

Autism in the Inclusive Classroom:
Implications for Public School Practice

by

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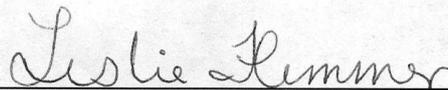
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ABSTRACT

What techniques and strategies exist to help support children who have an Autism Spectrum Disorder to succeed academically and socially within inclusive public school classrooms? How can an average teacher incorporate these techniques and strategies into a regular education classroom? Increasing incidences of autism, inclusive classrooms, and shifting institutional views of special education dictate general inclusion of children with ASD. Research findings suggest that certain tools are needed for success, such as social scripts, and explanations about others' thoughts and motives must be used to build understanding. Peer support is also necessary. Educators must recognize each child's distinct challenges and strengths, and individualize instruction accordingly.

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CHAPTER 1: INTRODUCTION

For a child with an autism spectrum disorder (ASD), day-to-day interactions with other children can be difficult at best. There are few situations as insistently social as elementary school, and for many children with an ASD, school is incredibly difficult. Many children spend their time in school either attempting to avoid interaction with other children, or wishing that they could interact and make friends, without having the social skills necessary to know how to fully participate. This is in marked contrast with the experience of most children, who thrive given the opportunity to work closely with, and to learn from their peers. As Lev Vygotsky (1978) wrote, “human learning presupposes a specific social nature and a process by which children grow into the intellectual life of those around them” (p. 88). Though not as obviously social as some of their typically developing peers, children with ASD are possessed with that “specific social nature” of all humans.

As group work comes into more frequent use in public schools, it becomes even more likely that children with ASD will be thrown into situations that call for group work that they will be very unprepared to face without a proper support system. This creates great potential for those children who struggle in group settings to fail, not just academically, but socially and interpersonally as well. Opportunities for conflict with teachers and peers abound when children with ASD experience social and interpersonal struggle (Carothers & Taylor, 2004; Laushey & Heflin, 2000; Lopata, Thomeer, Volker & Nida, 2006; Pearl, Farmer, Van Acker, Rodkin, Bost, Coe & Henley, 1998).

Researchers have proven time and again that some degree of group work and/or reliance on one's peers are necessary for full academic and social success in the classroom (Attwood, 2000; Kelly, et al., 2008; Laushey & Heflin, 2000; Pearl, et al., 1998; Taylor & Hoch, 2008; Vygotsky, 1978). It has also been shown that classroom integration of children with ASD and other disabilities cannot be successful if there are no systems in place to make that integration possible. It is unreasonable to expect that a child who struggles socially will automatically pick up social skills simply through exposure to other children (Bock, 2007; Chamberlain, Kasari & Rotheram-Fuller, 2006; Chan & O'Reilly, 2008; Cooper et al., 1999; Garfinkle & Schwartz, 2002; Laushey & Heflin, 2000; Reaven et al., 2009; Strain, 1983). Because of this, teachers must take an instrumental role in helping children with Autism Spectrum Disorders to learn how to successfully interact with the other children in their classroom. Likewise, the other children in the classroom can and must learn, not just how to successfully interact with children who have ASD, but also how to support the social success of those children. If any of the many integration programs available are to be effective, these support systems must be in place and well maintained (Attwood, 2000; Church, Alisanski & Amanullah, 2000; Cooper, et al., 1999; Laushey & Heflin, 2000; Lopata, et al., 2006; Pearl, et al., 1998).

Knowing that it is possible to help children who find social interactions to be a challenge is the first step; actual assistance to develop the necessary skills must follow. In order to do this, teachers and parents need knowledge of the actions they can take to help with social success. This paper seeks to explore and answer the following research questions:

1. What techniques and strategies exist to help to support children who have an autism spectrum disorder to succeed academically and socially within inclusive public school classrooms?
2. How can a general education teacher incorporate these techniques and strategies into a regular education classroom?

Why Is This Important?

Inclusive classrooms are quickly becoming the norm in many regions of the United States. In these regions, it is likely that there will be at least one child in any given classroom during any given year who has an autism spectrum disorder (ASD). Diagnoses of ASD have increased drastically over the last 30 years, and within the last 10 that number has seen a dramatic upswing (Center for Disease Control and Prevention [CDC], 2007).

Given this increase in potentially affected students, teachers both seasoned and new to the field will find it highly likely that at least one child per class who has been diagnosed Asperger's Syndrome (AS), High Functioning Autism (HFA), a Pervasive Developmental Disorder (PDD, or PDD-NOS), or some other autism spectrum disorder (ASD) will be included in their classrooms. It is reasonable to assume that resources that outline strategies that could be used within the classroom to help children with autism will be beneficial to the educational community in general. Many of the strategies outlined in this paper will also be useful for working with other children who do not have a diagnosis of autism, as some of the social difficulties that often characterize children with autism are not limited to children with autism, and not all children who have ASD

will have been given a diagnosis.

This paper will take the following shape in order to answer those questions stated above. First, Chapter 2 will explore historical background information about autism and the use of group work in education. Then through a review of research-based literature, Chapter 3 will identify and discuss potentially useful techniques, strategies and programs for supporting children with Autism Spectrum Disorders in public school-based group settings. Following the literature review, Chapter 4 will outline implications for professional practice in the field of public education.

Controversies and Other Issues

Currently, there are a few different documents that give defining characteristics of the different diagnoses along the autism spectrum. There seems to be a good deal of debate or just confusion about whether Asperger's Syndrome (AS) is, for instance, the same thing as High Functioning Autism (HFA), and there is even some debate about whether AS should be considered to be on the autism spectrum at all. If the only criteria considered is that set forth by the Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition (DSM-IV) (American Psychological Association [APA], 1994) then AS is definitely an autism spectrum disorder. However, different individuals and organizations define different disorders on the autism spectrum differently, and this must be kept in mind when examining the literature.

There are some areas of research regarding children with autism that have not been given a lot of attention. For instance, race, ethnic and cultural background, and familial economic status are rarely taken into account in most studies. This may be

because people whose children have autism and who are not of the white upper middle class do not often volunteer their children for autism studies, it may also be that the researchers conducting the studies do not give socioeconomic demographics precedence in their findings. There are many reasons why research practitioners decide what to consider and what to exclude from their studies, and these vary by researcher and study.

Gender is more frequently considered than race as a variable in autism studies, but is also not frequently an issue as most research to date has been conducted on male children only. Autism spectrum disorders seem to present themselves more frequently in males in any given population of human beings, though ASD certainly also affects females. Often, symptoms of autism present themselves differently in girls, and may not be recognized for what they are.

Individuals with ASD exhibit an extraordinary range of ability. Some people with autism have severe mental retardation with little ability to do self-care tasks, others have good mental functioning but fine self-care tasks challenging. Others can do self-care, hold down a job and appear 'normal' except that they struggle to have and to maintain social interactions. Others have learned how to appear normal enough that they can get by with little trouble socially, though they may be thought of as quirky or eccentric.

There has been no small amount of controversy surrounding the search for the cure of autism. The greatest concern of most agencies with that goal is to cure those who are unable to communicate or function without the help of others. Many stakeholders are involved in looking for autism cures, and they occasionally work at cross-purposes.

Statement of Limits

This paper is intended to provide reviews of a variety of strategies that have been tried with children with ASD in an attempt to improve their social interaction skills to improve their ability to interact in social settings such as are found in public schools. Additional research that has been reviewed shows some of the clinical and developmental reasons for deficits in social interaction skills.

It is important to remember that, while some of the strategies reviewed herein may work with some or even most children, no one solution or technique can be a panacea for successful school inclusion. Many of the studies reviewed are case studies only, and so caution must be taken when considering whether to apply the intervention discussed therein with any other child. The available research addresses a wide range of ages and ability levels. Research within the following literature review has been completed with children who range in age from 3 to 18 years. It must be remembered that a strategy that is effective for an 18 year old will not necessarily be effective for a 3 year old.

Very few of the studies reviewed specifically address group work strategies that work for an integrated classroom of multiple levels of student ability. The studies primarily focus on children with autism and either what kinds of challenges they are up against when attempting to interact socially, or what kinds of interventions can be used to try to help them learn to surmount those challenges. The studies should be viewed as a stepping stones between the ideals that 'group work is good for all children' and that 'children with autism have significant social challenges'. If group work is beneficial for all children, there should be some way or combination of ways to make the benefits of group work possible for children who would not otherwise have access to those benefits.

Summary

Group work and collaboration are difficult for children with Autism Spectrum Disorders as well as for some children with no diagnosis. There has been little work in the field of education and autism research that specifically addresses ways and means of teaching affected children how to interact with others in such a way as to fully support the types of learning that are possible within a group.

Whether a child is diagnosed with High Functioning Autism, Asperger's Syndrome, or any other Autism Spectrum Disorder, the likelihood of that child facing significant challenges in school is fairly high. Ability, rather than diagnosis, should be what determines the types of support given to a child who exhibits autism-like traits. Regardless of diagnosis, children who have autism-like traits that prevent successful social interactions will need support of some kind in order to learn interpersonal skills. Different programs for teaching social inclusion and integration exist. This paper seeks to find which techniques and strategies exist to help children with ASD to succeed socially and academically. Additionally, this paper will explore how a mainstream public school teacher can incorporate those techniques and strategies into a regular education classroom.

It is helpful for those who wish to be fully informed about a current issue to become knowledgeable about the history behind that issue. Though there is little in past history that explicitly pairs issues of autism with issues of group work, there are solid, separate histories of both subjects. It is up to future professionals and current practitioners to continue to put together these disparate academic subjects into a coherent

and functional reality in the classroom. The following chapter explores the historical development of autism and of group work, and seeks to identify a place where they can converge.

CHAPTER 2: THE HISTORY OF AUTISM AND GROUP WORK

The Origin of Autism as a Diagnosable Disease

Leo Kanner and Hans Asperger, both originally from Austria, accurately and independently described the characteristics of autism in the early 1940s. Kanner's paper on "autism as a distinct neurological condition" (Sicile-Kira, 2004, p. 7) was published in 1943 while he was based at Johns Hopkins University in Baltimore, Maryland (Frith, 1991, p. 5). Asperger's doctoral study of four boys whose behaviors were described as autistic, was conducted while he was working at the University Paediatric Clinic in Vienna, and was published in 1944 (Frith, 1991). Kanner considered autism to be a disorder that occurs only in children with mental delay (Frith, 1991), whereas Asperger was convinced that autism occurs mostly in children with higher function, though he did acknowledge that autism could occur in those with severe mental delays (Asperger, 1944; 1991). This is in part why children who have higher functioning capabilities and early language acquisition receive the diagnosis of Asperger's Syndrome rather than autism, though there is a fine line drawn between Asperger's Syndrome and High Functioning Autism.

It is likely that both men drew the term "autistic" from a paper describing the withdrawal of schizophrenic patients from the world, published by Eugen Bleuler in 1911 (Frith, 1991, p. 6; Bluestone, 2005, p. 1). Asperger's studies centered on children whose interests were very focused, but who also had difficulty with social interaction and communication with others (Sicile-Kira, 2004, p. 7). Asperger was especially interested in developing the abilities of the boys that he was studying. Rather than viewing them as

“sick children” or “incorrigible problems,” he deeply believed that his patients could become capable if they were explicitly taught how to function in society (Asperger, 1944; 1991). He was greatly aided in his effort to teach those children by Sister Viktorine Zak, who was his primary assistant at the University Paediatric Clinic. It was she who developed the children’s daily schedule to include physical education with music and rhythm, certain of their school lessons, as well as, speech therapy (Frith, 1991).

