The Inclusion Model:

A Framework for Developing Social Skills

In Children with Autism

A Field Project

Submitted to the Graduate Division

College of Education

New Mexico Highlands University

In Partial Fulfillment of the Requirement for the Degree

Master of Arts in Special Education

Jennifer Marie Medeiros

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ABSTRACT

To better understand the effect of inclusion programs on social skills development for children with autism, ages four to seven, nine children with autism from three different inclusion programs in Santa Fe Public Schools were observed. The study measured the level of social play each individual engaged in during an unstructured social time, *i.e.*, recess or classroom group/choice center time. Each participant was observed for a total of 60 minutes across one to three sessions. The observer/researcher used the Social Play Checklist developed by University of Washington, Project DATA, November 2004. The primary teacher also conducted an observation at a different time using this same instrument. Two different models for inclusion, full-inclusion (75% or more of the school day with typical peers) and part-time (20% – 74% of the school day with typical peers), were considered. Data collected were analyzed and both the instrument's inter-rater reliability and the relationship between the type of inclusion setting and the degree of social skills exhibited were determined using the *Pearson r* correlation formula. Based on the data collected and the r value of -0.05584 yielded, there was little difference in the degree of social skills exhibited by students in either the full-time or part-time inclusion setting. The inter-rater reliability correlation value on the *Pearson r* was 0.968635, which established a high degree of inter-rater reliability. An average social skills score of 71.4 percent for the full-time inclusion students and 74 percent for the part-time inclusion students provided further confirmation that little to no relationship between the inclusion model and the degree of social skills could be surmised.

DEDICATION

To Linda Lippitt, Barbara Piper and Barbara Reider without whose guidance this study would never have been completed.

To my wonderful and loving family who have been so supportive and patient for the past two years.

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CHAPTER 1: INTRODUCTION

Problem Statement

Many children with disabilities went unnoticed and uneducated for years. In 1975 the federal Education for All Handicapped Children Act (EHA) (PL 94-142) was enacted into law. EHA unquestionably was a victory for children in special education. However, it posed challenges for the public school system. According to EHA's successor law, the Individual with Disabilities Education Act (IDEA):

> It is the purpose of this chapter to assure that all handicapped children have available to them . . . a free appropriate public education which emphasizes special education and related services designed to meet their unique needs, to assure that the rights of handicapped children and their parents or guardians are protected, to assist State and localities to provide for the education of all handicapped children, and to assess and assure the effectiveness of efforts to educated handicapped children.

20 U.S.C. § 1400(c) (2004) (PL 108-446).

The most important components of IDEA are a Free and Appropriate Education (FAPE) and the Least Restrictive Environment (LRE). The legal requirements of IDEA and the support for normalization is ". . . the belief that all individuals with disabilities should be provided the opportunity to live as normally as possible in daily society to be full participants in social educational and vocational settings." (Scheffel, 1996).

Schools nationwide are moving toward an inclusion model of instruction for children with autism. Autism is a brain-based, neurological condition classified as a developmental disability that can manifest itself as a social skills disorder. Parents can exercise their legal

rights for their child with autism to be educated in the least restrictive environment, which in most cases may be the regular education classroom whenever feasible. It is a legal requirement to service students with special needs in the regular education classroom.

Inclusion in LRE fomented intense debate. Advocates for inclusion believe age appropriate role models are essential for developing vital social skills. Opponents of inclusion maintain the student with autism must be taught social skills within the context of programs like Treatment and Education of Autistic and Communication Handicapped Children (TEACCH) and Applied Behavioral Analysis (ABA) through a direct instruction format with only highly trained individuals. These are behavioral analytic methods used to change socially important behaviors in meaningful ways (Green, 2007). Nevertheless, regardless of personal beliefs about inclusion, servicing students in the least restrictive environment is mandated by IDEA and thus must be followed.

This poses a real problem for teachers in the public school system that now have to educate students with autism. There are ever growing numbers of children identified with Autism Spectrum Disorder (ASD). According to the National Health Institute two to seven children per 1,000 are identified with ASD. However, further studies from a 14 state survey conducted by the U.S. Centers for Disease Control and Prevention found one in every 150 eight year-olds were identified as having ASD (Medline Plus, U.S. National Library of Medicine and the National Institute of Health (Feb. 2007)).

This paper will address the nature of autism, explore models for inclusion in the regular education classroom, and provide research results for social skills programs currently used to develop social skills in the children with autism. Based on the research conducted and

findings garnered, this study answered the question: Did the time spent in inclusion programs in the Santa Fe Public Schools increase social skills in children with autism?

Purpose of the Study

According to IDEA, autism by definition is one of nine categories of special education that do not include cognitive or intellectual impairments. (NAPAS, 2004, pg. 2). IDEA and NCLB initiatives aimed at serving children with special needs in an inclusion setting have prompted many different inclusion models. This study evaluated the validity of inclusion for social skills development in children with autism. Children with autism ages four to seven were the sample group for this research study. This study considered the social skills exhibited in a play situation and, through observation, examined the conviction that time spent in inclusion models presently used in Santa Fe Public Schools foster social skills in the autism study group. The predictive information yielded is available to inform the types of inclusion programs Santa Fe Public Schools might support for the early childhood children with autism.

Assumptions

As a teacher in an inclusion setting, and after observing the social, emotional, and academic growth of five autistic boys at El Dorado Elementary School, the growth in social skills seemed apparent. Friendships were made and caretaking roles with typical children were noticed. To date, no other formal studies have been conducted. Accordingly, the goal of the study addressed in this paper was to investigate the belief that inclusion programs do facilitate social skills development.

Justification

According to Robledo and Kucharski (2005), first and most notable is the ever growing numbers of children with Autism Spectrum Disorder. They reported that in 1999-

2000, there were 61,406 children with autism. Epidemiological studies in ten countries of approximately four million children have shown an increase from two to five children out of every 10,000 in the 1970s to 7.5 out of every 10,000 since 1987. The most recent figures from the National Health Institute indicated two to seven per 1,000. In California the numbers increased from approximately 5,000 in 1994 to about 14,000 in 2001 (Robledo and Ham-Kucharski, 2005). Autism is a social skills disorder and with ever growing numbers of children diagnosed and served in an inclusion setting, it is imperative to understand the different models for inclusion and determine which best meet the social skills needs in the least restrictive environment (*See* Appendix A).

Hypothesis

Independent of a specific program, the greater the time spent in inclusion the stronger the social skills will be in children with Autism Spectrum Disorder ages four to seven.

Research Question

Did the time spent in an inclusion model facilitate social skills development in children with Autism Spectrum Disorder who are ages four to seven?

Definition of Terms

Inclusion – Full or partial access to regular education classrooms and general education activities. Full-inclusion occurs when all services are provided in the regular education classroom. Partial or part-time inclusion transpires when at least two hours of the day are spent in the special education classroom.

Facilitate – To free from difficulties or obstacles; make easier; aid; assist.

Social Skills – The ability to understand social situations, respond to others appropriately, and interact with other people.

Autism Spectrum Disorder – A group of disorders with similar characteristics that include difficulties with communications and social interactions, and manneristic. Manneristic behaviors include distinctive behavioral traits, idiosyncrasies and exaggerated habits.

Limitations

The specific limitations are as follows:

1) Sampling – Given the small number of children diagnosed with autism available for observation, data collection was limited to the number of autistic children in three Santa Fe Public Schools inclusion models. For more valid results several children from other states would have yielded more accurate information.
2) Time – There were three different sites and approximately ten different subjects observed. Ideally, each subject would have been observed for several days and in many different social situations. For this study, time was limited to 60 minutes per subject and observation took place in only one non-structured social setting (recess and/or self-selected/choice center time).
3) Money – Financially it was unrealistic for the researcher to take a minimum of ten days off work and incur the prohibitive cost to hire outside observers for data collection.
4) Control of Extraneous Variables – This population of children was at risk for health issues and sudden breakdowns. The study observations might have been altered or compromised if the child became ill or had to be removed from the social setting due to a sudden onset of an illness or a breakdown.

5) Population Location – This study only observed children within Santa Fe Public Schools.
6) Content – For the purpose of this study, only the amount of time spent in the inclusion setting was considered and not the content of the inclusion model.

