5-7 days each week of one on one training for two full years.

This method, based in operant conditioning theories, focuses on the discreet trial format of teaching skills. This format is composed of three basic parts that include requesting or commanding an action, a response, and the presentation of a reward if a correct response is elicited and a sharp "NO" if an incorrect response is presented (Buchman, 1995). The curriculum for this intensive therapy is driven by Lovaas's book titled *Teaching Developmentally Disabled Children: The Me Book*. This book, divided into seven units, addresses the following categories: basic information; getting ready to learn; imitation, matching and early language; basic self-help skills; intermediate language; advanced language; and expanding your child's world.

This approach to therapy involves a team of at least three people usually consisting of graduate or undergraduate students who have been trained in the Lovaas approach, other individuals who have been properly trained, and the parents. Lovaas feels that it is most important to begin this therapy in the home at an individual level before entering into a school environment.

It should be noted here that the expense of using the Lovaas Method is quite costly. Hobbs and others (1995) reported that the average monthly cost of providing Lovaas therapy for one child to be \$1237. Lovaas justifies the expense of his program by stating that his program would cost about \$40,000 over two years; only a fraction of the nearly \$2 million that life-long institutionalization would cost for these students (Lovaas, 1987).

Eric Schopler

Clearly Lovaas and his approach to treatment appear to address consequences of behavior. Eric Schopler, on the other hand, placed particular focus on the antecedent stimuli occurring before a behavior. Schopler's program began as a research project in the mid 1960's and in 1972, Schopler founded the Treatment and Education of Autistic and related Communication handicapped Children in North Carolina. This method of treatment, later identified as the TEACCH model, is currently a statewide program in North Carolina for autistic children. Since its inception in 1972, there have been numerous regional sites established around the country. It is a developmental approach recognizing the differences among children regarding the rate and nature of development across several different skill areas (Lord, Bristol, & Schopler, 1993).

The TEACCH model is a comprehensive program offering the following services: diagnostic evaluation, individualized curriculum development, social skills training, vocational training, parent counseling and training, and

consultation to classrooms, group homes, and other community agencies (Division TEACCH, 1997). Therapists, counselors, and teachers involved with the TEACCH model, have undergone extensive training to be knowledgeable and effective in this approach. The primary goal of the TEACCH program is to "prevent unnecessary institutionalization by helping to prepare people with autism to live and work more effectively at home, at school, and in the community" (Division TEACCH, 1997). Ultimately, this is accomplished through the structured teaching approach to education. Schopler, Mesibov, and Hearsey (1995) describe structured teaching as involving four specific components including; physical organization of the environment, schedules, individual work systems, and task orientation.

Environment. Specifically, the physical organization component focuses on establishing consistent, visually clear areas and boundaries within one's environment. Also of primary importance is a transition area within the environment where students can go to see what the next activity will be. This is the most logical place to incorporate the schedule component of structured teaching.

Schedule. The schedule is really a cornerstone of the TEACCH approach and can take many forms, depending on the functioning level of the child. Some children, at lower levels of functioning, may need an object to object schedule where they match actual objects to what is going to happen next. An example

might be if the child is going to PE, the child might be given a ball to indicate that it is time for PE. As a child develops and becomes familiar with the schedule, he/she may be able to use a picture schedule instead of the object schedule. As the child becomes increasingly independent, a written schedule may even be feasible. Color coded schedules or number schedules might also be incorporated. The schedule ultimately allows students to anticipate and predict the upcoming events.

Individual work. The next component of structured teaching involves the individual work period. During this work session, the child can benefit from one on one instruction; or depending on the functional level of the student, can work independently. The goal for this component is to help the child work towards independence and to understand what is expected of him/her.

Task Orientation. Finally, the task orientation component involves instructional aids that may help the child complete tasks. Often jigs are made for students to perform tasks more independently. Much creativity can be used in developing jigs for many different types of tasks.

Along with the above mentioned techniques, the TEACCH philosophy for managing behaviors focuses on making the world predictable and less confusing as well as modifying the environment due to the student's deficits. By utilizing components of a structured teaching approach, and accommodating the learning

environment to fit the student's specific needs, many behavior problems and frustrations are simply avoided (Lord, Bristol, and Schopler, 1993).