Asperger believed that autism was caused by genetic contribution as well as by extrinsic factors (Asperger, 1944; 1991). He backed this belief with his observation that the parents of his patients had many similar mannerisms to those of their sons. He also stated that most of the children had a high incidence of “extremely intelligent and eccentric” people in their families (Asperger, 1944; 1991, p. 84). Asperger held a strong belief that children with what he termed to be autism had great potential to grow up to be major contributors to society (Asperger, 1944).

Kanner also noted a probable genetic connection though his studies more closely involved children with what is generally thought of today as “classic” autism, that is, severely disabled individuals who may be unable to care for themselves, may be nonverbal, and who exhibit atypical movement patterns. Classic autism is also called Kanner’s Syndrome for this reason. Kanner, probably due to the developmentally disabled state of his patients, found it unlikely that the children he worked with would ever grow to be contributors to society (Frith, 1991; Grandin, 1995; Sicile-Kira, 2004).

There has been a vast increase in diagnosed autism within the past 20 years. Only some of this can be attributed to the change in definition of autism, increase in awareness of the disorder, and lessening of socially attached stigma. From 1992-1997, there was a

173 percent increase in the number of children diagnosed with autism attending public schools. In a California study in 2002, Robert Byrd "...found that the huge jump in autism rates from 2,778 in 1987 to 10,360 in 1998 could not be explained by changes in the criteria used to diagnose autism..." (Sicile-Kira, 2004, p. 30).

In 2003, the California Department of Developmental Services (DDS-CA) released figures that showed that diagnoses of level one autism, the most severe diagnosis, had increased by 31% over the previous year (DDS CA, 2003, p. 5-6). Another 2003 study surveyed the more highly populated areas of Atlanta, Georgia and found that there was an increase between the 1980s and the 1990s in that region as well (Sicile-Kira, 2004, p. 30). Overall, the United States has seen the number of autism diagnoses rise drastically; the most recent report from the CDC has stated that one study found that across six sites in the United States autism was present in 6.7 per 1,000 children, and in a second study conducted across 14 sites, the prevalence was 6.6 per 1,000 children (MMWR 2007, p. 1, 12). In other words, approximately 1 per every 150 children across the country has some form of autism, defined in the reports as, "...autistic disorder; pervasive developmental disorder, not otherwise specified (PDD-NOS); and Asperger disorder" (MMWR 2007, p. 1, 12).

This growth in diagnoses of autism is certainly not unique to the United States. Canada's recorded rate of Autism Spectrum Disorders (ASD) was 1 in 286 in 2001, which was a 63 percent average increase within the span of two years (Sicile-Kira, 2004, p. 32). Autism has been on the rise in the UK as well, in 1979 the recorded rate was 35 per 10,000. In 1993, 91 children per 10,000 were diagnosed, and in 2001, 1 in 166 children was affected by autism (Sicile-Kira, 2004, p. 32). Daniel Tammet (2006) wrote

that in 2006, “[a]bout 1 in every 300 people in the UK have high functioning autism. Almost half of all adults in the UK with Asperger’s syndrome are not diagnosed until after the age of 16” (p. 6). Given these drastic increases in children who are affected by ASD, it is not at all surprising that there has also been a drastic increase in research to find potential causes and cures.

New survey-based research of 82,000 families in the United States has found that “the odds of a child receiving an ASD diagnosis are one in 63. If it is a boy, the chances climb to a science fiction-like level of *one in 38*, [which amounts to] *2.6% of all male children in America*” (Kirby, 2009, ¶ 3, emphasis in original)¹. Also within this study, however, is the peculiar new statistic of 60 out of every 160 children who had been diagnosed with an autism spectrum disorder had that diagnosis disappear by the time they reached older adolescence or young adulthood (Kirby, 2009, ¶ 4-5). This indicates that those children who presented with autistic-like symptoms had learned how to rid themselves of those symptoms. It is possible that a combination of peers, teachers and familial actions could combine to aid in this shedding of diagnosis.

A Brief History of Classroom Group Work

Though children with ASD experience difficulties in group situations due to their social impediments, there is much for them to gain from the practice of frequent group interactions. Robert Slavin (1995) cited Piaget's idea put forth in 1926 “...that social-arbitrary knowledge—language, values, rules, morality, and symbol systems, (such as reading and math)—can be learned only in interactions with others” (p.17). Slavin (1995) further pointed out that “[t]here is a great deal of support for the idea that peer

1 Current APA standards dictate that websites without page numbers shall be cited by paragraph.

interaction can help non-conservers become conservers” (p. 17). Conservation is the development of the ability of young children to mentally “conserve such quantities as number, substance, area, weight, and volume” (Singer & Revenson, 1996, p. 24). A familiar test of conservation is identifying two glasses of different shape but identical volume as holding the same amount of liquid. The implications of children improving in such basic developmental markers are vast. Not only can peer support and interactions increase academic capabilities beyond what they would be without peer assistance, but normal developmental advances can also be attained more quickly when learning in a group.

John Dewey (1938) was a vocal advocate of the importance of social learning, and wrote of “the role of the school in educating students in cooperative democratic living” (Slavin, Sharan, Kagan, Lazarowitz, Webb & Schmuck, 1985, p. 2). Dewey believed that a more just society could be created and maintained if that fairness that was easily detected by children was fostered through socialization and the emphasis on responsibility to each other and community. Dewey (1938) wrote that “children are naturally 'sociable.' Isolation is even more irksome to them than to adults. A genuine community life has its ground in this natural sociability” (p. 56). Dewey recognized that this sort of community life would not be self-creating or self-maintaining, further noting that educators must be responsible for knowing their students as individuals and as a learning community, responsible for knowing the subject matter that they were attempting to teach, and in so doing they could “enable activities to be selected which lend themselves to social organization, an organization in which all individuals have an opportunity to contribute something, and in which the activities in which all participate

are the chief carrier of control” (Dewey, 1938, p. 56). Dewey was met with skepticism by some, and hostility by others. His methods of education were viewed by some to be experimental and not practical for use in most schools, despite the obvious success of his methods. Some individuals did find Dewey to be sensible and practical, and so the notion of using group work in schools spread slowly, via individuals like Colin Scott and his Social Education Association, and William Heard Kilpatrick who taught the “project method” at Teacher's College in the early part of the 1900s (Spring, 2008, p. 282).

Kilpatrick also believed that group work would create a more democratic society. His project method was intended to create a working class that felt satisfaction for working toward a means, such as would be required for completing projects in a factory setting. He recognized the power of groups creating conformity, and found that to be desirable as a means for social control. Spring (2008) cites Kilpatrick as saying that “moral character is developed when the individual is conditioned always to respond to the desires of the group” (p. 283).

During the same time period that Dewey was conducting his work, Kurt Lewin, followed by subsequent work by his colleagues Ronald Lippit and Morton Deutch “spearheaded practical, scientific work on group dynamics and cooperation” (Slavin et al., 1985, p. 2-3). Through the scientific method, these researchers hoped to prove that humans could achieve more and better work through the use of cooperative rather than competitive goals. However, it was not until the late 1970s following the translation of Vygotsky's work, that cooperative learning models became widely accepted in the United States. Prior to the translation of Vygotsky's work, group work in classrooms was viewed as a means toward the end of having happy and well-adjusted factory workers. Though

Vygotsky was writing under the similar ideals of many well-adjusted-parts-to-the-whole, he wrote from a Marxist standpoint rather than from a capitalist standpoint, which gave his ideas a slightly different flavor once they did make it to the capitalist United States.

Lev Semyonovich Vygotskiĭ (Vygotsky) wrote in the late 1920s- early 1930s in Russia, of the importance of group work as a means to further and heighten children's and adolescents' abilities to do high-quality academic work and to learn beyond what would ordinarily be possible if they were working in isolation (Wells, 2000; Wertch, 1988). His theory was used as the basis of Russian education for quite some time, but did not become popular in the Western European and American schools of pedagogy until it was translated in the late 1970s (Vygotsky, 1978). One of the most important elements of the development of group work as a school practice is the concept of the “zone of proximal development,” or ZPD. The ZPD dictates that children will be able to perform better and learn new concepts faster when aided by others. ZPD is “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (Vygotsky, 1978, p.86).

In the late 1970s- early 1980s, Eliot Aronson, Robert Slavin and a wider cohort of researchers began to develop cooperative learning models that are still used in today's public school classrooms. In 1978, Eliot Aronson developed the first kind of Jigsaw model, and Slavin built upon this model in 1980 to create what he called “Jigsaw II” (Aronson & Patnoe, 1997; Slavin et al., 1985, p. 7). Also in 1980, Slavin developed a cooperative learning model called Student Team Learning, “which consists of Student

Teams-Achievement Divisions (STAD), Teams-Games-Tournament (TGT) and Jigsaw II” (Slavin et al., 1985, p. 7).

Slavin's (1985) methods are still taught and used in such teacher education programs such as the Master in Teaching program at The Evergreen State College. Newer cooperative learning models all seem to be either closely or loosely based on those models developed almost 30 years ago (Arends, 1997).

Autism and Group Work

It is well known by those who have worked with children who have autism, as well as by those children themselves, that it can seem impossible for children with ASD to work successfully within a group setting. Despite this, or perhaps because of this, it has become an area of interest among autism- and social researchers to determine how best to help children who have ASD to successfully integrate as fully participatory members of classroom groups. It is possible that the increase of diagnosed ASD over the past three decades, combined with the Individuals with Disabilities Education Act (IDEA), has effectively increased the concern that this population of students should be supported to fully integrate into school, and subsequently into common society.

Children with ASD will sometimes go to great lengths to be allowed to stay out of groups. This can be allowed on occasion, but if those children are never asked to learn group functionality, they probably never will. It is imperative that children with ASD begin to learn how to amicably be in a group or community setting as early as possible, as the earlier they are taught these skills, the better they are able to use them and to begin to expand them beyond the initial interventions (Kay Raining-Bird et al., 2008; Laushey &

Heflin, 2000; Meaden et al., 2008; Ohtake et al., 2005; Taylor & Hoch, 2008).

It has not always been the case that children with autism and other developmental disabilities have been educated within the same classroom as typically developing children. During the 1940s and 1950s in the United States, *if* children with disabilities were educated within a public school, it was believed and advocated that those children should be placed in special programs that were separate from the regular classrooms. This was done with the best interests of the children in mind. Slavin (1995) states that “[p]art of the impetus behind this policy was that these children were rejected by and isolated from other children in their classes because of their academic incompetence, and that this experience was harmful to their social development and self-concept” (p. 54).

In 1975, Public Law 94-142, also known as the Education for All Handicapped Children Act, was enacted by Congress “to support states and localities in protecting the rights of, meeting the individual needs of, and improving the results for...infants, toddlers, children, and youth with disabilities and their families” (U.S. Dept. of Ed, 2009). Prior to the enactment of this law, there was no federal requirement for schools to include children with disabilities; “in 1970, U.S. schools educated only one in five children with disabilities, and many states had laws excluding certain students, including children who were deaf, blind, emotionally disturbed, or mentally retarded” (U.S. Dept. of Ed, 2009). As ASD was not widely diagnosed at that point, it is likely that children were in public schools who would today have the diagnosis of AS or HFA, sans support. There would have been no guarantee for a free and public education for children with significant developmental delays.