Overview of Study

To better understand the effect of inclusion programs on social skills development for children with autism, ages four to seven, nine children with autism from three different inclusion programs in Santa Fe Public Schools were observed. The study measured the level of social play each individual engaged in a specific unstructured social setting, *i.e.*, recess and/or classroom group/choice center time. Each participant was observed for a total of 60 minutes across one to three sessions. The observer/researcher and primary teacher used the Social Play Checklist developed by University of Washington, Project DATA, Nov. 2004 (*See* Appendix B). The primary teacher conducted an observation at a different time in an unstructured social setting using this same instrument. The study included students from three different models for inclusion: full-inclusion (75% or more of the school day with typical peers), part-time (20% to 74% of the school day with typical peers), and minimum or no inclusion (less than 20% of the school day with typical peers).

Data collected was analyzed and two data sets of test scores were calculated with the *Pearson r* correlation formula. One test was run using the observer scores and the teacher scores to determine the inter-rater reliability of the instrument, and the other data set compared the Social Skills Checklist scores and the level of inclusion model to determine whether there was a relationship between the inclusion model and the level of social skills

each participant exhibited during this study. Conclusions were drawn based on the findings obtained.

The following four chapters will cover the sections of Literature Review, Methodology, Results of the Study, and Discussion and Questions for Further Study.

CHAPTER 2: LITERATURE REVIEW

Introduction

Given the history of Special Education and the evolving nature of inclusion for children with autism in the regular education program, many areas surrounding this subject warrant exploration. Children with Autism Spectrum Disorder are difficult to define, since the neurological disorder is a spectrum of symptoms ranging from mild to severe, and the way in which they are served in the inclusion model can be complicated. Further complicating the situation of inclusion, the most pervasive disorder associated with autism is extreme social skill deficits, including limited oral language skills, social orienting problems, joint attention skills, and communication problems. To better develop this study, understand the nature of autism, and explore different programs for inclusion, the following literature review was chosen.

History

In 1847, Edouard Seguin published *The Moral Treatment, Hygiene, and Education of Idiots and Other Backward Children* (Smith, 2006). Seguin's study represented the first time the movement of special education for children with disabilities was addressed. Beginning in 1905, training opportunities for teachers of special classes was offered at the New Jersey Training School for the Feebleminded Boys and Girls (Smith, 2006). In the early 20th century, compulsory school attendance came into existence, but children with disabilities were prevented from attending school because, as one state supreme court maintained, their inclusion ‘‘. . . produces a depressing and nauseating effect upon the teachers and school children.” (*State ex rel. Beattie v. Board of Educ.*, 172 N.W. 153 [Wis. 1919]). In 1972, two landmark federal court decisions, *Mills v. Board of Educ.*, 348 F.Supp. 866 (D. DC 1972), and *Pennsylvania Association of Retarded Citizens (PARC) v. Commonwealth of*

Pennsylvania, 343 F.Supp. 279 (E.D. Pa. 1972), paved the way for people with disabilities. In the *Parc* case, the court held children in Pennsylvania between the ages of six and twenty-one who have mental retardation must be provided a free public education. The court also found mentally retarded children would benefit from a program like that developed for their non-disabled peers. In *Mills*, the federal district court ruled the children with disabilities in Washington D.C. "must be provided a publicly supported education" (Kentucky Peer Tutoring, 2002-2003).

In 1973 the United States Congress passed Section 504 of the Rehabilitation Act, which required accommodations like access to public buildings in schools and society and protection of rights for students with disabilities (PL 93-112).

In 1975 Congress enacted the Education for All Handicapped Children Act (EHA) (PL 94-142). EHA guaranteed a free appropriate education in the least restrictive environment. In 1986, infants and toddlers were added to EHA (PL 99-457).

In 1990, the Individuals with Disabilities Education Act (PL 101-476), commonly referred to as IDEA, replaced the EHA. At that time Congress added transition plans to the law and included autism and traumatic brain injury to the category of Special Education.

The Americans with Disabilities Act (ADA) came into effect in 1990 (PL 101-336). ADA barred discrimination in employment, public accommodations, transportation, and telecommunications. The concept of "Normalization" for all students became a part of society.

In 1997, IDEA was reauthorized (PL 105-17). The IDEA reauthorization added ADHD to the "other health impairments" category and included the use of Functional

Behavioral Assessments and Behavior Intervention Plans for diagnosing and assessing children with special needs.

2001 brought about the No Child Left Behind Act of 2001 (NLCB). (PL 107-110). NCLB requires 95% of schoolchildren to participate in state and district testing. All students must demonstrate proficiency in reading and mathematics by 2012.

In 2004, IDEA was again reauthorized (PL 108-446). IDEA modified procedures in evaluation, discipline, individual educational plans and eligibility for learning disabled. Congress identified three defining features of special education: (1) free and appropriate public education (FAPE); (2) least restrictive environment (LRE); and (3) an individually determined education program (IEP) (Smith, 2006; Dybvik, 2004; Kentucky Peer Tutoring, 2002-2003).

As is evident from the history, the evolution of Special Education law at the federal level illustrates the lack of understanding and/or compassion for what is educationally appropriate for children with special needs. Fortunately, serving children with special needs in the regular classroom is no longer in question. Children with autism fall into this category as well. The following highlights the laws which pertain to inclusion for children with autism.

Pursuant to the 1997 IDEA, children with autism ages three and above are guaranteed a free and appropriate education. Children with autism must be offered the same subjects and environment that allows interaction with typical children as much as possible. This allows for children with autism to be treated equally and mainstreamed into the regular education classroom as much as possible (Robledo and Ham-Kucharski, 2005; Tilton, 2004; Smith 2006). Autism must be properly understood and the needs of the student with autism must be

addressed to adequately service a child with autism in the regular education classroom with typical peers.

What is Autism or Pervasive Developmental Disorder?

Autism, or Pervasive Developmental Disorder, is a brain-based, neurological condition classified as a developmental disability (Shore, Rastelli, 2006). To date, an isolated autistic gene has not yet been discovered that can be linked to autism. It is believed by many to be a genetic disorder that can be detected as early as age one, but usually is diagnosed in the toddler years. It is often known as Autism Spectrum Disorder, or ASD. Autism may present itself on a continuum from very severe, called autistic disorder, to Pervasive Developmental Disorder not otherwise specified (PDD-NOS), which is used when specific criteria is not met for either. The mildest form of autism is Asperger Syndrome (Tilton, 2004; NIMH, 2006). Rett Syndrome and Childhood Disintegrative Disorder are also included in Autism Spectrum Disorder.

The causes for autism are still unknown, but there are some scientifically proven links to autism. The first may be genetic. Research has shown genetic abnormalities either inherited (passed on from either parent) or genetic mutation (random, one-time event) could be the cause. It has been determined that ten to twenty-five percent of siblings of a child with autism do exhibit some sign of autism. Symptoms may be seen in a speech impediment, language difficulties, or social disorders. The broader autism phenotype may be seen in highly functioning parents or close relatives, and only if the child has multiple doses from both parents will the disorder manifest itself. These genetic factors in isolation might be quite adaptive. However, if unusual genes from both parents combine there is a small but increased risk of a child being born with an autism spectrum disorder (Siegel, 2003; Ham-Kucharski, 2005).

The second factor that may be cause for autism is genetic triggers or genetic vulnerability – i.e., events during pregnancy and/or birth that activate the genetic disorder. Seventy percent of the time some degree of mental retardation co-occurs with autism disorder. Autism occurs four to five times more often in boys, and there is an increased risk for children born to mothers and fathers aged 40 and over. Neither the genetic triggers nor how the prenatal or birth experience may have had an effect on the child with autism have not yet been identified. (Siegel, 2003; Ham-Kucharski, 2005; NIMH, Strock, 2007).

A third factor may be toxins/metals found in immunizations. Many parents have decided against immunizing their children after research has shown a possible connection to autism. According to Tilton, "Upon biopsy of the lower gastrointestinal tract of children with autism, measles is found. This, of course, is not normal and since many children with autism also have bowel diseases, it raises the question of what the connection may be" (Tilton, 2004). Many parents of children with autism have reported after their children had their first MMR (measles, mumps, and rubella) immunization, between the ages of 18 and 36 months, their children suddenly became nonresponsive, nonverbal, or both (Tilton, 2004). However, research conducted at the Johns Hopkins University Bloomberg School of Public Health could not prove a link between MMR, and autism and this research has also been refuted by a study done in the United Kingdom which indicated there was no difference between children who had been vaccinated with the exact same MMR vaccine and those who had not. Some scientists at the Centers for Disease Control are looking at mercury or methyl mercury found in thimerosal-laced vaccines as a possible cause (Robledo and Ham-Kucharski, 2005; Siegel, 2003; Strock, 2007).