TEACCH also places primary focus on the family. Other family members are involved in order to help create an environment that will facilitate learning for the autistic child at home. Schopler (1987) reports that ultimately TEACCH strives to establish a collaborative parent-professional relationship. This is accomplished by focusing on equal recognition of parents' and professionals' social roles while cutting across the interpersonal, educational and political arenas of their lives. Parent collaboration is encouraged in the following ways: the use of one-way observation windows where parents are encouraged to observe their child in class, a policy of open records where parents are encouraged to view their child's records, as well as parent-classroom collaboration where parents can serve as assistants in the classroom.

Yet another component of the TEACCH model is that it assumes a direct relationship between assessment and intervention (Lord, Bristol, and Schopler, 1993). Interventions are based on skills the child already has demonstrated in daily life. Programs are individualized based on the information gathered through the assessment.

The importance of visual aids within the environment is stressed throughout structured teaching. This is very important because many children with autism see their world in pictures, as opposed to words. Grandin (1995)

addresses this by discussing the benefits of the TEACCH program's efforts to utilize visual methods for organization. Many autistic people, like Grandin, see their world in pictures. Grandin (1995) feels that it is important to emphasize that educators should never burden visual thinkers by presenting them with long strings of verbal information. This can be very confusing for many students with autism.

The effectiveness of the TEACCH program rests largely on anecdotal research. However, in 1987, Schopler evaluated the success of the TEACCH program by administering a questionnaire to families involved with the TEACCH program. Results showed that parents found the program to be very helpful and on a scale of 1-5, with 5 being the most helpful, the mean rating of helpfulness was reported as 4.6.

Another finding of this study reported that the institutionalization rate of students with autism who had been served by TEACCH was a mere 8%. This is a remarkable finding as previous studies have reported institutionalization rates as high as 74% for students with autism (Lotter, 1978).

Empirical research supporting the TEACCH program focuses largely on the component of structured teaching. Schopler, Brehm, Kinsbourne, & Reichler (1971) found that use of structured teaching yielded improvements in attending, relatedness, affect, and general behavior within the structured learning situation. Lockyer & Rutter (1969), and Rutter, Greenfield & Lockyer (1967), have also

reported similar findings regarding the effectiveness of structured teaching. More recently, Volmer (1995) indicated a need for students with autism to be provided with adequate structure and visual cues via structured teaching in the classroom.

Critique of the Research

Since Lovaas's research came out in 1987 and his follow up study in 1993, autism experts have had much critical feedback for Lovaas and his colleagues. Attacks have been made regarding subject selection into treatment versus control groups, the notion of "recovery" from autism, the representativeness of the subjects, and the use of aversives.

Schopler, Short and Mesibov (1989) reported that Lovaas attempted to skew the selection to include more higher functioning children in the experimental group. The authors feel that he attempted to produce more positive results in four ways. The first was by using a prorated mental age (PMA) instead of a ratio IQ to determine intellectual functioning. The above authors state that using a PMA gives the appearance of lower functioning than does the ratio IQ. The second way was by including only children who had chronological ages of 40-46 months at the time of their initial evaluation *only* if they demonstrated echolalia. This is interesting, the authors report, because echolalia is widely recognized as a symptom of students who are typically higher

functioning. These authors believe that in this way, Lovaas was intending to exclude subjects who were lower functioning. The third way was that in fact, Lovaas's sample of students was high functioning, even by his reports. Lovaas reported a mean PMA (prorated mental age) of 18.8 for his subjects in the experimental group. When converted to an IQ score, this would result in a mean IQ of 63 (Schopler, Short and Mesibov, 1989). This is a considerably higher score, than had been reported for children in previous studies. For instance, DeMyer and colleagues (1974) reported a mean ratio IQ of 45 for a group of students with autism. Likewise, Lotter (1966), reported that two thirds of autistic students with whom he worked, had ratio IQ scores falling under 55.