In 1997 the Education for All Handicapped Children Act “was amended...under

the new name the *Individuals with Disabilities Act*, or IDEA” (U.S. Dept. of Ed, 2009).

This increased the level of services to be provided to schoolchildren, and expanded the definition of “Least Restrictive Environment” (LRE) to the definition below:

To the maximum extent appropriate, children with disabilities, including children in public or private institutions or other care facilities, are educated with children who are not disabled, and special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only when the nature or severity of the disability of a child is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily. (IDEA, 2004)

IDEA was reauthorized in December of 2004.

The fact that IDEA is a law and that it continues to be reauthorized, indicates that the federal government of the U.S. has recognized that children with disabilities and other disadvantages benefit from inclusion into the “regular education environment”. In other words, there is now historic and legal precedent for inclusion.

It has been found that, with the federally-mandated inclusion of children who have been classified as having learning disabilities, “who are of normal intelligence but not performing up to grade-level expectations, have been found to be less well accepted and more frequently rejected on sociometric instruments than are their normal-progress peers” (Slavin, 1995, p. 54). This is, of course, due to the lack of education and support for the teachers and peers of these students. As will be seen in years to come, if peers and teachers are given proper training and continued support, full inclusion will be more successful than it ever has been in the past.

Summary

Descriptions of Autism Spectrum Disorders were originally defined by two different Austrian men in the early 1940s: Drs. Leo Kanner and Hans Asperger. Since the time of those descriptions, the definitions of disorders on the autism spectrum have increased and become more refined (see Appendix I). Incidences of autism have increased drastically since that time as well, and the likelihood that this is *only* due to greater availability of definitions of disorders is quite slim. This increase indicates a need for teachers and other adult professionals to learn how to support children with (and without) these diagnoses within the classroom.

Group work has a history that stretches back farther than the history of autism as a diagnosable disorder. Piaget and Dewey were initial advocates of cooperative learning, but it was Vygotsky who provided the most detailed and compelling research about the developmental and academic benefits of social learning.

Social learning is often challenging for children who have an ASD. These children will sometimes go out of their way to avoid having to work in a group. The passage of laws such as the IDEA (2004) indicate that it is to the benefit of teachers and the schools they are associated with to learn how to teach children with ASD to work with other children in their classrooms as a fulfillment of the Least Restrictive Environment clause of the IDEA (2004).

In order for teachers, parents, and other adult professionals to become familiar with different techniques and strategies for helping children with Autism Spectrum Disorders to succeed in general education classes, there must be enough research available to act as a viable base of information. Enough research has been done, to date,

that it is possible to pull together information about group work and information about autism into something resembling a cohesive whole. Researchers have noted the importance of combining autism research with social skill-building programs with a specific goal of social integration. The following Literature Review will look at some of those recent research forays into the realm of autism and socialization. Following this review, the research will be examined in such a way as to present some of the most viable means of social integration into general education classrooms for children with Autism Spectrum Disorders.

CHAPTER 3: CRITICAL REVIEW OF THE LITERATURE

Chapter One introduced the issue of children with Autism Spectrum Disorders and the potential difficulty faced by general education teachers in creating an inclusive classroom environment that utilizes group work. Children with ASD notoriously experience challenges in socialization and interpersonal interactions, and the increase of the use of group work in general education paired with the increasing practice of utilizing inclusive classrooms in public education calls for strategies and solutions. Chapter Two showed that, though the histories of Autism Spectrum Disorders, and cooperative learning and group work have not traditionally been thought of as convergent, current pedagogical practices and legislature are creating a convergence that needs to be addressed by current and future educational practitioners.

The following literature review takes a careful look at research studies that have been conducted with the purpose of providing parents and professionals with of potential solutions to the difficulties faced by children with Autism Spectrum Disorders in enforced social situations. Most of these studies concern children who have Asperger's Syndrome, High Functioning Autism, or PDD-NOS, because children with these diagnoses are considered to be “high functioning” enough to be included in regular classes with few modifications to the curriculum.

Those that are about children with more profound autism are also concerned with improving the social skills of those children, but the degree to which certain interventions are undertaken varies depending on the severity of the child's disorder. The ages of the participating children in all of these studies range from 3 to 18 years. Though certain

intervention programs seem to be easily modified to be effective with a wide range of ages, others will not, and it should be noted that, as with typically developing children, there are certain things that are and are not developmentally appropriate for use with some children.

The careful reader will notice that many of these studies involve fewer than 10 children as subjects of their research. Many of these case studies also have no control group. Given these facts, great caution is advised in attempting to generalize the findings, even to other children who have the same disorders as the children who participated in those studies. Strategies that worked, or didn't, for one child, may present completely different results with another. Nevertheless, these case studies provide valuable information about possibilities that exist in the field, and may be used as suggestions for further research, or as resources for ideas for things to try with children who may be similar to those in the study.

In an effort to make the experiences and needs of children with Autism Spectrum Disorders understandable to the reader, the studies have been grouped into three main categories: experiences of children with Autism Spectrum Disorders, behavioral interventions that do not involve peers, and behavioral interventions that involve peers as mediums of change. The studies have been arranged into more focused subsections within those main sections. Each section has an introduction, and a discussion at the end intended to show how those studies are relevant to public education practice.

Experiences of Children with Autism Spectrum Disorders:
Identification, Personal Experiences and Psychological States

The first step in supporting a child with an autism spectrum disorder within the classroom is learning what signs to look for to determine whether a child shows signs of having ASD, such as difficulty maintaining eye contact, repetitive or ritualistic behaviors, or difficulty maintaining peer relationships.

Extensive similarities in the characteristic features associated with Autistic Disorder and Asperger's Disorder have resulted in an ongoing debate as to whether or not these conditions represent distinct diagnostic entities, or are, instead, part the same spectrum of disorders...Resolution of this controversy is important in clarifying the etiology, prognosis, and appropriate interventions for Autistic Disorder and Asperger's Disorder, and determining the validity of current diagnostic systems. (Macintosh & Dissanayake, 2006b, p. 1065)

Though it may be plain to an experienced practitioner that a child shows signs of ASD, it is extraordinarily important to realize that it is not possible for a teacher to diagnose *any* disorder. Only trained psychological or child development professionals may diagnose any developmental disorder.

The second step in supporting a child with an ASD within the classroom is understanding how that child experiences the world. There are challenges particular to autism that will be faced by most children who have an ASD, and it is important that classroom teachers and other adults who will work with those children have at least a passing understanding of the difficulties faced by those children. This understanding will benefit those children who are affected by ASD. Knowing what effect ASD has on those children will make it more possible to teach them how to interact socially.

Empathy has been thought to be one area where children and adults with ASD have significant deficits, with the idea that their brains are more 'wired' toward logic and

systems rather than empathizing. This may or may not be true, but it does seem that children who have a more difficult time understanding how to show empathy for others also have a difficult time communicating and socializing. “Understanding the role of empathizing and systemizing [sic] in individuals with AS may allow educators to use the average systemizing [sic] skills of individuals with AS to teach concepts, including nonverbal language and theory of mind” (Myles, Lee, Smith, Tien, Chou & Swanson, 2007, p. 457). Communication abilities such as understanding nonverbal language cues and utilizing theory of mind are closely tied to social interaction abilities.

Anxiety is an emotion frequently reported to be felt by children with ASD, and is thought by some to be fairly obstructive to their abilities of social functioning. Fearful emotions and those that regulate risk-taking are sometimes reported to be overactive in children and adults with ASD. This can inhibit the minimum risk-taking required when entering a new situation, or when interacting with other people. Both situations can be unpredictable, and therefore anxiety inducing. The cycle of fearful emotions is a difficult one for individuals with ASD to break. The studies in this section describe *what* the anxiety and other emotional experiences of children with ASD may look like; subsequent sections hold studies with solutions and interventions.

A Large-Scale Study of the Characteristics of Asperger Syndrome

Guiding Questions

Myles, Lee, Smith, Tien, Chou and Swanson (2007) looked at which characteristics generally accepted to be present in youth with Asperger's Syndrome were actually present in a sample of 156 individuals (p. 448). Cognitive and adaptive

behavior, temperament and sensory profiles were taken for each of the individuals and overviewed in this study. Given inconsistencies in diagnostic criteria across different diagnostic journals, “researchers are still attempting to understand and define diagnostic characteristics of AS” in order to distinguish it from other Autism Spectrum Disorders (Myles, et al., 2007, p. 448-449).

Participants

33 girls and 123 boys aged 12-18 diagnosed with Asperger's Syndrome were recruited via the “Special Education Department in the College of Education at a large midwestern university” (Myles, et al., 2007, p. 449). Eighty six percent of the participants had at least a dual diagnosis; 40% with attention deficit hyperactivity disorder (ADHD), 12% with depression, 7% with Tourette's Syndrome, 3% with oppositional defiant disorder (ODD), 5% with obsessive compulsive disorder (OCD) and 2% with bipolar disorder (Myles, et al., 2007, p. 449). A mean of 2.89 medications were prescribed, with each child taking between 1 and 9 medications. Forty nine percent of these were central nervous system stimulants, 41% were antidepressants, 24% were antipsychotics and 9% were antihypertensive (Myles, et al., 2007, p. 449).

Research Design and Methodology

The following assessment instruments were used to determine what characteristics of Asperger's Syndrome each of the participants was known to have. Myles, et al. (2007) listed the tests used as follows: The *Family Demographic Profile* developed by Myles, Hagiwara, Carlson and Simpson, (1999); the *Vineland Adaptive Behaviors Scales* (VABS) developed by Sparrow, Balla and Cicchetti, (1984); the *Behavior Assessment System for*

Children—Parent Rating System (BASC PRS), the *BASC—Student Self-Report of Personality* and the *BASC—Teacher Rating Scale* developed by Reynolds and Kamphaus, (1992); the *Early Adolescent Temperament* developed by Ellis and Rothbart, (2001); the *Empathy Quotient Questionnaire* developed by Baron-Cohen, (2003); and the *Adolescent/Adult Sensory Profile* developed by Brown and Dunn, (2002).² Parents were asked to report on the intelligence quotient scores achieved by their children “as gathered from school or clinical records” (p. 449). Family demographics and close family member diagnoses of disorders were also collected.

Findings

The participants in this study showed higher Verbal Intellectual Quotient than Performance Intellectual Quotient, which is in keeping with other findings about verbal vs. performance scoring for children with Asperger's Syndrome. There were no significant delays in cognitive development found in this group of participants (Myles, et al., 2007, p. 452).

Baron-Cohen (2003) is cited by Myles et al. (2007) as stating that “the primary difference between male and female brains is related to empathizing and systemizing”, with Baron-Cohen finding that females' brains are more prone to be empathetic and males' brains to be more systematic (Myles, et al., 2007, p. 452). Myles et al. (2007) did not find this to be the case. They stated, “[a]s reported by the adolescents in this study, no significant difference was found between the male and female groups...[b]oth groups' scores...were categorized as 'low' on the EQ scale, no significant differences were noted between the systemizing skills of males...and females...both groups scoring in the

² All as cited in Myles, et al. (2007) p. 449.