How is Autism Diagnosed?

According to the National Institute of Mental Health, several screening instruments for autism have been developed. Checklists such as the Checklist of Autism in Toddlers (CHAT), the modified Checklist for Autism in Toddlers (M-CHAT), the Screening Tool for Autism in Two Year-Olds (STAT), and the Social Communications Questionnaire (SCQ) for ages four and older rely on parent response and observation. These checklists are not to be used for diagnosis, but they are to be used to assess the need for a possible diagnosis.

The next stage for an autism diagnosis requires a comprehensive diagnostic evaluation. A team of professionals, usually including a psychologist, neurologist, speech therapist, psychiatrist, each conducts in-depth cognitive and language testing. A full check-up and medical history evaluation should be done as well. Two other rating scales may be used at this time – the Autism Diagnostic Observation Schedule (ADOS-G), the Autism Diagnostic Interview – Revised (ADI-R), or the Childhood Autism Rating Scale (CARS). These rating scales weigh factors such as communication, social interaction, repetitive behaviors, age-of-onset symptoms, body movements and adaptation skills (Strock, 2007). The Children's Health Act of 2000 (PL 106-310) created the Interagency Autism Coordinating Committee (IACC), which includes directors from the National Institute of Mental Health (NIMH), National Institute of Neurological Disorders and Stroke, National Institute on Deafness and Other Communication Disorders, and the National Institute of Child Health and Human Development (NICHD) and the National Institute of Environmental Health Sciences (NIEHS), and representatives of other divisions from the Centers for Disease Control. These institutes have developed a ten-year plan for autism research under the

heading Studies to Advance Autism Research and Treatment (STAART) Network. Multi-site clinical trials are currently being conducted (NIMH, 2007; NICHCY, 2006).

Signs or Symptoms

Autism Spectrum Disorder holds a wide variety of characteristics and an even wider range of abilities within those characteristics ranging from mild to very severe. Shore and Rastelli place autism symptoms in three categories: Social Interaction, Communication, and Behavior. The most widely accepted symptoms include:

> Communication Problems;
> Difficulty relating to people, objects, and events;
> Unusual play with toys and other objects;
> Difficulty with change in routine or familiar surroundings; and
> Repetitive body movements or behavior patterns. (NICHCY, 2006)

The Diagnostic and Statistical Manual published by the American Psychiatric Association provides autistic disorder is only diagnosed if the person exhibits six out of twelve possible symptoms. A child with most of the symptoms is diagnosed as autistic or having classic autism. Fewer symptoms may be classified as developmentally disabled with autistic like features. Children with autism may have some or all of these symptoms. However, specialists concur that symptoms must be present by age three (Shore and Rastelli, 2006; Siegel, 2003; Tilton, 2004; Robledo and Ham-Kucharski, 2005; Strock, 2004; *See* Appendix C).

What is Inclusion?

Inclusion is a widely used term in education with various meanings to different individuals. For purposes of this paper, the definition to be used comes from Bryna Siegel Ph.D. According to Siegel, "Inclusive education means that the child is educated alongside peers who are without developmental disabilities." This definition is further supported by Smith. Smith, 2006, states, "It is imperative that students with autism experience normative, programmed, and supported interactions with typically developing peers. Such inclusion provides these youngsters with appropriate role models, where they can observe how others behave and interact with each other."

According to Dybvik, 2004, ". . . today more than 95 percent of students with physical, emotional, learning, cognitive, visual, and hearing disabilities receive some or all of their education in regular classrooms." Inclusion can occur in many forms. The regular education program may be used as the setting for social interaction between typical and autistic children as well as for academic instruction. The time spent together in the inclusion setting is completely dependent on the degree of the disorder the child with autism has and what is determined to be most beneficial by the Individualized Education Program team.

Before any inclusion model can be endorsed it must be clearly understood that the success of the program depends on the supports given to the child. The inclusion program must have well trained teachers, aides, therapists, resource teachers and adaptations needed by the child with autism. Simply placing the child in the inclusion setting without support for the child, other students, or teachers may do more harm than good. A child with autism placed in an inclusion setting who does not share any ". . . overlapping skill sets with his classmates developmentally, and who does not function in any cognitive domain within three years of the level of his age mates" (Siegel, 2003) is in an inappropriate setting for both the

student with autism and the regular education teacher. As Siegel also states, "Successful inclusion takes a certain kind of child and a certain kind of teacher. If both of these ingredients are not there, it's a recipe for failure." To that end, there are many inclusion models which parents and teachers should consider. The following section will give an overview of inclusion models currently available.

Inclusion Models

All recent research conducted for this literature review emphasized the need for certain systems (*i.e.*, organizational, procedural, and instructional) to be present for any inclusion model to work. The following recommendations were made:

- Collaboration between general and special education teacher to ensure a comprehensive program to meet the needs of all of the students
- Different teaching strategies and modification of assignments to accommodate the varying needs and learning styles of individual students
- In the regular education classroom adaptations and accommodations are made for individual students

For the student to succeed in the inclusion model, certain characteristics must be present:

- Ability to pay attention to tasks
- Skill in understanding and use of spoken language
- Accomplishment of basic academic skills
- Study and organizational skills
- Appropriate social behaviors
- Personal interest and motivation to be successful in the regular education classroom (Scheffel, *et al.*, 1996).

The full-inclusion model is designed and intended to meet all of the academic needs of the Special Education child in the regular education classroom. For a child with autism placed in a full-inclusion program, academic and social competence is the goal for everyone involved. One such program for full-inclusion is the researched-based Adaptive Learning Environments Model (ALEM) designed by Dr. Margaret C. Wang. The ALEM program consists of:

- Individual progress plans that have a highly structured component for basic skills mastery and exploratory part for problem-solving and self-direction while developing social skills.
- A diagnostic-prescriptive monitoring system that ensures mastery of subject matter based on a standards-based curriculum and ongoing assessment.
- A Classroom Instruction-Management System that promotes self-responsibility and instructional delivery of services.
- A data-based professional development program that can help meet the needs of staff.
- A school-based restructuring process that provides school and staff resources to ensure a high level of program implementation.
- A strong family involvement program.

In order for such a highly technical program that requires the cooperation of so many individuals to work, extensive training is required and the students must truly be integrated on a full-time basis.

The second full-time model is inclusionary team teaching. In this model both the regular education teacher and the special education teacher team together and teach all of the students in one classroom. Teachers must become equal partners who must have highly developed communication and cooperation skills to be effective. Based on the work of Walther-Thomas, inclusionary team teaching requires commitment from everyone involved in the child's education from district and building level personnel to teacher, parents and support staff. All participants must be capable, the classrooms balanced, staff properly trained, co-planning time allotted, and there must be adequate pilot testing for the program. "Regardless of how teachers choose to work together, however, all students benefit when teachers make a conscious effort to make the curriculum and their instruction more relevant and accessible to all learners." (Stump, 2000). The benefits for the students with special needs are substantial if all systems are in place with the team teaching model. In a longitudinal study on co-teaching Walther-Thomas reported, "Learning disabled students benefit by having improved self-esteem and motivation along with enhanced academic performance" (Models of Inclusion: Four Techniques for Successful Implementation).

While full-time inclusion is the preferred model for students with disabilities, often times a partial-inclusion model is necessary. However, according to Siegel (2003), "Students with disabilities should only be removed to separate classes or schools if the nature or severity of their disabilities prevents them from receiving an appropriate education in the general education classroom, even with aids and supports."

The nature of Autism Spectrum Disorder can be quite complex. With many overlapping conditions ranging from motor and communicative to social, the full-inclusion model is not always the best placement. Services for children with autism may include a partial-inclusion model. Children with autism may spend a portion of their day in a special education classroom and then the other part of their day mainstreamed into a regular education classroom with typical peers. The inclusion may be for academic instruction in a specific content area or for social skills development. Regardless of the reason, in order for success to be seen, monitoring social, academic, and behavior problems must be performed by all teachers, specialists, parents, and therapists. Ongoing planning time must also be allotted to ensure constant reevaluation of the program and proper placement for the student.

With the multitude of issues surrounding inclusion, partial-inclusion may be most beneficial for the student if proper social behaviors are not in place and adequate teacher training has not been delivered.

Social Skills and the Inclusion Model

Perhaps the most identifiable symptom of autism is the lack of social skills. Children with autism have severely compromised social skills. As Dawson (2004) puts it,

> . . . early impairments in social attention deprive the child with autism of social information input during infancy and preschool development and that this deprivation further disrupts normal brain and behavioral development. This cycle acts like a negative feedback loop, affecting subsequent social development.