Finally, the authors feel that because of the high ratio IQ, pretreatment measures underestimated the subjects' intellectual functioning. They argue that tests Lovaas used for pretesting purposes, specifically the Bayley Scales of Infant Development (Bayley, 1955), Stanford Binet (Thorndike, 1972), and the Cattell Infant Intelligence Scale (Cattell, 1960), resulted in low pretesting scores for autistic children. Ultimately, the authors feel that these subjects were clearly not an average or even below average group of children with autism. They feel this was a nonrepresentative group.

Other critics have referred to the problem of the representativeness of Lovaas's sample. Mesibov (1993) refers to various problems including the different cut-off ages for echolalic and mute children, that the control group had

fewer higher functioning clients than one would expect in groups of that size, and the use of different testing protocols for clients in different groups. Kazdin (1993) stresses that in the event of replication, more standard diagnostic instruments should be used to delineate impairment; including the full range of diagnosable disorders. He also advises the use of a broad assessment battery to evaluate the scope of impairment and functioning that children and adolescents with autism experience (Kazdin, 1993).

Many critics have referred to the question raised regarding the selection of subjects into treatment versus control groups. Mesibov (1993) reports that people must be careful in interpreting these results because the subjects were not randomly distributed among the three groups. He goes on to state the only way to really insure the absence of bias is through random assignment (Mesibov, 1993). Others have expressed similar concerns regarding the methods of placement into groups. Kazdin (1993) responds by arguing that in the event of replication of the study, subjects should be randomly assigned to conditions. Foxx (1993) responds to this issue by stating that his hesitation with the results lies with a methodological problem; that is "the assignment of subjects to the experimental and control groups was not random" (p.375). Baer (1993), however, supports Lovaas and his methods of assignment. Baer reports that it was not possible to randomly assign subjects to the control and experimental groups because the experimental group required such massive amounts of

resources. Furthermore, he feels that the subjects were randomly split. By assigning cases on the availability of resources, essentially, cases to each group equaled out in the end. He concludes that Lovaas utilized *functionally random assignment*. He goes on to report that it is typical practice for many researchers to suspend the rules and impose individual judgments in their place when the outcome of following the rules of a specific design are undesirable (Baer, 1993).

Other criticisms have surfaced regarding the claim that the intensive therapy cured 47% of autistic children, or that 47% of these children who entered therapy now achieved "normal intellectual and educational functioning" (Lovaas, 1987). Mundy (1993) addresses this by asking whether intervention resulted in complete remission of autistic symptoms in a subsample, or did it result in a subsample that displayed symptoms typically presented by higher functioning children with autism? Mesibov (1993) worries readers might jump to the conclusion these children have been cured. He states that although McEachin and colleagues' findings are impressive, they are far from demonstrating "normal functioning." Mesibov (1993) goes on to argue that McEachin and colleagues have, by only including regular class placement and IQ scores as criteria for "normal functioning," left out several skills involving "normal functioning" of children. These include, but are not limited to, the student's social interactions, friendships, social communication, and conceptual abilities (Mesibov, 1993).

One major area that both sides of this debate do agree upon is the urgent need for replication of the Lovaas study. The critical need of replication reoccurs throughout the literature. Lovaas, Smith and McEachin (1989) report that indeed, their study needs to be replicated by independent researchers. Foxx (1993) also felt the Lovaas study will continue to be associated with polarization and controversy until their dramatic effects are replicated. He goes on to report he would like to believe the reports, however, cannot do so until independent verification has been provided. In his commentary, Kazdin (1993) reports an urgent need to replicate the original study; and because the promise of the Lovaas treatment can effect marked change in individuals, replication assumes a very high priority.

In response to these cries for replication, Smith, McEachin, and Lovaas (1993) offer some remarks. They state one of the problems with replication is there are logistical difficulties involved with replication of the study. They report that essentially, one must acquire hands-on supervised training to provide competent treatment and proper assessment involves extensive training and preparation. They report efforts to replicate their study would involve substantial amounts of time. They recognize few people are willing or able to commit to at least five years, as they predict replication will take at least this long. Even in the initial study, Lovaas (1987) reported it would be unlikely for replication of the experimental group treatment to occur without extensive theoretical and

supervised practical experience. This experience should involve one-to-one behavioral treatment with developmentally disabled clients.