Average range on the SQ scale” (Myles, et al., 2007, p. 452). The authors of this study also found that the EQ and SQ scores of most participants were significantly positively correlated with each other (Myles, et al., 2007, p. 452).

The DSM-IV (APA, 1994) states that people who have Asperger's Syndrome “demonstrate no clinically significant delay in adaptive behavior other than in social interaction” (as cited in Myles, et al., 2007, p. 452). The results from the VABS showed that the participants in this study did have “low or moderately low adaptive skills across all domains” such as communication, daily living skills, and socialization (Myles, et al., 2007, p. 460). The BASC assessments showed an interesting difference between teachers' and parents' opinions of the adolescents' adaptive behavior, with the parents believing their children were in the At Risk range and the teachers believing that the children fell within the Average range.

Teachers and parents also scored the adolescent participants differently in the Externalizing Problems Composite, the Internalizing Problems Composite and the Behavioral Symptoms Index, with the parents almost always identifying their children as being in the At Risk range and the teachers showing them within the Average range for all of these criteria (Myles, et al., 2007, p. 453). In all of these criteria the adolescents themselves “perceived themselves to be similar to neurotypical peers in all areas” (Myles, et al., 2007, p. 454).

Sensory sensitivity surveys were completed by 94 of the study participants. This cross-section of participants showed “More Than Most People” in the Sensory Sensitivity and Sensation Avoiding profiles, but showed Low Registration and Sensation Seeking

scores that were “Similar to Most People”, which meant that the participants in this study who filled out this section of the study profile experienced some but not all of the possible kinds of sensory sensitivities (Myles, et al., 2007, p. 456).

Myles, et al., found no difference between the empathizing and systematizing skills of male and female children with Asperger's Syndrome, but that both gender groups exhibited low adaptive skills that would aid in their abilities to communicate and socialize.

A Comparative Study of the Spontaneous Social Interactions of Children with High-Functioning Autism and Children with Asperger's Disorder

Guiding Questions

Macintosh and Dissanayake (2006a) first conducted this experiment to determine the quality of social interactions undertaken by children who had been diagnosed with HFA and AS. This study provided the data for another jointly conducted experiment later the same year (Macintosh & Dissanayake, 2006b), addressing the controversy surrounding whether High Functioning Autism and Asperger's Syndrome are distinct disorders; the controversy continues without any resolution. In one of their earlier studies, the authors noted “that although impairments in social interaction are a core feature of both high-functioning autism and Asperger's disorder, comparative research on social behavior is scant. The research to date...has relied almost solely on parents' and teachers' reports, has indicated that where differences do exist, people with high-functioning autism have invariably demonstrated greater social deficits than those with Asperger's disorder” (Macintosh & Dissanayake, 2006a, p. 200).

In this study, the authors sought to explore whether children with HFA and

children with AS have different qualities of social interaction, specifically how children with HFA and children with AS use spontaneous social interactions in the schoolyard, and how those social interactions differ qualitatively between children with HFA, children with AS, and children who are typically developing (TD). This is particularly important for school personnel to become aware of, since “[t]he criteria for social impairments in both conditions in DSM-IV are identical” (Macintosh & Dissanayake, 2006a, p. 201). Further, “no clear predictions were possible as to whether high-functioning autism and Asperger's disorder are discrete diagnostic entities, or, instead, are part of the same autistic spectrum” due to the lack of research toward that end (Macintosh & Dissanayake, 2006a, p. 202). The possibility of finding qualitative differences holds great import to both the research and educational communities, since the disorders are currently in a strange limbo between difference and identity.

Participants

Twenty children with HFA, 19 with Asperger's disorder, and 17 typically developing children were chosen to participate in this study. The ages of the participants ranged from 4 years 4 months to 10 years 10 months, and most were enrolled in mainstream elementary schools; three of the typically developing children were enrolled in a preschool.

All participants scored as having IQs above 70 using the short form of the Stanford-Binet Intelligence Scales (4th ed.). The groups were matched on chronological and mental ages (MA), but not on verbal MA. Some participants changed schools partway through the study; these data were noted and taken into account (Macintosh &

Dissanayake, 2006a, p. 202-203). There was no mention made of the gender of the participants.

Research Design and Methodology

Macintosh and Dissanayake (2006a) wrote that “[a] one-zero time sampling technique was used in live coding of the children's spontaneous social and play behaviours in the schoolyard” (p. 199). The researchers had three groups to work with; the children diagnosed as having HFA, the children diagnosed as having AS, and the children who were designated as being TD. Two observation periods were taken for each participant, following assessments of each participant's cognitive and language abilities. Observations were done by the first author, who remained as blind as was possible to each child's diagnostic status (Macintosh & Dissanayake, 2006a, p. 204). Children were observed during free play periods; observation times were no further apart than two weeks, and observations were done as unobtrusively as was possible.

Findings

Macintosh and Dissanayake (2006a) found that “[t]he children with high-functioning autism spent the majority of their time unoccupied while those with Asperger's disorder spent most of their time engaged in conversation. In contrast, the typically developing children spent most of their time in simple social play” (p. 205). The findings are further made complex; with the authors noting that typically developing children, in general, interact in larger groups of three or more children, with children in both of the clinical groups spending “significantly more time not interacting in comparison to the typically developing children” (Macintosh & Dissanayake, 2006a, p.

206). Children in both clinical groups also did not differ significantly from one another in terms of the number of interaction partners they had; generally fewer than three.

One of the more interesting things found in this study was that children with Asperger's Syndrome tend to make more bids for social attention than do children with HFA. However, children who were in the typically developing category “spent a significantly greater portion of the free play periods in enduring, reciprocal interactions” (Macintosh & Dissanayake, 2006a, p. 209). Children with Asperger's Syndrome and typically developing children made a similar number of social initiations; the difference is in whether those attempts were successful. The children with Asperger's Syndrome and the children with High Functioning Autism had similar rates of successful, enduring interactions even though children with AS attempted social interactions more frequently than did children with HFA. The researchers also found that the quality of verbal interactions differed among the clinical groups, with children who have AS exhibiting far greater number of verbal social initiations than did children with HFA. None of the groups in the study showed significant difference in the number of non-verbal, gestural attempts at socialization.

During this research, the authors found no difference in the quality of the interactions experienced by any of the groups of children in the study. The quality of nearly all of the children's interactions were “rated as prosocial/positive/neutral” but not as negative or antisocial. Likewise, the interactions initiated by other children aimed at the children in the study were also “prosocial/positive/neutral,” and rarely negative or antisocial. “[T]he clinical groups were clearly different from the typically developing

children in that they were significantly less likely to interact socially with their peers, to be in social exchanges of an ongoing nature, or to be in an interaction with three or more partners. The children with autism were also less often engaged in simple social play than those in the typically developing group” (Macintosh & Dissanayake, 2006a, p. 213).

Though few differences were found between the types and quality of interactions initiated and experienced by children with HFA and AS, the authors did pinpoint a few differences. “The only reliable differences were that the children with Asperger's disorder showed a higher level of involvement in conversation and speech during social interactions, and made more social bids than those with autism” (Macintosh & Dissanayake, 2006a, p. 212). This is in keeping with previous research regarding the language skills of children with Asperger's Syndrome, that “youth with this condition have better expressive language abilities than those with high-functioning autism” (Macintosh & Dissanayake, 2006a, p. 212). In this study, children with Asperger's Syndrome consistently made more bids for social interaction than did children with HFA, which is “consistent with the clinical and research literature indicating a higher level of social interest and motivation” among individuals with AS (Macintosh & Dissanayake, 2006a, p. 212).

This study suggests that children with Asperger's Syndrome are motivated toward social participation more than are other children with different manifestations of an Autism Spectrum Disorder. This has no standing with how successful attempts at socialization will be. This study found that, though children with Asperger's Syndrome were more socially motivated than children with HFA, they were no more or less

successful in social interactions. The similar success rates of the social interactions that did occur among the clinical groups “may reflect the benefits of a mainstream school setting, such as the opportunity to engage socially with typically developing peers, and the lack of disadvantage associated with only having other children with handicaps and similar social difficulties as playmates” (Macintosh & Dissanayake, 2006a, p. 213).

Though this study was unable to prove that there is a clinical difference between children with AS and children with HFA, it did go a fair way toward showing how beneficial integrated schools can be for children who struggle to learn how to interact socially. The social situations that were most successful for the children in the clinical groups in the study were those created by structured complementary play, such as organized ball games (Macintosh & Dissanayake, 2006a, p. 214). By creating classroom situations that support structured complementary play, teachers may improve the opportunities for and occurrences of successful socialization.

The researchers were hopeful that their study would have useful implications in the classroom for intervention practices. Macintosh and Dissanayake stated that “[o]n the basis of these findings, it may be speculated that similar social skills interventions are likely to be appropriate for children with both high-functioning autism and Asperger's disorder” (p. 216). They acknowledged, however, that their research remains incomplete in creating a clear distinction between HFA and Asperger's Syndrome, that “the controversy...cannot be fully resolved until conclusive empirical data are gathered regarding the extent of overlap in etiology, developmental course, outcome, the core impairments, associated features, and the nature of effective interventions” (Macintosh &

Dissanayake, 2006a, p. 216). Despite not proving the difference between HFA and AS, this research provided an in-depth look at the quality and types of interactions attempted and completed by children who are in different places on the autism spectrum, and showed that it is quite likely that similar means for intervention and teaching social skill building will be equally effective for children with either of these conditions.

*Social Skills and Problem Behaviours in School Aged Children
with High-Functioning Autism and Asperger's Disorder*

Guiding Questions

Macintosh and Dissanayake (2006b) used data collected for their other study published in the same year, (Macintosh & Dissanayake, 2006a) and compiled this study that looked at “social skills and problem behaviours” of children with Asperger's Syndrome or HFA as a means to prove that Asperger's Syndrome belongs on the autism spectrum as much as does High Functioning Autism (p. 1065). Though it may seem that making such distinction is of little importance, it holds a great deal of import when one considers the implications of proper diagnosis within the context of accommodations given through the public school system.

Other studies have suggested that children with Asperger's Syndrome show “more advanced social skills than those with autism such as in acts of greeting, egalitarianism and joy in social interactions, social responsiveness to adults, a sharing of their interests, affection towards parents, and an interest in peers” (Macintosh & Dissanayake, 2006b, p. 1066). Macintosh and Dissanayake (2006b) conducted this study to show the differences and similarities between the social and behavioral abilities of children with HFA and Asperger's Syndrome. They used parent and teacher descriptions of the children who

participated in this study, and related them to each other as well as to typically developing children in the same classrooms. Their goal was to “expand our knowledge about the social difficulties and competencies associated with these conditions, as well as [to inform] the debate on whether these conditions are discrete diagnostic entities, or are part of the same autism spectrum” (Macintosh & Dissanayake, 2006b, p. 1067). The authors predicted that this would be discernible through parent and teacher reports of different kinds of behaviors, specifically of “problem behaviours”, as they surmised that children with Asperger's Syndrome would experience more frustration due to more attempts at socialization and therefore more refusals from or miscommunications with peers than would children with High Functioning Autism (Macintosh & Dissanayake, 2006b, p. 1067).