Social skills may be broken down into four areas: social orienting, joint attention, attention to the distress of others, and communication skills.

Social orienting impairment is where children with autism fail to naturally adjust to social stimuli in their environment. Children who lack social orienting skills have extremely underdeveloped attention skills, poor eye contact, minimal attachment skills, and do not respond to their names. They resist attention and seldom respond to displays of anger or affection.

Joint attention refers to the ability of a person to share awareness to an object or event. Such skills may include actively attending to social cues expressed on the face, following eye gaze, and awareness of facial expressions. Joint attention skills may be a good predictor of concurrent and future language skills in children with autism (Dawson, *et al*., 2004; McClellan & Katz, 1992).

By six months of age the typical child will display attention to distress and respond appropriately to different emotions (happiness, sadness, anger) expressed by another person. Studies have shown that when adults displayed facial expressions of distress, children with autism looked less at the adult and showed less concern than did children with mental retardation and typically developing children (Scambler, Hepburn, Rutherford, *et al*., 2006). Children with autism are unable to interpret facial expressions and gestures. As Strock (2007) observes, "This inability leaves them unable to predict or understand other people's actions."

The fourth component of the social skills domain is communication. Children with autism often have communication difficulties, and those who do speak often use language in unusual ways. The typical child will begin with babbling, move into speaking words and progress to sentences and phrases. The child with autism does not follow this progression. Some children with autism may remain mute throughout life. Others may babble during the first months of life and then stop. Some children with autism imitate or "parrot" words,

which is a phenomenon known as echolalia. Echolalia can transform into spontaneous speech for some children with autism. Other children may be seriously delayed and not develop language until they are between the ages of five and nine. These children with autism generally acquire language in a gestalt style (Bogdashina, 2006; *See* Appendix D).

The reasons for such social skill difficulties in children with autism are still unclear. However, causes may be attributed to genetics, cerebral hemispheric organization, timing of the emergence of cognitive structures or sensory processing problems, and the learning environment

For children with autism the social issues surrounding their difficulties with communication can be a challenge for everyone. It is a grueling process to make friends and fit in with typical peers. The lack of social skills can cause a child with autism to be left socially isolated and depressed. Is there any hope for social skills development in children with autism? Based on Smith's research, social and communication skills can be taught with varying degrees of success depending on the level of cognitive functioning if taught through direct instruction. The most pertinent skills that must be taught directly are:

1. Attention;
2. Motor imitation;
3. Expressive language;
4. Receptive language and comprehension;
5. How to play with toys; and
6. Social Interaction.

To assist with these lessons there are many research-based programs available. However, the most widely accepted are Applied Behavioral Analysis/Discrete Trial Treatment (ABA/DTT) and Treatment and Education of Autistic and Communication-

Handicapped Children (TEACCH). The following section will outline each of the foregoing programs and how each relates to the inclusion setting.

Applied Behavior Analysis and Discrete Trial Training

Applied Behavior Analysis/Discrete Trial Training (ABA/DTT) is a natural science approach to understanding behavior that uses analytic methods to examine behavior. From the research findings, the teacher can work to change socially important behaviors in meaningful ways. This program was pioneered in the 1960s and 70s by Dr. O. Ivar Lovaas, Professor of Psychology at UCLA. The structure for using ABA/DTT is to assess the skills the learner does or does not possess. Treatment goals are selected from initial assessment data and a curriculum scope and sequence. Through a task analysis study skills in learning, communication, social, academic, self-care, motor, play, leisure, etc. can be sequenced from simple to complex and then broken into basic skills that can be taught. Analytic procedures are used to reinforce existing behavioral skills or develop skills that have not yet been developed through providing repeated opportunities to learn and practice skills every day with much positive reinforcement. As the adult provides a series of discrete trials with cues or instructions, the learner response is evaluated and lessons modified as needed (Green, 2007).

Jason M. Wallin outlined seven essential elements of an ABA/DTT-based program:

- Behaviors that are essential should have social significance
- The environment and physical events should be recorded with accuracy
- Data should support the intervention is responsible for behavioral change

- Another individual should be able to duplicate the lesson
- The established and accepted principles must be relevant
- The program should bring change to the targeted behavior
- The change in behavior should be transferable to a wide variety of environments or spread to other related or similar behaviors

In the initial stages of training (the first two to six months) the child with autism in the ABA/DTT program should have intense instruction in the development of cause and effect understanding, attention and compliance, the concept of imitation and generalization of the imitation schema. Lovaas believed a child should have such training 40 hours per week; however, this would render the program impossible to use in an inclusion environment. Siegel's research showed that children who received treatment 25 hours per week achieved the same degree of successful outcome as those who received treatment for the full 40 hours Lovaas recommended. Siegel also found that some of the training hours could be serviced by therapists and family members provided they too had proper training in Applied Behavior Analysis. If successful, the child has learned what he can do to obtain predictable, desirable rewards which, in turn, encourage the child to learn more socially appropriate behaviors or communication skills. Siegel cautioned, however, that children who receive too much reinforcement may feel unsatisfied with milder levels of reinforcement or overly-aroused and unable to transition to the next activity. Therefore, it is imperative to find a balance for reinforcement. How can this work in the classroom?

The ABA/DTT treatment program usually requires intense individualized instruction from an adult in a one on one setting. However, it can be modified for the classroom setting if study carrels are used. Another strategy for instruction is the use of small group work with

other typical children which allows the teacher to monitor skill development or enables the teachers and aides the time needed to collaborate for further instruction. Further, if children with autism are encouraged to work in a classroom setting, the transfer of skills learned will be easier to evaluate if they can be observed in a variety of settings with the use of a variety of cues or reinforcements. Henceforth, the ultimate goal of the program is for the child with autism to be able to use the learned skills in a functional setting.

As Robledo and Ham-Kucharski (2005) summarize, possible shortcomings endemic in ABA/DTT include:

- It can end up being very costly;
- Many people "claim" to be properly trained ABA teachers, evaluators, etc. when, in reality, they are not; and
- It is too rigid, forced, and unnatural teaching the children with autism to only respond to specific cues or reinforcements rendering the training useless in everyday life.

Olga Bogdashina concludes ABA/DTT is not effective with about 50 percent of people with autism due to a disorder called Exposure Anxiety. People with Exposure Anxiety do anything to avoid being joined, praised, noticed, or applauded. Since ABA is a reinforcement-based program it may actually cause skill loss.

There are many opinions both for and against ABA/DTT. In considering the application of ABA/DTT in the classroom, it seems highly unlikely that it could be used fully in an inclusion setting. It is unrealistic for a classroom with 20 students to be quiet enough or structured in such a way for the child with autism and the assistant or teacher to work together individually on social and academic skills. Moreover, if each skill taught should be

task analyzed and assessed through discrete trials, ABA/DTT requires a highly structured setting where most distractions need to be removed for both the student and the teacher. This type of program would work well in a clinical or private setting supplemented with opportunities for practice and evaluation in the regular education classroom.

Division TEACCH

The program entitled Treatment and Education of Autistic and Related Communication-Handicapped Children, (TEACCH, more accurately known as "Division TEACCH), was developed in 1972 by Eric Schopler, who was then on the faculty of the Psychiatry department at the University of North Carolina at Chapel Hill. Since its advent, TEACCH has become a model program worldwide for educating children with autism (Robledo, 2005).

For children with autism, sensory stimulation is often the cause for distractibility and irritability. Given the nature of autism and the wide spectrum of autism disorder, TEACCH provides a framework in which to teach rather than a specific curriculum to teach. The TEACCH framework may also be thought of as a behavior management system that minimizes outside stimuli through designing a highly structured learning environment (Bogdashina, 2006).

The TEACCH learning and living environment is designed to be "autism-friendly." It is a routine-based program that utilizes the preferences of the child with autism to motivate desired behaviors. Such preferences include predictable routines, consistency of curriculum and staff, visual schedules, and reinforcers. Unlike the ABA/DTT model of discrete trials, the TEACCH model is not a micro-management system, but is instead a "structured teaching" environment in which the student is continually under instructional control and should be working on a task or in a center that either reinforces a desired social or academic skill.

Within this structure, the child has numerous opportunities to develop self-directive skills and learn how to self-direct and problem solve. This model also facilitates positive social interactions through working with typical children. In the TEACCH model the child with autism has the opportunity to participate in a typical classroom with modification made to the regular education curriculum.