A replication attempt, however, was made in 1993 by Birnbrauer and Leach. Their program was called the Murdoch Early Intervention Program (MEIP). The purpose of this project was to replicate Lovaas's original intensive early intervention study; however, the authors point out some key differences. Birnbrauer and Leach reportedly chose not to use aversives despite Lovaas's claims that it is unlikely that treatment effects could be replicated without this component (Lovaas, 1987). The MEIP program also implemented careful monitoring of stress the parents and families were experiencing. They made extensive efforts to attend to personal and family needs of those involved. They also chose to reduce the intensity of the treatment from 40 hours per week to an average of 28.7 hours each week. In addition, their subjects received treatment for a shorter amount of time. The subjects in the original study reportedly received intense therapy for an average of 2.5 years before entering first grade (McEachin, 1993), where participants in the MEIP program typically were enrolled in preschool during their second year, without support from the MEIP project. Particular details of the study can be found in Birnbrauer and Leach (1993). The results of the program, after two years of implementation, showed that four of the nine experimental children made substantial improvements while

one child from the control group made significant progress (Birnbrauer & Leach, 1993).

Gresham and MacMillan (in press) provide possibly the most damaging piece of literature against the original Lovaas study. These authors attack the 1987 research study according to threats involving experimental validity; specifically: internal, external, and construct validities. The authors report that as a result of the threats to experimental and external validity, this program cannot be “exported to school districts with fidelity” (p.2). The authors go on to state that implementation of this program is unlikely to yield results similar to those acknowledged by Lovaas.

Throughout the literature review regarding Lovaas and TEACCH, although there was a substantial amount of literature regarding the critique of Lovaas, there was very little literature specifically evaluating the TEACCH program.

Comparisons: TEACCH and Lovaas

When looking at the components of both the TEACCH program and the Lovaas program, it becomes apparent that TEACCH essentially focuses on a philosophy of educating young children with autism. The crux of this philosophy involves the use of structured teaching methods. These methods involve establishing a predictable, very structured environment for the child. Mesibov (1994) reports that structured teaching also involves focusing on how well the

person with autism can understand the environment and make sense of the expectations of the environment, rather than the principle of reward. Of primary importance in the TEACCH program is to help clarify tasks and boundaries, implement developmentally appropriate schedules, as well as establish positive routines. This summarizes the underlying philosophy that drives the program. Thus, individuals are placed in a classroom that operates under the philosophy of structured teaching. Within this classroom a variety of curriculum choices can be implemented according to the needs of the students.

On the contrary, Lovaas has developed a program with basic theoretical assumptions regarding operant conditioning. However, this method serves as more of a curricular model. *The Me Book* essentially provides the basis for the curriculum for all children. This curriculum specifically addresses the following areas: receptive language, reduction of disruptive behavior, nonverbal imitation, matching and sorting, object and behavior labeling, verbal imitation, abstract concepts, sentence structure and descriptions, pre-academics, social language, play skills and peer integration, and finally self help skills as well as community and school (Lovaas, 1981). It is also important to note that the Lovaas Method is recommended to be conducted primarily within the home, unlike TEACCH, which is conducted largely within the classroom environment. The intensity of treatment with Lovaas is also much more comprehensive than TEACCH, as it encompasses most of the child's waking hours.

The differences presented between these two programs provide important information when looking at possible options for programming. Although there is no research regarding the merging of characteristics from both programs into one eclectic program, this is an area which should be considered for further research.

Effective Interventions and Research Design

Throughout history, there have been countless interventions attempting to increase the functioning in various areas of young children with autism. Looking at past research studies, research design in support of these studies has proven to be just as varied as interventions. For example, Bondy & Frost (1994) studied 41 children with autism when determining the effectiveness of their Picture Exchange Communication System intervention. Strain and Cordisco (1994) conducted a longitudinal study with 42 children regarding the effectiveness of the LEAP program for children with autism. On a somewhat smaller scale, Koegel, Koegel and Surratt (1992) studied three preschoolers when implementing their language intervention. These authors used a repeated reversal research design. Oke and Schreibman (1990) used a case study to determine the effectiveness of training social initiations to children with autism. Randall and Gibb (1987) used a single subject research design to study the effects of two separate interventions for a three year old child with autism. Likewise, Sugai and White (1986) used a

single subject research design to study the effects of object stimulation on prevocational work rates with a 13 year old boy with autism. From these examples, it becomes clear that several research designs and a varied number of subjects are acceptable for determining the effectiveness of interventions.