Participants

20 children with High Functioning Autism, 19 children with Asperger's Syndrome, and 17 children who were typically developing participated in this study. Their ages ranged from 4 years 4 months to 10 years 10 months old; all participants were male, and all but 3 attended mainstream primary schools. Those 3 attended a local preschool and were included in the typically developing group (Macintosh & Dissanayake, 2006b, p. 1067).

All children in the clinical group had been diagnosed using DSM-IV (APA, 1994) standards for Autistic Disorder and Asperger's Syndrome. For the purposes of this research, any child who did not have a Full-Scale IQ greater than 70 was not included in the eventual pool of participants. All children came from middle class families, and all

children but one came from families where the primary language spoken in the home was English. The authors did not provide information about what language was used in that child's home (Macintosh & Dissanayake, 2006b, p. 1067-1068).

Research Design and Methodology

Children who participated in this study each attended two sessions of cognitive ability assessment; during this time their parents completed family information forms, and then the SSRS. The teachers of the children were contacted no later than two weeks following these sessions to complete the teachers' version of the SSRS (Macintosh & Dissanayake, 2006b, p. 1069).

Teachers and parents of the children who participated in this study completed the Social Skills Rating System (SSRS) which “is a standardized questionnaire that measures the perceived frequency with which certain social skills are displayed at school or in the home and community [and also] examines problematic behaviours that may impede the development or performance of necessary social skills” (Macintosh & Dissanayake, 2006b, p. 1068). Each domain on the SSRS had sub-scales in the social skills domain that measured dispositions such as cooperation, assertion, self control, and responsibility.

The SSRS also contained sub-scales in the problem behaviors domain that measured “Externalizing and Internalizing problems, and Hyperactivity” (Macintosh & Dissanayake, 2006b, p. 1068-1069). These measured behaviors such as verbal or physical aggression toward other people, anxiety, sadness, loneliness, impulsiveness, distractibility, et cetera (Macintosh & Dissanayake, 2006b, p. 1069).

Findings: The teacher and parent responses on the SSRS varied more than the

researchers had expected, due to this, multiple one-way multivariate analyses of variance/covariance (MANOVA or MANCOVA) were used for each of the domain sub-scales, having taken into account the additional variables of whether the child had moved to a different school or experienced language difficulties (Macintosh & Dissanayake, 2006b, p. 1069).

The mean raw scores calculated from the teacher SSRS and the parent SSRS were markedly different on the social skills sub-scales, however, each were in general agreement that typically developing children tended to be more cooperative and assertive, and exhibited greater self control than the two clinical groups. Children with Asperger's Syndrome were reported as having greater self control than children with HFA, and both the AS and HFA groups were reported as having similar levels of assertion skills. There was no agreement between the teacher and parent reports about which clinical group exhibited greater cooperation skills (Macintosh & Dissanayake, 2006b, p. 1070).

Mean raw scores between parent and teacher SSRS on the problem behavior sub-scales showed greater overall agreement. Teachers and parents alike reported that children in the clinical groups presented more problem behaviors in general than did the typically developing group. There was also significant agreement between teachers and parents about the AS group presenting more internalizing and externalizing behaviors. Teachers' SSRS scores showed that children in the HFA group were more likely to be hyperactive than children in the AS group, but parents scored the two groups similarly (Macintosh & Dissanayake, 2006b, p. 1070-1071).

The researchers found that the results of their study supported their hypotheses

that A: Asperger's Syndrome and High Functioning Autism are separate disorders on the autism scale, and B: children with Asperger's Syndrome tend to present with more problem behaviors than do their peers with HFA, and show “fewer' social skills” than their peers who are typically developing (Macintosh & Dissanayake, 2006b, p. 1073).

The researchers found the “high level of congruence in the findings from the reports from parents and teachers” to be “noteworthy given the generally low correlations between the responses of these informants on the sub-scales of the SSRS” (Macintosh & Dissanayake, 2006b, p. 1073). Though “noteworthy” this should not be considered surprising given that parents and teachers frequently have different experiences of the same children regardless of clinical stature.

The authors were satisfied that both adult groups found sufficient difference between children in the clinical ranges and children in the typical ranges to support their hypothesis. The authors stated that “there was little evidence that any of the social deficits or skills addressed in this study is specific to one or the other condition” (Macintosh & Dissanayake, 2006b, p. 1075). This means that any interventions that have been developed to aid children with one or the other disorder, either Asperger's Syndrome or High Functioning Autism, will very likely be of benefit to children from the other group classification. Further research ought to be conducted with groups of a more statistically viable size, as the sample groups for this study were fairly small.

*Social Skill Deficits and Anxiety in High-Functioning Adolescents
with Autism Spectrum Disorders*

Guiding Questions

In this and the following study in this literature review, Scott Bellini (2004 and

2006) explored the social anxiety experienced by children with HFA and Asperger's Syndrome. In this study, Bellini (2004) “examined the prevalence and types of anxiety exhibited by high-functioning adolescents with autism spectrum disorders and factors related to this anxiety” (p. 78). Anxiety can be debilitating in the realm of social interaction, and can lead further to self-destructive measures taken by the person experiencing the anxiety; it is “often associated with isolation, depression, substance abuse, and other forms of psychopathology” (Bellini, 2004, p. 78). Bellini (2004) sought to identify what links exist between social functioning and social anxiety for adolescents with ASD, to further validate studies that seek to address how to mitigate that anxiety and aid studies that seek to improve social functioning.

The specific questions addressed by Bellini's (2004) study were:

1. Are adolescents diagnosed with autism, Asperger syndrome, or pervasive developmental disorder not otherwise specified (PDD-NOS) more likely to experience symptoms of anxiety than members of the general population?
2. What types of anxiety are adolescents with autism spectrum disorders likely to experience?
3. Are social skill deficits associated with social anxiety in adolescents with autism spectrum disorder? (p. 80)

Participants

Forty one adolescents, aged 12-18 years, who were diagnosed with different Autism Spectrum Disorders and their families participated in this study. Of those 41 adolescents, 19 were diagnosed with HFA, 16 with Asperger's Syndrome, and 6 with PDD-NOS. Eleven of the participants were diagnosed with an anxiety disorder, and 16 took medications to alleviate anxious symptoms. Thirty five boys and 6 girls participated

in this study. As this study relied on self-reporting, “[p]sychological reports were also used to verify that each participant had a measured intelligence above the level indicative of mental retardation” (Bellini, 2004, p. 80).

Participants were recruited from the Indiana Resource Center for Autism through the Indiana Institute on Disability and Community. 504 families received letters soliciting participation; any respondent who had a comorbid diagnosis of mental retardation was excluded from the study. No followup was made for families that did not respond; this phase generated 39 participating families. A 2nd phase that generated the remaining 2 families was conducted with a Louisiana school district (Bellini, 2004, p.80). There was no control group of typically developing students in this study.

Research Design and Methodology

All participating adolescents completed the Social Skills Rating System (SSRS), the Multidimensional Anxiety Scale for Children (MASC), and the Social Anxiety Scale for Adolescents (SAS-A) (Bellini, 2004, p. 79-80). Parents of the participants completed the SSRS and Behavior Assessment System for Children (BASC). Adolescents filled out the forms under the auspices of the researcher; the parents simultaneously filled out their forms in a different room. The researcher gave the adolescents the option of having the forms read to them, 3 chose to use that accommodation. Those who did not choose to have the forms read to them were asked to read sample items aloud to ensure that they had full understanding of the kind of language that was used on those assessments. Adolescents were told that there were no right or wrong answers “and that it was important that they answer questions truthfully” (Bellini, 2004, p. 80-81). The researcher

made himself available to the adolescents if they had questions or needed clarification on any items on the assessment forms.

Each of the assessments was scored twice at different times to ensure scoring accuracy; data were then entered into an analysis engine on the researcher's personal computer. Data checks were done by “a trained assistant with an undergraduate degree in psychology” (Bellini, 2004, p. 81).

Findings

On both the MASC and BASC the adolescents self-reported “levels of anxiety that were significantly higher than the mean of the normative sample” (Bellini, 2004, p. 82). Additionally, self-reports on the SAS-A showed “a total score...that was above the suggested level of clinical significance...nearly 49% of the sample scored above the level indicative of high social anxiety” (Bellini, 2004, p. 82). Parent scores on the BASC showed lower anxiety scores than were given by the adolescents, and 12% (5 total) of the adolescents showed scores below the level of severe social anxiety on the SAS-A. Curvilinear relationships were found between SSRS Empathy scores, MASC Social Anxiety scores and Performance Fears scores, showing that those who have difficulty understanding empathy also show difficulty with heightened anxiety and performance fear. There were no correlations found between parent reports of social skills and self-reports of social anxiety, meaning that self-reports of heightened anxiety tended to have lower parent report of social skills (Bellini, 2004, p.82).

There were marked limitations to this study. A lack of control group and reliance on self-reporting were chief among them. Additionally, the different kinds of anxiety

experienced by the participants were diverse, though not enumerated in the study report. However, the internal reliability of the tests given led Bellini (2004) to state that the feelings of anxiety in relation to social interactions reinforced the difficulties in social interactions that the adolescents experienced, which in turn increased their feelings of anxiety. Bellini (2004) stated that “[t]he results of the present study suggest that social skill training programs may be beneficial for individuals with autism spectrum disorders” (p. 84).

*The Development of Social Anxiety in Adolescents With Autism
Spectrum Disorders*

Guiding Questions

Bellini (2006) continued his 2004 research with this study. In his 2004 study, Bellini stated that “[f]uture studies should build upon the present study by improving methodological limitations and vigorously testing the veracity of its theoretical claims” (p. 85). In this study, Bellini (2006) expanded on his 2004 study by examining how social anxiety develops in adolescents with high functioning autism, and what factors are likeliest for putting adolescents with ASD at risk for developing social anxiety (p. 141).

Participants

The participants in this study were the same participants who participated in Bellini's (2004) earlier study; they were 41 adolescents, aged 12-18 years, who were diagnosed with different Autism Spectrum Disorders and their families participated in this study. Of those 41 adolescents, 19 were diagnosed with HFA, 16 with Asperger's Syndrome, and 6 with PDD-NOS. Eleven of the participants were diagnosed with an anxiety disorder, and 16 took medications to alleviate anxious symptoms. Thirty five

boys and 6 girls participated in the study (Bellini, 2006, p. 141).

Research Design and Methodology

The same instrumentation and assessment devices that were used in Bellini's 2004 study were further analyzed in this 2006 study. “[S]tandard multiple regression analysis with the outcome variable of anxiety and predictor variables of social skills and physiological arousal” was used to determine what variables predict heightened anxiety among those adolescents who participated in the study (Bellini, 2006, p. 142).