For the TEACCH model to work effectively in the regular education classroom, the teacher must have complete collaboration with and support from the special education teacher, therapists, and parents. Secondly, the classroom must have a daily structure that allows for movement, exploration, social time, and practice of academic skills that may or may not involve the teachers or assistants. A key component to this model is the use of picture schedules or a Picture Exchange Communication System (PECS) wherein the student is not required to be highly verbal to communicate needs and wants. Unlike other highly structured teacher-directed programs, this is not a constant cueing-based program with the adult acting as the director of all skills and behaviors. Accordingly, workstations or centers become the primary area for instruction. Each workstation can be modified to allow for individualized curriculum and instruction, alleviating the stigma of the special education student being different from the typical student.

The drawbacks to the TEACCH program can be found in the areas of teacher training and curriculum. The TEACCH program must have highly qualified teachers who understand the curriculum and know how to adapt it to varied levels. The teachers must collaborate and work together to ensure all services and IEP goals are met. Without collaboration, the student may end up in a self-directed program gaining little skills. Further, direct instruction is often necessary to teach a skill. If the TEACCH model is the only program used, quality

instruction may be lacking or gaps in learning may be present if the student is working independently or in small group most of the day and the teacher is too busy to task analyze and see what knowledge is truly gained from the workstation experience (Siegel, 2003).

Summary

In 1975 the United States Congress passed the Education for All Handicapped Children Act (EHA) (PL 94-142) guaranteeing a free appropriate education in the least restrictive environment. Pursuant to the EHA, children with special needs were conferred the right to their educational services in a typical classroom if that setting was determined to be the least restrictive environment and most appropriate placement by the Individualized Education Plan team. This was a start, but for children with autism the educational lines were still blurred. It was unclear whether or not autism should be included in the Special Education category of handicapped or disabled until the 1997 IDEA reauthorization (PL 105-17) expressly included children with autism in the Special Education category. With modifications to curriculum and accommodations to the environment to meet their varied needs, as many as 95 percent of children with special needs are now participating in an inclusion model with their typical peers (Dybvik, 2004). Given the nature of autism, the broad spectrum it covers, and the social skills deficits the child with autism possesses, inclusion may be one way to develop and promote appropriate social skills. As the literature review for this study revealed, there are many different models for inclusion from part-time to full-time or pull out for short periods of inclusion time. The research by Walther-Thomas found inclusion successful for developing social skills if accompanied by a highly structured social and academic training program. The ABA/DTT and TEACCH models are the most widely used training programs today.

If both the ABA/DTT and TEACCH models could be combined with highly trained educators, each student with autism would be given opportunities for a quality education in an inclusive setting and find their full potential. The research above has shown the key elements for successful inclusion programs are the staff and structure. Notwithstanding, everyone involved must remember both the ABA/DTT and TEACCH models are frameworks for curriculum and instruction – they are not canned curriculum programs. Henceforth, the inclusion setting should always be looked at based on the needs of the individual child and in terms of the program each classroom teacher offers. Parents must not generalize anything about their child's education to program, staff, or student. An inclusion model is a complete package of many services and parents must be proactive to find the right placement for their child.

In sum, inclusion is beneficial for the child with autism by developing social skills and friendships, but only if the regular education program has proper supports in place. Co-teaching, adequate teacher training, and highly structured social and academic skills models like TEACCH and ABA must be an integral part of the regular education program to develop pertinent skills necessary for success in the inclusion setting.

CHAPTER THREE: METHODOLOGY

Research Question

Did the time spent in the inclusion model facilitate social skills development in children with Autism Spectrum Disorder who are ages four to seven?

Hypothesis

Independent of a specific program, the greater the time spent in inclusion the stronger the social skills in children with Autism Spectrum Disorder ages four to seven.

Population and Sample

An ideal population for this study would have been all of the students with autism, ages four to seven, from across the nation that have participated in inclusion programs full-time, part-time, or minimal or no time. However, due to the many different types of inclusion programs, teacher styles, philosophies of inclusion, different types of Autism Spectrum Disorders (degree of severity) time, and money, this population was not only inaccessible for the purpose of this study but the data collected may not have been valid given the myriad of variables. Nevertheless, one valid study included evaluating the population of children with autism, ages four to seven, in three different programs in Santa Fe Public Schools.

This study was conducted in three of the Santa Fe Public Schools elementary sites. The sampling was initially ten children; however, one parent refused to allow her child to participate. As a result, nine children with Individualized Education Programs that included a confirmed diagnosis of Autism Spectrum Disorder were observed. Permission letters were obtained from parents, students, and administrators before the study began (*See* Appendix F).The children were ages four to seven (Early Childhood). Due to the small numbers in this population, all of the children in these inclusion programs were observed by both the researcher and their primary teacher in an unstructured social setting.

Research Methodology and Design

This research was a correlation study using both quantitative and qualitative methods (mixed-methods). The quantitative method involved the collection of data from two independent observations of each subject (one from the researcher and one from the primary teacher), for a total of 60 minutes across one to three sessions. The quantitative method used a Social Skills Checklist developed by University of Washington, DATA Project. The data were analyzed by calculating the social skills score for each student obtained from the Social Skills Checklist. The *Pearson r* formula was used to determine both the degree of inter-rater reliability for the instrument and the relationship between the inclusion setting and the social skills each student possessed. The qualitative data were gathered from the observations of each of the nine subjects with autism and then analyzed. Findings were represented in three graphic forms: (i) a bar graph representing both the subjects level of social skills displayed during observation and the time spent in an inclusion setting, (ii) a scatterplot depicting the time spent in the inclusion setting and the level of social skills using data derived from each subject, (iii) a pie chart showing the percentage of time this group of subjects spends in each inclusion setting. Conclusions were then drawn from the results of this data.

Variables

Independent - The independent variables in this study were the inclusion models and the level of social skills each participant possessed. This study looked at social interactions in a play or group setting. These were determined through the use of a Social Skills Checklist wherein the skills observed fell into one of three categories: beginning, intermediate, or advanced.

Dependent – The dependent variables in this study were the level of social skills exhibited as determined by the Social Skills Checklist developed by University of Washington DATA

Project. The results of the checklist depended on the type of social interactions each participant displayed during the observation.

Extraneous – Extraneous variables cannot be controlled and might have included how the child was feeling at that given time, the group dynamic, level of independence the teacher or paraprofessional allowed the participant, and the type of inclusion program each teacher provided.

Instrumentation

Instrumentation included a Social Skills Checklist which rated the different play behaviors exhibited in a social setting for a 60 minute observation across one to three sessions. The social skills checklist taken from University of Washington, Project DATA, November 2004, allowed the researcher to focus on beginning, intermediate, and advanced social skills in a play/social setting. The rating scale included almost always, often, sometimes, and almost never. Upon completion of the observations, each child's checklist was analyzed and rated. The amount of relationship between the inclusion model and degree of social skills exhibited was calculated, and the inter-rater reliability of the instrument, comparing scores from the primary teacher and the observer, was accomplished using the *Pearson r* formula. Three different graphic forms were compiled to show (1) the level of social skills displayed by each participant within each of the three inclusion programs, (2) the amount of time this group spent in each of the inclusion settings, (3) and the level of social skills exhibited by each participant. The validity of the instrument regarding the technical manual and the inter-rater reliability information for this instrument could not be substantiated at that time. A reply from Dr RinaMarie Leon Guerrero from the University of Washington Project DATA confirmed there was no inter-rater reliability data and it had never been tested although the instrument is still in use by Project DATA. This instrument,

however, showed a great deal of inter-rater reliability when tested with the *Pearson r* comparing the Social Skills Checklist scores from the primary teacher and the observer. The *Pearson r* score for the inter-rater reliability of the instrument was a very high 0.968635.

Conclusion

Chapters four and five present the findings of the research conducted, discussion about the results and how they applied to the literature review, followed with recommendations for further study.

CHAPTER 4: RESULTS

This study, The Inclusion Model: A Framework for Developing Social Skills in Children with Autism, was conducted to answer the question, "Did the time spent in the inclusion model facilitate social skills development in children with Autism Spectrum Disorder who are ages four to seven?"

Observations were conducted on nine participants. During the observations, all nine participants were seen in a social school setting with other typical peers. Three of the participants had substitute teachers at the time of their observations. Fortunately, none were sick or had any emotional breakdowns which could have prevented adequate observation for the purpose of this study. One student had to be excluded from the study due to the parents' refusal to participate.