Several research studies have used intervention programs that have proven their effectiveness. Recently, a study by Koegel, Koegel, and Surratt (1992), utilized three preschoolers with autism. The authors sought to evaluate the effects of discrete trial/extrinsic reinforcers and natural language interactions/natural reinforcers in relation to conversational exchanges. The study incorporated a repeated reversal design with order of conditions and number of sessions varied across and within children in order to control for order effects. Data were collected for disruptive behavior and target language responses. Treatments were performed in a one-to-one teacher-child format. Results revealed that when a natural language teaching approach was implemented, all three subjects displayed less disruptive behavior when compared with analog sessions using discrete trials. Likewise, children produced more target language behaviors within the natural language setting when compared to the analog setting. Clearly, natural language interactions yielded more responses, better language skills and less disruptive behavior than did discrete trial methods.

Ogletree (1992) utilized a case study approach to evaluate the effectiveness of teaching manual signs to facilitate a variety of requests to a preverbal five year old child with autism. Following 52 sessions, each lasting 30-45 minutes in length, the subject's interaction rate jumped from .1 interactions each minute to 1.5 interactions each minute.

In another study, MacDuff (1994) conducted research with four boys, aged 9-14, diagnosed with autism. He utilized a graduated guidance procedure to teach the boys to follow photographic schedules, increase on-task behaviors, and on-schedule behavior. The study incorporated a multiple-baseline design across participants to assess effects of photographic activity schedules on on-task and on-schedule behaviors. Effects were measured during baseline, teaching, maintenance, re-sequencing of pictorial schedules and finally generalization to novel photographs. Results suggest photographic activity schedules, taught to students through graduated guidance, served as functional discriminative stimuli promoting sustained engagement of activities.

CHAPTER 3

IMPLICATIONS AND RECOMMENDATIONS

It is clear that both the TEACCH approach as well as the Lovaas approach for working with young children with autism have great potential. The Lovaas Method, despite the controversy that surrounds it, appears to have some very beneficial findings. It is important however, when working with all students, especially students with autism, to analyze and evaluate each child's unique needs and to develop a program accordingly. It is a disservice to children if we adhere to "packaged programs" claiming to work for all autistic children. As one who works with autistic children knows, each child with autism, is remarkably unique and different from other children with autism. Therefore, it is important to closely look at the individual needs of each child in order to establish individualized and appropriate programming options for children.

Up until this point, research regarding these two widely recognized approaches has focused on the separate implementation of Lovaas and TEACCH. There were no research studies found in which components of both programs were implemented. If these two approaches maintain their exclusive implementation, there will be several implications for research groups, parents, teachers/ school districts, and students within the autistic community.

Research Groups

Research groups, within the educational arena, have sought replication studies to offer further support for the Lovaas Method since the original report in 1987. Some attempts have been made, but none have replicated the exact study. Thus, interpretation of the Lovaas (1987) findings will remain cautious at best until replication occurs. At this point, Gresham and MacMillan (in press) warn that the Lovaas (1987) results are experimental and should be interpreted in this manner until replication. They go on to identify several threats to validity that should be considered in future replication attempts.

If separate implementation remains, and replication does not occur, research groups will not explore the most effective components of both programs, in hopes of merging them.

Parents

Historically, parents have been very active regarding implementation of Lovaas. Likewise, parents are an integral portion of the TEACCH program. If further research is not conducted, parents supporting Lovaas will continue to demand Lovaas for their children under a false pretense. They will continue to believe the misconception that Lovaas can work for all autistic children. In the past, this has resulted in parents demanding this program for their children in hopes that their autistic child will be "cured." Heartland AEA in Johnston, Iowa reports parents are essentially demanding Lovaas treatment, quite possibly

without complete knowledge of the Free and Appropriate Public Education (FAPE) provision under IDEA (Drinnin, 1996). If separate implementation remains, parents may be denied the option for an integrated program.