Findings

Through further analysis of his earlier study, Bellini (2006) found that his results “suggest that social skill deficits and physiological arousal combine to significantly contribute to the variance in social anxiety” (Bellini, 2006, p. 142). Elevated physical arousal and social deficits combine to contribute to experienced levels of anxiety in social situations; the higher the person's sensitivity to things that create physical arousal (i.e. nervousness, raised heart rate, sensory sensitivities, etc..) the higher the likelihood that person will experience anxiety that prevents them from fully participating in most social situations. This creates an impairment “in social functioning [which] then significantly increases the chances for negative peer interactions and social failure” (Bellini, 2006, p. 143). As discussed in Bellini's previous (2004) study, this creates a self-enforcing loop of negative social behavior, and may make it so that the adolescent cannot learn appropriate social functioning when caught in this negative feedback loop (Bellini, 2006, p. 143). Due to this, Bellini (2006) stated that “it is imperative that early intervention programs stress the importance of social participation with peers and strive to facilitate

the development of social interaction skills in children with ASD” (Bellini, 2006, p. 143). As in many other studies, the clear message is that earlier interventions are more effective for children with ASD, and should be included in their public schooling as well as in their personal homes.

Discussion of Experiences of Children with Autism Spectrum Disorders: Personal Experiences and Psychological States

Macintosh and Dissanayake's (2006a and 2006b) studies both showed that Asperger's Syndrome and High Functioning Autism are similar enough to be used interchangeably in most interventions, though they are not similar enough to be considered to be the same disorder. There is enough existing research in the field to show that Asperger's Syndrome is on the autism spectrum, and that it shows enough subtle differences from other disorders on the spectrum to be considered its own distinct diagnosis. The researchers wrote:

On the basis of current findings, it seems likely that, at least for primary school-aged children, similar social skills interventions are likely to be appropriate for children with both high-functioning autism and Asperger's Syndrome. Thus, programs that have been empirically validated as useful for children with high-functioning autism, involving approaches such as modeling, prompting and reinforcing appropriate social behaviours, are also likely to be valuable for children with Asperger's Disorder. (Macintosh & Dissanayake, 2006b, p. 1075)

Anxiety was shown by Bellini (2004 & 2006) to be a problem faced by children with diagnoses across the autism spectrum. Though anti-anxiety drugs are available and often prescribed to children with autism to help alleviate the worst symptoms, without additional counseling or other interventions, the anxiety may become socially paralyzing for some. At the very least, it seems that some children with autism have low level

anxiety at all times, which is an obstruction that they face every time they are presented with the requirement to interact with their peers.

Obstructions may be dealt with in unorthodox ways by children who have not yet learned appropriate ways to interact with others. “Inappropriate behaviours may be strategies the child has developed to achieve desired social responses, in the absence of more socially appropriate or conventional methods. It is highly probable that these problem behaviours adversely affect children's ability to develop satisfactory peer interactions” (Macintosh & Dissanayake, 2006b, p. 1074). Inappropriate behaviors can be as simple as distracting noises, and as serious as injurious actions. In the case described by Macintosh and Dissanayake (2006b), these behaviors would present themselves in situations where the child with ASD needed or desired something and did not know an appropriate or socially conventional way to procure whatever the thing was. The potential for these behaviors adds yet another factor of possible variables in failure in group interactions that teachers must be aware of and ready to intervene in if necessary.

The most difficult part of creating an environment in which children who experience overwhelming difficulties in socialization may be convincing those children to admit that they experience social problems. Many children with ASD “[perceive] themselves to be similar to neurotypical peers in all areas” of social function (Myles, et al, 2007, p. 454), and children with AS have a marked tendency toward more attempted social behaviors than children with HFA, though not considerably more success in those attempts (Macintosh & Dissanayake, 2006b) Practitioners working with children with ASD need to make a concerted effort to understand how their students experience the

world. Each child will have a slightly different experience, but awareness of how to support children who deal with social difficulties nearly all of the time will be of benefit to teachers and students both.

Experiences of Children with Autism Spectrum Disorders:
How Others are Experienced by Children with Autism Spectrum Disorders

Children with Autism Spectrum Disorders often find it difficult to understand that other people have different thoughts and feelings from their own, sometimes to the extent that they believe other people to be privy to their own private thoughts and experiences (Attwood, 2007; Baron-Cohen, 1995; Frith, 1991). Simon Baron-Cohen (1995) coined the term “mindblindness” to describe this phenomenon and attributed it to a lack of empathy.

Lack of empathy may or may not be the real reason for “mindblindness,” as some children seem to be very empathetic with some people and not at all with others. That is an area that requires much more research before anything definitive can be said about the internal causes of mindblindness.

One arena that can be studied is that of friendship and how friendship relations affect children with ASD. As in Macintosh and Dissanayake's (2006a & 2006b) studies, the perceptions held by the children with ASD about their success and popularity may not be reflected in reality. Carrington, Templeton and Papinczak (2003) also found that children may be cognizant of their social deficits, but that they may use *masquerading* to make it appear to others that their social lives were happy and successful (p. 213).

Youth in middle and high school are particularly vulnerable to social difficulties

and can suffer from lasting emotional effects of those years. It is during puberty that peer influence is at its greatest. Bock (2007) states that:

[A]dolescents with AS are often unable to understand the social customs associated with dating and other age-expected interactions. This confusion regarding social customs continues through adulthood. Thus, it is not unusual to find adults with AS who experience high levels of social isolation and frustration...that may be due, in part, to significant deficits in executive function...including (a) inhibiting irrelevant responses, (b) modifying behavior based on environmental feedback, (c) exacting rules from experience, and (d) differentiating essential from nonessential information. (p. 88)

During this time period, youth with ASD are at risk of developing “increasing anxiety, obsessive-compulsive tendencies, behavioral challenges, and ever-changing social skill deficiencies” (Church, Alisanski, & Amanullah, 2000, p. 19). The articles outlined below seek to show how children and youth with autism experience peers, generally within public school settings. Implications for practice will be discussed in Chapter 4.

*The Social, Behavioral, and Academic Experiences of Children
with Asperger Syndrome*

Guiding Questions

Church, Alisanski and Amanullah (2000) attempted to determine what social experiences within public schools are typical among youth who have Asperger's Syndrome. They acknowledged the controversy about Asperger's Syndrome and whether it belongs on the autism spectrum, and wrote their research from the standpoint that it is an autism spectrum disorder.

Participants

40 children aged from 3-15 years old, all diagnosed with Asperger's Syndrome, participated in this study. Among these children were 39 boys and 1 girl. The

participants in the study aged with the study, all 40 participated at the preschool age (3-5 years old), and 39 participated in the elementary school group (6-11 years old). 13 children participated in the middle school group, and 5 in the high school group. These numbers were not due to attrition, rather, data was taken from fewer participants for a longer span of time, with more children joining the study beginning in the preschool group. Data was taken between the years of 1986 and 1998. All participants met the DSM-IV (APA, 1994) criteria for Asperger's Syndrome (Church, Alisanski, & Amanullah, 2000, p. 12-17).

Research Design and Methodology

Church, Alisanski and Amanullah (2000) used a static group comparison model across a wide span of time for most of the participants, this time span was between 1 and 12 years of observation at a “university medical center child development program” (Church, Alisanski, & Amanullah, 2000, p. 12). A retrospective chart study was used to conduct this study, meaning that children’s medical, academic and social histories were compiled and examined by the researchers. Standardized tests for all participants were administered by the principal investigator, and qualitative data from “parent comments and observations, physician descriptors, observed child behaviors and interactions, and teacher reports” was gathered and analyzed (Church, Alisanski, & Amanullah, 2000, p. 13).

Demographic information except for gender, as there was one girl, was extracted and discarded as data as all of the children came from similar social, economic and racial backgrounds. Sample characteristics of all participants such as age diagnosed, age

parents suspected a problem, IQ at diagnosis, and follow-up IQ testing were averaged, and the mean was examined along with other information obtained during this study.

Behavioral set, sensory issues, and language skills were examined for all participants at the preschool age. These data, as well as social and academic skills were examined for all participants in elementary school, middle school and high school. For all participants, whether they had an additional diagnosis such as ADHD, emotional or behavioral disturbance, learning disability, etc., was also noted.

Findings

Church, Alisanski, and Amanullah (2000) stated that ,“The results indicate that social skills deficits were variable but remained the greatest challenge for these intellectually bright and verbal children” (p. 12). All children in this study at each stage that data was available experienced difficulty with social interaction with their peers to varying degrees. Most of the children in the study had “normal or advanced expressive language” by age 3 ½, and most children exhibited abnormalities in behaviors and had some kind of sensory issues whether they were tactile, aural, olfactory, etc. by that age as well (Church, Alisanski, & Amanullah, 2000, p. 14).

By middle school, the behavioral sets had matured along with the children either becoming set routines or habits, such as being strict about the recycling, or practicing an instrument daily. Sensory issues were not as severe as they had been earlier in life. Social skills through middle school ranged from minimal ability to interact with peers to being able to have one or two friends (Church, Alisanski, & Amanullah, 2000, p. 16). By high school the social skill sets became a concern with some of the boys, whose

interactions with girls were sometimes highly inappropriate, verging on appearing predatory (Church, Alisanski, & Amanullah, 2000, p. 18).

Specific challenges were found to be exceptionally important to address during certain age blocks. Church, Alisanski, and Amanullah (2000) found that:

[T]his study illustrates very specific problem areas that need to be addressed and are critical to the child's success. The behavioral issues and early sensory issues of preschoolers were felt to be dramatic. During elementary school, many of the children were diagnosed with AS as their social skill deficits became more prominent. During middle school, children began feeling their differences and expressed sadness, anxiety, and rejection. Teenagers faced increasing anxiety, obsessive-compulsive tendencies, behavioral challenges, and ever-changing social skills deficiencies. These age-related areas of difficulty need to be targeted for intervention. (p. 19)

This study surveyed across ages, grouped as school-age blocks, taking maturation and physical development into account in the research. Certain successful coping mechanisms were presented, also by age block, such as the preschool-aged child who was provided with a toy bat so that he could flap its wings instead of his hands. The authors also obliquely referred to the dangers of the social challenges faced by physically mature, high-school aged boys when attempting to interact with girls they found to be sexually attractive.

Church, Alisanski, and Amanullah (2000) did not set forth any suggestions as to how to address the issues they found to be critical to address, but they stated that future research will need to be done to determine what interventions will be most effective. The authors often compared children with Asperger's Syndrome and with High Functioning Autism, but no research on or data about children with HFA was provided. Given the research done by Macintosh and Dissanayake (2006a & 2006b) it can be assumed that

children with HFA might experience similar social barriers to those experienced by the sample of participants with AS in this study.

Adolescents with Asperger Syndrome and Perceptions of Friendship

Guiding Questions

Carrington, Templeton and Papinczak (2003) conducted this study, in part to attempt to support Church, Alisanski and Amanullah's (2000) research findings by providing “specific examples and illustrations provided by a group of students who have Asperger syndrome” (p. 211). It is plain to those who have worked with children with Asperger's Syndrome that children who have that condition tend to have non-conventional or incomplete definitions of friendship. Carrington, Templeton and Papinczak (2003) “aimed to advance understanding of the social difficulties that are characteristic of individuals with Asperger syndrome while providing a voice to this group of students” (p. 212). In this study the authors recorded 5 secondary-school-aged youth with Asperger's Syndrome in several interview sessions designed to pinpoint those adolescents' understanding and experiences of friendship, then coded and recorded their answers in a qualitative system of relational descriptions.

Participants

Five secondary students from the same high school, all enrolled in special education support classes, were chosen from a potential pool of 8 students identified by one of the special educators at that school. Three of the 8 families did not return consent letters to the researchers (Carrington, Templeton & Papinczak, 2003, p. 212).