The population for this study included nine children ages four to seven who had been identified with Autism Spectrum Disorder. These children had Individualized Education Plans guiding their curriculum. The children observed were from three different schools within the Santa Fe Public School system. Each program offered varying levels of opportunities for inclusion. None of the nine participants observed were in self-contained programs on a full-time basis, leaving all participants in this study in either a part-time or full-time inclusion program. Each child was observed for a total of 60 minutes across one to three sessions by two independent observers.

The research methodology employed was a correlation study using both quantitative and qualitative methods. A Social Skills Checklist developed and used by the University of Washington, DATA (Developmentally Appropriate Treatment for Autism) Project was used during the observations. The checklist was designed to assess social skills in a playtime setting. The checklist was divided into three levels of social skills – Beginning, Intermediate,

and Advanced. Within each level the skill observed was rated by the degree of participation exhibited by each participant in the study. The checklist's rating scale included the categories Almost Never, Sometimes, Often and Almost Always, with corresponding numerical scoring values of one, two, three, and four.

The data collected from each participant's Social Skills Checklist were calculated with each child receiving a numerical score in social skills based on the degree of skills exhibited in an unstructured social setting. The scores were then analyzed and put into graphic representation using the Microsoft Excel software program (*See* Appendix E). The *Pearson r* test was run to determine both the degree of inter-rater reliability and the degree of the relationship between the inclusion model and the level of social skills exhibited in each participant. The findings were as follows:

- The scatterplot did not show a correlation between the time spent in an inclusion setting and the degree of social skills exhibited.
- The participants in a full-time inclusion setting had an average score of 71.4 percent on the Social Skills Checklist.
- The participants in a part-time inclusion setting had an average score of 74 percent on the Social Skills Checklist.
- The *Pearson r* Correlation Value comparing the scores obtained by the teacher and the observer was 0.968635 with seven degrees of freedom. The r(.05,7)=.666, r(.02,7)=.750, and r(.01,7)=.798 are all lower than 0.96864 which exceeds all

of the critical values, substantiating the inter-rater reliability and their use of this instrument.

- The *Pearson r* Correlation Value showing the relationship between the type of inclusion model and the level of social skills displayed based on the Social Skills Checklist scores was -0.05584 which confirmed there was little or no relationship between the type of inclusion model and level of social skills exhibited by each participant.
- Of the five full-time participants, two had the lowest two scores of the nine participants.
- Once of the four part-time participants scored the second highest of the nine participants.
- The scatterplot for the scores of full-time and part-time participants showed a negative correlation between time spent in inclusion and the level of social skills displayed by each participant.

Given the results obtained by this study, it could not be concluded that there was a correlation between the time spent in an inclusion setting and the degree of social skills exhibited in children ages four to seven diagnosed with Autism Spectrum Disorder.

CHAPTER 5: Discussion and Questions for Further Study

One cannot deny there has been a tremendous increase in children with autism. For instance, the state of Washington experienced a 473 percent increase in children with autism. As federal law governing Special Education such as IDEA provides, students with autism have a right to a free appropriate education in the least restrictive environment. Many of these children receive their education in the public school setting. In order to fulfill the requirements of Special Education law and avoid segregation, the inclusion setting in a regular classroom with typical peers is the goal for children with autism.

Based on the research surveyed in the literature review, Autism Spectrum Disorder is a brain-based neurological disorder that affects the development of social skills. With social skills being the predominant disorder for this group of children, it might be surmised that by placing children with autism with typical peers their social skills would improve. Further, one might reasonably surmise that the greater the amount of time children with autism were with their typical peers, the greater their social skills would be.

The purpose of this study was to examine inclusion settings and determine whether or not the amount of time spent in an inclusion setting, irrespective of program, had any effect on the degree of social skills exhibited in children ages four to seven diagnosed with Autism Spectrum Disorder. To increase validity of this study, children from three different Santa Fe Public Schools were observed.

The assumption underlying the research question was that there would be a positive correlation between the amount of time spent in an inclusion setting and the degree of social skills exhibited by the participants. The results of this study were not as expected.

Based on the data obtained, there was no correlation between the type of inclusion setting and the level of social skills a child with autism may exhibit. The data showed a lower social skills average score (71.4 percent) for those students in a full-inclusion setting than for those students who were in a part-time inclusion setting (74 percent). Given the *Pearson r* score of 0.968635, which compared the Social Skills Checklist scores from the primary teacher and the observer, the inter-rater reliability of the instrument was high, leaving no question about the use of the Social Skills Checklist. In spite of the data, it should be noted that the difference in average scores on the Social Skills Checklist was minimal, a fact which is worthy of further inquiry. Therefore, before making any conclusions, there could be many factors that contributed to these unexpected findings

Upon reflection, the regular education classroom teacher may not have had the training required to properly include the child with autism in the regular education classroom. As emphasized in the literature review, teachers must be properly trained to accommodate and modify for the child with autism. TEACCH is an inclusion model used to properly accommodate for the needs of the child with autism into the regular education classroom. If the regular education teacher assumed inclusion consisted of merely having the student with autism present in the classroom without purposefully interacting with the typical students and engaging in self-stimulation activities, then the purpose of inclusion with that subset of the study group was defeated. The inclusion setting then became useless for the development of both social and academic skills and may, in fact, have done more harm than good. Irrespective of the inclusion setting, the lack of both social and academic stimulation no doubt affected the development of social skills. The training of the teachers represented in

this study and their awareness of the TEACCH model for accommodation and inclusion were not a part of this study.

As supported by literature, treatment programs, or the lack thereof, may have played a part in social skills development. Research has shown that a direct instruction model for social skills development through the use of Applied Behavioral Analysis or programs developed from the Lovaas method are necessary to teach appropriate social skills. The child with autism will not obtain these skills simply by being around other typical peers. Programs used by the schools for developing social skills were not evaluated in this study.

The final factor that was not considered for purposes of this study was the developmental age of the participants. Given their ages of four to seven, most of the students observed were developmentally in the beginning social skills range. In this age range, both the children with autism and the typical children are just learning how to interact with others and moving away from the egocentric stage. This may have attributed to the final results not supporting the hypothesis.

When looking at the inclusion model as a catalyst for social skills development in children with autism ages four to seven, questions about and thoughts for further study should include an analysis of each inclusion model, teacher training, social skills development programs being used, and an expanded study to include children up through grade 5. Consideration of longitudinal data may help to determine if the inclusion model offered at a younger age does facilitate the development of social skills in children with autism.

This study was conducted to ascertain whether there was a relationship or positive correlation between time spent in an inclusion setting and the degree of social skills exhibited

by the students with autism. Even though it could not be concluded that a correlation existed, this study was valuable in that it opened up a dialogue with the district about inclusion for children with autism. Additionally, through observation and communication with other schools, this study made other teachers aware of different models and the importance of proper training.

At a minimum this study showed further examination is warranted. Inclusion of other factors in addition to time spent in inclusion, such as teacher training, social skills curriculum, models for inclusion, and the long-range effects on social skills development of inclusion for children with autism, could possibly yield the results expected by this study.

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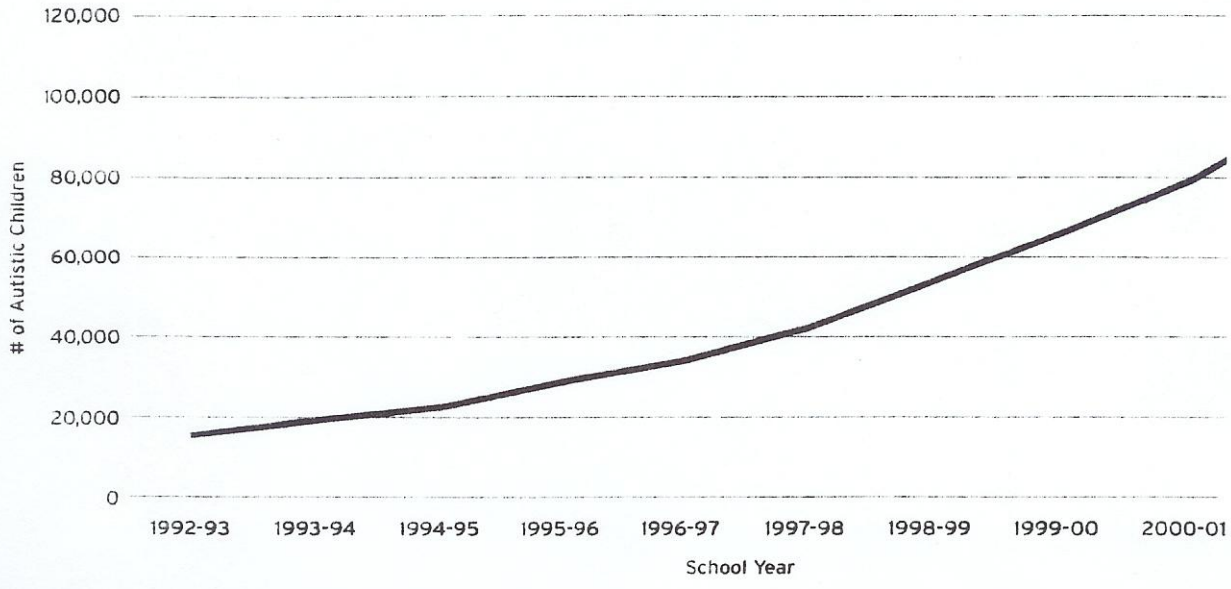
APPENDIX A: AUTISM ON THE RISE