Teachers/ School Districts

Many teachers are currently teaching in rooms designed to implement TEACCH philosophies. The structure and organization of these rooms appear to be beneficial for students with autism. Students who are involved in these programs are able to work on their specific goals and objectives alongside their peers. Teachers can benefit from using individual, small group and larger group instruction within most classrooms.

Teachers currently implementing Lovaas for young children with autism are generally teaching within the child's home environment. These teachers typically only teach one child and are involved in very intense one on one training. The job descriptions of these two types of teachers is very different. Both types of programs, however, involve additional training prior to implementation.

There are also implications for school districts if these two programs are to remain exclusive. Case law under IDEA has supported the notion that the choice of educational methodology for students with disabilities lies within the school district, as long as it is providing a free and appropriate public education (Special Educator, 1995). However, this has recently been challenged under the

definition of an appropriate education. Drinnin (1996) reports that lawyers are demanding Lovaas for parents, under the notion that no other approaches have demonstrated the effectiveness that Lovaas has documented. Subsequently, IEP's are written based on lawyer negotiations with the schools and are not driven by individual needs of students. In addition, parents are reportedly functioning under erroneous assumptions that virtually all children served with Lovaas programming will be cured. Parents also frequently demand extended year services for their children, even when they do not qualify under state or district guidelines. This increased demand can be seen as a reflection of Lovaas's claim that a child needs two complete years of daily treatment.

In addition to these claims, school districts must compete with widely accessible information obtained from the Internet guiding parents through various steps needed to employ "tackle the system (educational)." Sample letters to district administrators requesting the Lovaas Method are even included. Clearly, this information does not seem to support a collaborative model between parents and educators for working with young children with autism.

Students

Perhaps the most important implications are those that are experienced by the students themselves. If the two approaches remain mutually exclusive, there is a risk for students trained in Lovaas to be treated with an approach that has not been proven adequately in the literature. These students will continue to

receive very intense therapy within the home, apart from the company of their peers. Students educated with the TEACCH approach might not benefit from the extended periods of one on one attention that seem to be beneficial in Lovaas. Some students will even experience two full years of Lovaas, only to demonstrate less than robust gains in functioning at completion.

As a result of this literature review, there are several questions that come to mind. Can portions of the two programs be merged into one comprehensive program? Can students in an early childhood special education classroom setting benefit from the TEACCH components of structured teaching and discreet trial sessions conducted within the classroom setting? Will these students make greater progress towards their goals than students who are taught strictly in a TEACCH classroom?

Answers to these questions warrant further research in the area of autism. Clearly, there is a need for this type of research as documented by the implications that are at stake for research groups, parents, teachers/ school districts and especially students. The benefits of an integrated approach to Lovaas and TEACCH are yet to be determined.

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Appendix A

In order to be diagnosed with autism, the DSM-IV states that a child must display at least 6 (or more) items from sections 1, 2, and 3 with at least two from the first section and subsequently one from sections 2 and 3.

Section 1 describes a qualitative impairment in social interaction marked by:

- (a) impairment in use of several nonverbal behaviors such as eye-to-eye gaze, facial expressions, body postures, and gestures to regulate social interaction,
- (b) failure to develop peer relationships appropriate to developmental level,
- (c) lack of spontaneous seeking to share enjoyment, interests or achievements with other people; and or
- (d) a lack of social or emotional reciprocity.

Section 2 describes a qualitative impairment in communication manifested by

- (a) delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime)
- (b) in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others

- (c) stereotyped and repetitive use of language or idiosyncratic language; and or
- (d) a lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level.

Section 3 describes the engagement in restricted repetitive and stereotyped patterns of behavior, interests, and activities marked by

- (a) an encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus,
- (b) an apparently inflexible adherence to specific, nonfunctional routines or rituals,
- (c) stereotyped and repetitive motor mannerisms; and or
- (d) a persistent preoccupation with parts of objects.

In addition to the above criteria, the child experience have delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years: (1) social interaction, (2) language as used in social communication (3) symbolic or imaginative play. The child's disturbance also must not be better accounted for by Rett's Disorder or Childhood Disintegrative Disorder.