All participating students were Caucasian-identified, and all were diagnosed with

Asperger's Syndrome. Each of the students had his or her own specialized interest area(s) and all received 3-10 hours of support from special education staff members in their general education classrooms. All had different but notable difficulties in social and/or friendship situations. 4 of the participants were male, 1 female, ages ranged from 14-18 in grades 8-12 (Carrington, Templeton & Papinczak, 2003, p. 213).

Research Design and Methodology

The researchers used “in-depth interviewing” which was defined as a semistructured interview process in a conversational format that “focus[ed] on the informant's perception of self, life and experience, and [allowed that perception to be] expressed in his or her own words” (Carrington, Templeton & Papinczak, 2003, p. 212). Interviews were audio taped for later transcription and lasted from 20-40 minutes.

Special education support staff from the participating school were instrumental in helping the researchers to develop the interview questions. Students were given a printout of the questions 1 week before their interviews were conducted to allow for adequate processing time and “discussion of the issues at home or private perusal of the subject by the interviewees” (Carrington, Templeton & Papinczak, 2003, p. 212). This was done due to the researchers' awareness of the students' potential unfamiliarity with terms and concepts to be addressed during the interviews. Interviews were conducted by the first and second author of this study over the course of 3 weeks (Carrington, Templeton & Papinczak, 2003, p. 212).

The interviews were transcribed and then imported into a program called QSR NUD*IST, or “Nonnumerical, Unstructured Data Indexing, Searching and Theorizing”

which was designed for “storage, coding, retrieval and analysis of the text of the interviews” (Carrington, Templeton & Papinczak, 2003, p. 212). This program allowed the researchers to create hierarchies or trees for concept organization, and allowed for constant variability of classification and comparison of concepts mentioned by the interviewees. Following entry into the QSR NUD*IST, 5 categories of student understanding of friendship were developed. These were:

1. understanding of concepts or language regarding friendships,
2. description of what is *not* a friend,
3. description of what *is* a friend,
4. description of an acquaintance, and
5. using masquerading to cope with social deficits. (Carrington, Templeton & Papinczak, 2003, p. 213)

Findings

Carrington, Templeton and Papinczak (2003) found that the participants in the study were generally unable to discuss “issues related to friendship” in any in-depth manner (p. 213). The interviewers found that prompts were necessary to elicit any response on some questions from some of the students, and further found that one student needed to have them posed “as sentences for her to complete, rather than as questions” (Carrington, Templeton & Papinczak, 2003, p. 213).

In general, the participants found it difficult to define friendship, and frequently said things like “it’s really hard to explain” or “stuff like that” which may have been due to difficulties processing oral information, or may have had to do with a lack of

vocabulary definitions that they found satisfactory. The following exchanges were recorded in the study:

Researcher: And what about those people who are not your friends? What are they like?

Larry: They're...well...define "not friends."

Researcher: That's what I want you to do for me. Describe what you think "not friends" means.

Researcher: If you could look into the future, what would your friends be like?

Jack: I don't know. They would be nice, friendly and nice.

Researcher: What do you mean by "friendly"?

Jack: I don't know.

Researcher: What things would you like to keep the same with friends?

Jack: All aspects of friendship. (Carrington, Templeton & Papinczak, 2003, p. 214)

Students' definitions of not-friends tended to be more clear and easier for the students to state. Many of the reasons given for not wanting to have a person as a friend revolved around rule-breaking, having too many different interests, and having "mean and unfriendly behavior" (Carrington, Templeton & Papinczak, 2003, p. 214).

Students seemed to find it equally easy to provide definitions of what acquaintances were, if they were familiar with the conventional definition; one student did not know the meaning of the word. All who did know the definition were able to identify an acquaintance as someone who is not as close as a friend, who is not familiar. Carrington, Templeton and Papinczak (2003) recorded that, "John suggested that an

acquaintance would know less about him, and Jack explained that he would not mix with people who are just acquaintances” (p. 215).

The participants were all aware that they desired friends who shared similar interests, and each displayed differing levels of success in finding people who formed a sufficient affinity group. “Larry” found friends with similar interests in Dungeons and Dragons, “Jack” found friends who enjoyed athletic activities and occasionally what he described as “naughty things” like roasting ants under magnifying glasses (Carrington, Templeton & Papinczak, 2003, p. 215). “Alice” struggled the most with her definition of what a friend is supposed to be but seemed most keenly aware of her social isolation; she described them as “...the ones that could help you and keep in touch...You grow up with them...I don't think I have friends...not really” (Carrington, Templeton & Papinczak, 2003, p. 214).

The final category identified by the researchers was that of *masquerading*, as a way that students coped with the social deficits that they experienced. Carrington, Templeton and Papinczak (2003) stated that “[h]igh school students with Asperger syndrome may be aware that they do not fit in and try to mask their deficits” (p. 215). This frequently appeared in these students' speech as fictionalized, inflated, or perhaps misperceived friendship networks. One student said that he had “the most friends”, another said that he got so many phone calls from different friends that his phone bill was “far too high” though he rarely received phone calls; neither student was asked to name names (Carrington, Templeton & Papinczak, 2003, p. 216). The purpose of masquerading is clearly to make it possible for the children doing the masquerading to

have a positive self-image of themselves as a socially apt person and to attempt to project that social competence to others.

Carrington, Templeton and Papinczak (2003) related their recordings of these students' masquerading to Church, Alisanski and Amanullah's (2000) research that showed children with Asperger's Syndrome claiming much wider friendship webs than would claim them, and cited this study as a partial reason to be “speculative about the true nature of these friendships” that were self-reported by the children in their study (Carrington, Templeton & Papinczak, 2003, p. 216).

Carrington, Templeton and Papinczak (2003) ended by stating that school professionals “need to be particularly aware of the possible difficulties experienced by young people who have Asperger syndrome in understanding the language used in discussions about friendships” (p. 217). From the interviews conducted by these researchers, it is clear that some students with Asperger's Syndrome who are in secondary school still experience many of the social difficulties experienced by younger children with any Autism Spectrum Syndrome. Though these results are limited to a very small population of students, these findings with other studies show that friendship networks and friendship perceptions are areas that many children with autism struggle with daily, and school professionals must become aware of measures that can be taken to mitigate this struggle.

Discussion of Experiences of Children with Autism Spectrum Disorders:
How Others are Experienced by Children with Autism Spectrum Disorders

Church, Alisanski and Amanullah (2000) and Carrington, Templeton and Papinczak (2003) wrote of the specific experiences of children with higher functioning autism disorders in the realm of friendship and social behaviors. The children and adolescents in these studies showed confusion about what kinds of actions and reactions to other people would bring them friendships, and additionally some seemed very confused about what made a person they knew a friend or not.

When the children are young this confusion simply results in fewer conventional friendships, and may have emotional repercussions for the child with ASD if that child is aware enough of his or her situation to feel dissatisfied with the friendship relationships that he or she experiences. As the children become adolescents, this confusion about friendship and friendly behaviors can become dangerous either for the adolescent with ASD or even for other adolescents that receive the focus of their attention. Youth with ASD are extremely likely to engage in activities that place them at risk for committing criminal acts because other at-risk youth are the only peers willing to associate with them. Other concerns are that older adolescents may exhibit predatory sexual behavior toward people they feel attracted to, if they have not been given the tools to know what appropriate behavior looks like, and what behaviors and verbalizations will be problematic and threatening to the person they feel attraction toward.

Younger children with ASD can build affinity friendships based on shared interests, and these should be encouraged and given support so that those children have access to established friendships when they are older. Many children with ASD will

exhibit extremely focused areas of interest. “The students' focus of activities on interests reflects the need of some students to engage in a restricted range of activities” (Carrington, Templeton & Papinczak, 2003, p. 215). These interests can be nurtured in a friendship group, but only if there are other children who share that interest. It may be necessary to engage the child with the focused interest in a peer intervention model such as that discussed by Laushey and Heflin (2000), using the help of peers in naturalistic play settings to increase interest areas and broaden typical play activities.

Experiences of Children who have Autism Spectrum Disorders: Language Barriers, Processing Language, and the Development of Communicative Language

Language and communication are almost inextricably intertwined in the human brain. Whether verbal language or gestural language, all route through the same processing center in the brain (Sacks, 1990; Zull, 2002). Communication is the cornerstone of all human social interactions, and happens on language, gestural and nonverbal cue levels, all of which can be mysterious to a child with ASD. It seems likely that the language and communication center of the brains of people with ASD are affected as part of their disorder, creating one of the causes of social difficulties.

Children with Asperger's Syndrome receive that diagnosis because of early development of language. These children tend to have an excellent grasp of language use, but they also tend to have difficulty understanding idiom. Other children with different Autism Spectrum Disorders do not necessarily have any grasp on communicative language; which creates a real barrier to social interactions. Even minor language delays can create that barrier, and without interventions to help children to build

their communicative skills, socialization becomes impossible. Without intervention, some children may not even be able to make their basic needs and wants known.

Language is a large piece of the puzzle for social skill building. Significant research has been done on the subject, and still there is more to learn.

Social and Language Skills in Adolescent Boys with Asperger Syndrome

Guiding Questions

Koning and Magill-Evans (2001) conducted this study with the understanding that children with Asperger's Syndrome may experience difficulty with social cognitive tasks due to equal difficulty with language, including “odd speech, including the idiosyncratic use of words...poor speech prosody...and many other semantic and pragmatic language abnormalities” (Koning & Magill-Evans, 2001, p. 24). The authors sought to identify the specific nature of the language deficits and social perception difficulties experienced by boys with Asperger's Syndrome “by comparing them with age, gender and vocabulary IQ matched controls” (Koning & Magill-Evans, 2001, p. 25). Through this study the authors hoped to identify which social language (verbal or nonverbal) cues were most heavily relied upon by the children in the clinical group, and to explore what relationship exists between language abilities and social interaction skills (Koning & Magill-Evans, 2001, p. 25).

Participants

Girls and children who had comorbid diagnoses were excluded from this study because the researchers believed that this would provide more focused results. All participants had to meet all DSM-IV (APA 1994) criteria for Asperger's Syndrome, which

meant that any children who volunteered to participate in this study who had “a history of delay in development of spoken language” were also excluded from the study (Koning & Magill-Evans, 2001, p. 25). One exception was made for comorbid diagnosis of Tourette's Disorder, as “co-occurrence of Tourette and Asperger syndromes is well documented” (Koning & Magill-Evans, 2001, p. 25).

21 boys aged 12-15 years old were selected from a larger pool of 31 children who had been recruited over the course of 3 years had been referenced from psychiatrists living in the area that the study was conducted. These psychiatrists verified the boys' diagnosis through completing the Asperger's Syndrome Screening Questionnaire (ASSQ) (Koning & Magill-Evans, 2001, p. 26).

21 boys who were age, Full-Scale IQ and vocabulary matched to the clinical participants were recruited from local schools. These boys were required to have English as a first language, and to have no social impairments, but not to notably excel socially; the researchers requested that the control group be average (Koning & Magill-Evans, 2001, p. 26).