Autism on the Rise

Over the last decade, the number of students diagnosed with autism in America's schools has increased more than five

Growth in the Number of Autistic Students Served under the Individuals with Disabilities Education Act



SOURCE: U.S. Department of Education

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APPENDIX B: SOCIAL SKILLS CHECKLIST

Social Skills Checklist

Name of Child: _____ **Date Completed:** _____

Birth date:_____ **Teacher or Family Member Completing Form:** _____

- ✓ Based on your observations, in a variety of situations, rate the child's following skill level. Put a check mark in the box that best represents the child's current level (see rating scale).
- ✓ Write additional information in the comments section.
- ✓ After completing the checklist, place a check in the far right column, next to skills which are a priority to target for instruction.

Rating Scale

Almost Always: The child *consistently* displays this skill in *many* occasions, settings and with a variety of people.

Often: The child displays this skill on a *few* occasions, settings and with a few people.

Sometimes: The child may demonstrate this skill however they *seldom* display this skill.

Almost Never: The child *has never or rarely* displays this skill. In their daily routine, is uncommon to see the child demonstrate this skill.

SECTION 1: SOCIAL PLAY AND EMOTIONAL DEVELOPMENT

Does the Child...	Almost Always	Often	Sometimes	Almost Never	Comments	Priority
1.1 Beginning Play Behaviors						
a. Maintain proximity to peers within 1 foot.						
b. Observe peers in play vicinity within 3 feet.						
c. Parallel play near peers using the same or similar materials (e.g., building with blocks next to peer who is also playing with blocks).						
d. Imitate peer (physical or verbal).						
e. Take turns during simple games (e.g., rolling ball back and forth).						

Does the Child...	Almost Always	Often	Sometimes	Almost Never	Comments	Priority
1.2 Intermediate Play Behaviors						
a. Play associatively with other children (e.g., sharing toys and talking about the play activity, even though the play agenda of the other child (ren) may be different).						
b. Respond to interactions from peers (e.g., physically accept toy from a peer; answer questions).						
c. Return and initiate greetings with peers (e.g., wave or say "hello").						
d. Know acceptable ways of joining in an activity with others (e.g., offering a toy to a peer or observe play and ask to join in).						
e. Invite others to play.						
f. Take turns during structured games/activities (e.g., social or board games).						
g. Ask peers for toys, food, and materials.						
1.3 Advanced Play Behavior						
a. Play cooperatively with peers (e.g., take on pretend role during dramatic play, lead the play, and follow game with rules).						
b. Make comments about what he/she is playing to peers (e.g., "I am making a tall tower.").						
c. Organize play by suggesting play plan (e.g., "Let's make a train track and then drive the trains.").						
d. Follow another peers play ideas.						
e. Take turns during unstructured activities (e.g., with toys/materials that are limited, roles during dramatic play).						
f. Give up toys, food and materials to peers.						
g. Offer toys, food, and materials to peers.						

APPENDIX C: AUTISM SYMPTOM CHECKLIST

DEVELOPMENTALLY ORIENTED DSM-IV CRITERIA FOR AUTISTIC DISORDER

". . . at least 2 signs from A, 1 each from B & C; . . . at least 6 overall."

A. QUALITATIVE IMPAIRMENTS IN RECIPROCAL SOCIAL INTERACTION:

1. **Marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body posture, and gestures to regulate social interaction.**

   Developmental Examples:
   A social smile in response to listening to caregiver (MA: 1-4 m.)
   Vocalizes in response to a social smile and talking (MA: 1-6 m.)
   Anticipatory reach to be picked up (MA: 6-10 m.)
   Responds to an inhibition on command (MA: 7-17 m.)

2. **Failure to develop peer relationships appropriate to developmental level.**

   Developmental Examples:
   Looks on with notable curiosity about peers (MA: 6-9 m.)
   Parallel play (MA: 20-24 m.)
   Associative group play (MA: 36-42 m.)
   Cooperative play (MA: 42-48 m.)

3. **Lack of spontaneous seeking to share enjoyment, interests, or achievement with other people (e.g., by lack of showing, bringing, or pointing out objects of interest).**

   Developmental Example:
   Social reference: shares pleasure/information (MA:8-14m.)

4. **Lack of socioemotional reciprocity.**

   Developmental Examples:
   Anticipatory excitement at initiation of care (MA:1-4 m.)
   Discrimination between familiar and unfamiliar adults (MA: 3-8 m.)
   Repeats a performance that is laughed at (MA: 8-17 m.)
   Emotional reaction when caregiver is sad/hurt (MA: 24-30 m.)

B. QUALITATIVE IMPAIRMENTS IN COMMUNICATION:

1. **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).**

   Developmental Examples:
   Listens selectively to familiar words (MA: 5-14 m.)
   Pointing/using gestures to get wants met (MA: 11-19 m.)
   Labels several familiar objects/pictures (MA: 17-30 m.)

2. **Marked impairment in the ability to initiate or sustain a conversation with others despite adequate speech.**

   Developmental Examples:
   Simple nonverbal interactions, e.g., pat-a-cake (MA: 5-12 m.)

Jabbers expressively, imitates words (verbal MA: 9-18 m.)
Uses words to make needs known (MA: verbal 14-27 m.)
Relates stories (verbal MA: 48-54 m.)

3. **Stereotyped and repetitive use of language or idiosyncratic language.**

Developmental Examples:
Repeated babbling of C-V combinations (≤ verbal MA:18-24 m.)
Echos 2 or more of last 2 words heard (≤ verbal MA: 24-30 m.)
Refers to self by pronoun (verbal MA: 24-32 m.)

4. **Lack of varied spontaneous make-believe play or social-imitative play appropriate to developmental level.**

Developmental Examples:
Carries and hugs a teddy bear or doll (MA: 14-18 m.)
Concrete, repetitive play (MA: 24-32 m.)
Understands simple fairy tale (MA 36-42 m.)

C. RESTRICTED, REPETITIVE, AND STEREOTYPED PATTERNS OF BEHAVIOR, INTERESTS, OR ACTIVITY:

1. **Encompassing preoccupation w/ 1 or more stereotyped & restricted patterns of interest, abnormal either in intensity of focus.**

Abnormal at any MA; Developmental Counter-Example:
Persistently imagines being a fantasy character (e.g., fireman, ballerina—MA: 36-42 m.)

2. **An apparently compulsive adherence to specific nonfunctional routines or rituals.**

Abnormal at any MA; Developmental Counter-Examples:
Insists on having transitional object along (MA: 18-24 m.)
Knows what comes next in bedtime routine (MA: 36-42 m.)

3. **Stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping, or twisting, or complex whole-body movements).**

Developmental Examples:
Hand flapping/ tensing when excited (not >MA: 6-9 m.)
Rocking on all fours (just prior to crawling)

4. **Persistent preoccupation with parts of objects.**

Developmental Examples:
Most objects go into mouth (not >MA: 12-16 m.)
Interest in strongly sensory stimuli (e.g., Pat-the-Bunny)
(MA: 12-16 m.)

Bold-face type from: *The Diagnostic and Statistical Manual of the American Psychiatric Association.* 4d ed. Washington, D.C.: American Psychiatric Association, 1994)
From: Siegel, B. "Toward DSM-IV: Taking a developmental approach to autistic disorder." In Pervasive *Developmental Disorders: Psychiatric Clinics of North America.* Vol. 14. No. 1. Edited by J. H. Beitchman and M. Konstantareas. 1991, March, Phila.: W. B. Saunders. Pages 53-68

APPENDIX D: GESTALT LANGUAGE LEARNING

A comparison between analytic and gestalt modes in language acquisition and use

Characteristics	Analytic mode	Gestalt mode
Basic units	Single words	Words, multiword utterances, phrases, sentences
Early development	From single words to two- and three-word utterances, to express semantic and relational meanings	Multiword utterances function as single units
Growth	Acquisition of grammatical functions	Analysis and 'breaking gestalt units' (unanalysed chunks) into constituent components and movement to analytic mode
Flexibility	Language is flexible from early stages	Language is relatively inflexible in early stages
Generalization	Language use is generalized to classes of objects, events	Language remains specific to situational contexts and particular objects

(Adapted from Prizant 1983a)

APPENDIX E: GRAPHS

RESEARCH DATA FOR FIELD STUDY PROJECT - INCLUSION AND THE CHILD WITH AUTISM

Full-Time = FT
Part-Time = PT

Participant	Beginning	Intermediate	Advanced	Total Score	Beginning	Intermediate	Advanced	Total
#1 FT	18	24	19	61	18	19	14	51
#2 PT	15	25	17	57	19	19	12	50
#3 FT	19	15	13	47	18	14	10	42
#4 PT	11	15	8	34	15	10	9	34
#5 PT	7	12	12	31	13	13	11	37
#6 FT	11	10	9	30	11	10	9	30
#7 PT	9	9	9	27	9	9	8	26
#8 FT	11	7	7	25	11	8	7	26
#9 FT	5	10	8	23	8	7	7	22

Participants' Cumulative Scores

Pearson **-0.05584**

	Score	Inclusion Level
#1 FT	112	100
#2 PT	107	50
#3 FT	89	100
#4 PT	68	50
#5 PT	68	50
#6 FT	60	100
#7 PT	53	50
#8 FT	51	100
#9 FT	45	100

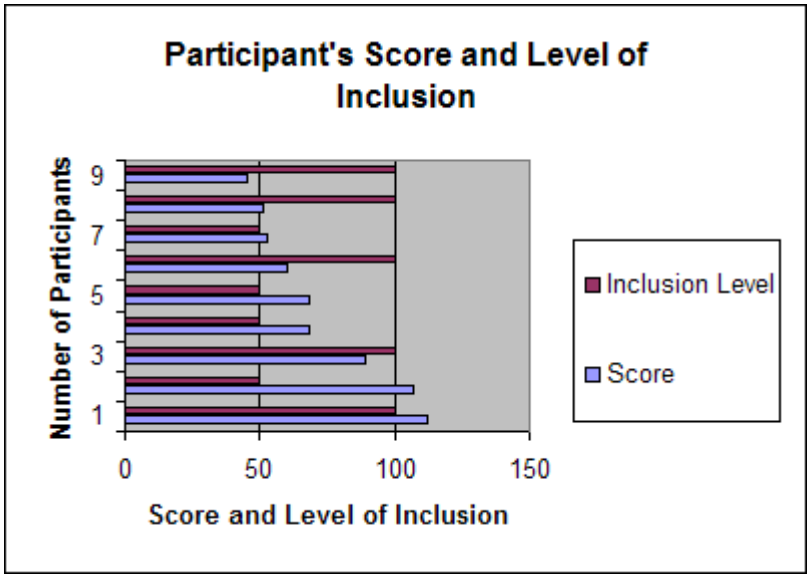
Full-Time	Part-Time
112	107
89	68
60	68
51	53
45	
Sum 357	Sum 296
Average 71.4	Average 74
71.4	74
Full-Time	Part-Time

Observer/Teacher Scores for Inter-Rater Reliability

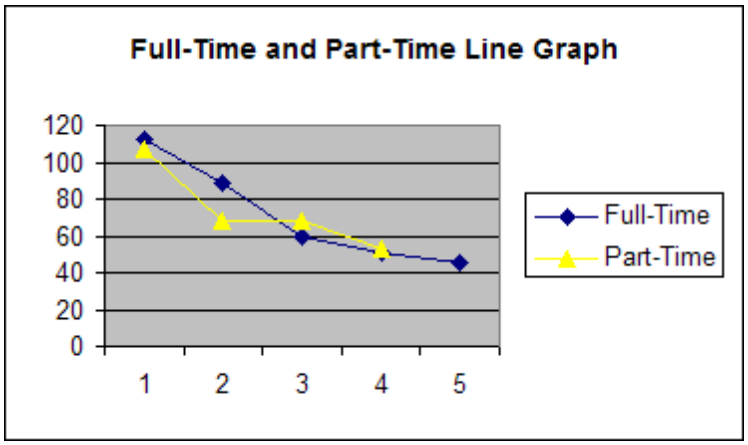
Pearson Score

0.968635

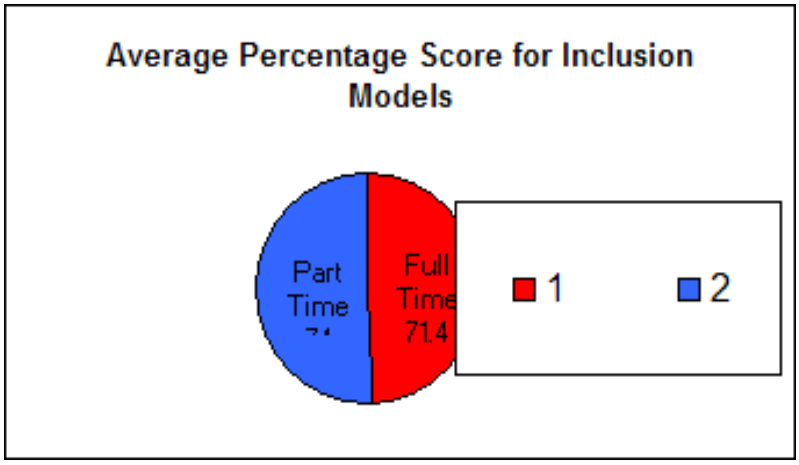
Teacher	Observer
61	51
47	42
30	30
25	26
23	22
57	50
34	34
31	37
27	26



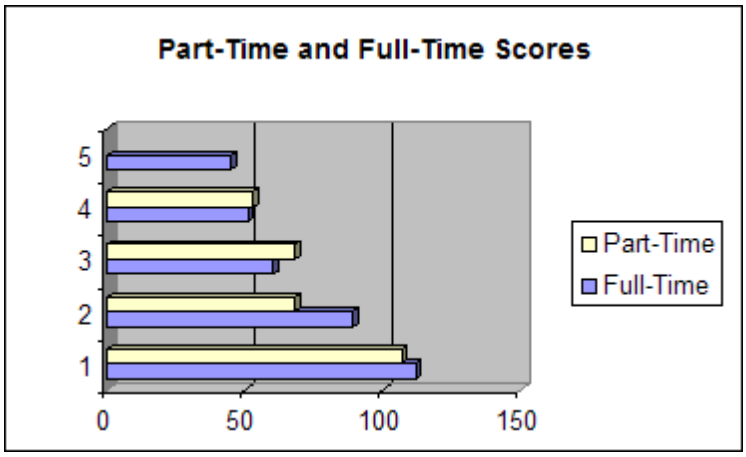
Graphs Depicting Level of Inclusion and Participants' Scores



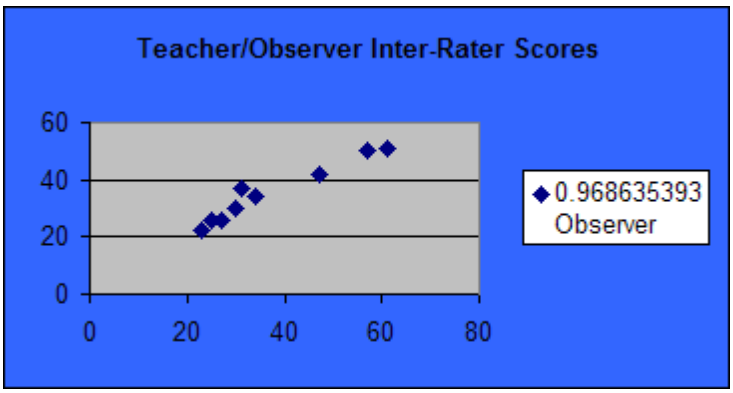
Line Graph Comparing Participants' Scores



Pie Graph Comparing Average Percentages of Test Scores for Levels of Inclusion



Bar Graph Comparing Scores



Scatterplot of Scores

APPENDIX F: LETTERS OF PERMISSION FOR STUDY