Research Design and Methodology

Koning and Magill-Evans (2001) developed an assessment tool prior to this study called the Child and Adolescent Social Perception measure (CASP). It is described as “a standardized, individually administered test designed to assess social perception in children ages 6 to 15 years” (Koning & Magill-Evans, 2001, p. 26). The CASP consists of 10 “short unrelated videotaped scenes [that] depict children and adolescents in typical social interactions” (Koning & Magill-Evans, 2001, p. 26). The sound is filtered so that

the intonation of words is still clear, but the words themselves are not, “so that the meaning must be derived from non-verbal and situational cues” (Koning & Magill-Evans, 2001, p. 26). Children from the clinical and control groups both completed this assessment.

Following each scene while taking the CASP, the participating child described how each character was feeling and how they knew that the character felt that way. This measured emotion recognition and labeling, and cues used to infer that emotion. Two scores were calculated using this information, the emotion score (ES), or ability to identify emotions, and the non-verbal cues score (NCS), or the ability to identify other cues available to infer emotions. The NCS consisted of facial expression, body movements and gestural cues, situational cues such as environment or items exchanged, and voice cues such as tone of voice or the way in which something was said (Koning & Magill-Evans, 2001, p. 26-27).

Participating children from the control and clinical groups also completed the Social Skills Rating System (SSRS), the Social Competence Scale (SCS) of the Child Behavior Checklist (CBCL) and the Clinical Evaluation of Language Fundamentals – Revised (CELF-R) which are established assessments frequently used in the field of autism research to determine social skills measures or language competency. Additional assessments came in the form of teachers and parents completing the teacher or parent forms of the SSRS. All tests were administered in places that were convenient and comfortable for the individual completing the assessment (Koning & Magill-Evans, 2001, p. 27).

Findings

The researchers found that 19 of the children from the clinical group “scored more than one standard deviation below the mean on the emotion score (compared with two in the comparison group) and 15 scored more than one standard deviation below the mean on the non-verbal cues score” as compared to 2 who scored below the mean in the control group (Koning & Magill-Evans, 2001, p. 28).

Following the MANOVA it became apparent that the children in the Asperger's group “used facial cues more often than other cues, such as tone of voice, for inferring emotions” whereas the control group “focused on facial and body cues proportionately more often than did the Asperger group” (Koning & Magill-Evans, 2001, p. 28).

As in the study conducted by Reaven et al., 2009, the parent and teacher scores for the social qualities focused upon in this study differed from the student self-assessed scores with the children with Asperger's Syndrome rating their social competence higher than their teachers and parents (Koning & Magill-Evans, 2001, p. 29). In contrast, the children in the control group rated their social competence “slightly lower than teachers' ratings and slightly higher than parents' ratings” (Koning & Magill-Evans, 2001, p. 29-30).

In both the control and clinical groups, the boys showed greater receptive than expressive language scores, though 7 children from the clinical group showed receptive language scores more than 1 standard deviation below the mean and 14 from the clinical group had expressive language scores within 1 standard deviation below the mean (Koning & Magill-Evans, 2001, p. 30-31).

The authors found that their study confirmed “that adolescent boys with Asperger syndrome have significant deficits in social skills generally, and group differences in social perception scores were particularly marked” (Koning & Magill-Evans, 2001, p. 31-32). In light of the practices of other researchers of having children with Asperger's Syndrome identify emotion and intent from still pictures having generally proved that those children can learn to match contextual and facial expressions in the stills, “difficulties become apparent when dealing with the *simultaneous* presentation of facial, voice, body and situational cues” (Koning & Magill-Evans, 2001, p. 32). As the CASP presented realistic situations that were typical to adolescent experience, the difficulties shown by the children in the study are likely to also present in their daily interactions with other children.

Also as shown in Carrington, Templeton and Papinczak (2003), the children in the clinical group of the study showed that they were aware of some of the social difficulties that they experienced, but were not as aware of some of the other social deficits that they showed. Implications for the classroom include differing priorities on the parts of teachers and parents and those of the student, if the student is unable to see the deficits that are plain to his or her teachers and parents (Koning & Magill-Evans, 2001, p. 33).

Koning and Magill-Evans (2001) also found that 16 of the children from the clinical group “reported having virtually no friends” which is in keeping with having social deficits during a time of life when peers heavily emphasize social skills and fitting into peer groups. The authors also found that this is not necessarily due to complete lack of social skills however, as it may be that those children do not “have the motivation to

make friends or to interact with peers on a regular basis” (p. 33).

The children with Asperger's Syndrome in this study relied most heavily on facial expression versus vocal intonation. This knowledge can be useful to application of social skills programs, building on the natural inclination of the children to use visual versus verbal cues. This is interesting in that there has been an assumption in the field of autism research that children with ASD have a deficit in their interpretation of facial cues. Lack of empathy has been the attribute associated with this perceived deficit, the fact that this study refutes that assumption is quite interesting.

Brief Report: Social and Communication Abilities and Disabilities in Higher Functioning Individuals with Autism and Asperger Syndrome

General questions

It has been found by many researchers in the field that children with HFA and Asperger's Syndrome often “fail to translate their cognitive potential into real life adaptation” which creates significant barriers to social functioning despite high intellectual ability (Saulnier & Klin, 2006, p. 788). Saulnier and Klin (2006) reported on a smaller sample group from a larger study, and showed some of the trends found between adaptive functioning and symptom severity (p. 788).

Participants

Thirty two children diagnosed with prototypical autism, 35 children diagnosed with Asperger's Syndrome, and 17 children diagnosed with PDD-NOS were initially selected for this study, but the sample of children with PDD-NOS were removed from the study due to small numbers in comparison to the other two groups. All participants were selected from a larger project that was intended to study the neurobiology of higher

functioning individuals with ASD. These children were chosen if they met specific criteria for specific Autism Spectrum Syndromes; the smaller group was chosen at random from the larger study (Saulnier & Klin, 2006, p. 789).

Research Design and Methodology

Participants' age, cognitive ability, adaptive behaviors and diagnosis of autism spectrum disorder were all categorized and quantified. Socialization and Communication domains of the Vineland Adaptive Behavior Scales, Expanded Form, which was administered to parents, and the Autism Diagnostic Observation Schedule (ADOS) which was administered to the child participants, were used to determine social ability as well as social disability as exhibited by the participants in the study (Saulnier & Klin, 2006, p. 789-790). During the earlier study, participants completed the Autism Diagnostic Interview and other assessments which measured socialization, communication and interpersonal skills shown by those children (Saulnier & Klin, 2006, p. 789-790). All tests were collated and cross-checked by the authors.

Findings

Though the children in the study all showed high scores on IQ tests, there was a small difference between the children diagnosed with autism and those diagnosed with Asperger's Syndrome in that those with autism showed slightly lower scores. Children with Asperger's Syndrome showed a discrepancy between their verbal and performance IQ scores, showing that they did not reach the potential performance that their verbal scores suggested they would be able to achieve (Saulnier & Klin, 2006, p. 790).

Expressive language scores were greater for children in the Asperger's group but

general language scores were similar across both groups. Both groups showed low scores in interpersonal skills and socialization, but children in the Asperger's group tended to show greater aptitude in their scores for play and leisure, and social/communication categories. However, because both groups scored remarkably lower than typical standard, the “results underscore the severity of social and communicative deficits in AS despite the fact that these symptoms may be milder than those observed in prototypical autism” (Saulnier & Klin, 2006, p. 791). These results indicate that on-paper scores alone are not enough to show how well children with autism and other ASD will actually function, and real-life analysis of communicative ability should be conducted for each child about whom there is concern regarding social and communicative abilities.

Communicative Behavior in the Natural Environment

Guiding Questions

Meaden, Halle, Ostrosky and DeStefano (2008) researched “communication repair strategies” undertaken by young children in their homes following “communication breakdowns” (Meaden, Halle, Ostrosky & DeStefano, 2008, p. 38-39). *Communication repair* is “the ability to persist in communication and to repeat or modify a signal” after having had a *communication breakdown*, i.e., an inability to make oneself understood at the first attempt at verbal or non-verbal communication (Meaden, Halle, Ostrosky & DeStefano, 2008, p. 37-38). Environmental, not developmental, influences on the children's communication behaviors were examined, as “[t]he environmental perspective allowed for the examination of variables in the children's natural setting that might be more readily modified than developmental variables, to encourage repair

behavior” (Meaden, Halle, Ostrosky & DeStefano, 2008, p. 38).

It is highly likely that children who have disabilities or limited expressive language will experience communication breakdowns more frequently than would typically developing children. As has been shown in research cited in this article, children with disabilities may manifest a final attempt at communication repair in the form of challenging behavior or meltdowns. The implications for school classrooms is clear; if children do not learn how to correctly repair communication breakdowns, challenging behaviors as routine responses are likely to escalate. Meaden, Halle, Ostrosky and DeStefano (2008) held the belief that it is possible to teach appropriate repair behaviors to children once the breakdown is identified, and so conducted their study within the participants' homes where the environment can be more easily modified to the needs of the individual than can the school classroom (p. 38-39).

Participants

Two young boys with Autism Spectrum Disorders and with limited expressive language were selected to be participants in this case study. One boy, “Ray”, was 2 years old at the beginning of the observation period and lived with both of his parents with his mother as the primary caregiver. The other, “Ethan”, was 2 years 10 months old and lived with both of his parents and with his older brother who also had autism, with his mother as a primary caregiver (Meaden, Halle, Ostrosky & DeStefano, 2008, p. 39).

Ray used a single syllable to indicate that he needed help or more of something. “His parents reported that he requested items and activities but his communication skills were inconsistent from day to day” (Meaden, Halle, Ostrosky & DeStefano, 2008, p. 39).

Ray participated in “a birth to three-year-old early intervention program and received speech, occupational, and developmental therapy at home” (Meaden, Halle, Ostrosky & DeStefano, 2008, p. 39). Ray had an “expressive language standard score of 61 with a percentile rank of 1” on the Preschool Language Scale, Third Edition (PLS-3), which is typical of a child of 12 months (Meaden, Halle, Ostrosky & DeStefano, 2008, p. 39).

Ethan participated in a birth-to-three preschool program and had speech and occupational therapy classes at school, which resulted in his final language skills rating on the PLS-3 at a score of “58 with a percentile rank of 1” which is typical of a child of 21 months (Meaden, Halle, Ostrosky & DeStefano, 2008, p. 39).

Research Design and Methodology

The observations were conducted using video taping; conducted during optimal times identified by the children's mothers. “For both children, these times included breakfast, lunchtime, and free play with the mother in the morning” (Meaden, Halle, Ostrosky & DeStefano, 2008, p. 39-40). The first author reviewed the all of the tapes for examples of communication repair when communication breakdown occurred. The second author performed a random check of some of the video tapes to find agreement and to check the first author's method. Reliability was further calculated “by dividing the number of agreements by the number of agreements plus disagreements and multiplying the quotient by 100” (Meaden, Halle, Ostrosky & DeStefano, 2008, p. 40). The authors were in agreement with the codings for Ray for 3 of 4 repair episodes, and were in 100% agreement for Ethan; he attempted 0 repair strategies (Meaden, Halle, Ostrosky & DeStefano, 2008, p. 40).

Meaden, Halle, Ostrosky and DeStefano (2008) wrote that, “Data collection for the case studies included observations and informal conversations with the families and therapists. The first author kept a log of all observations with the parents and therapists” (p. 39). The authors found that the repair strategies undertaken by the children were directly related to the kinds of interactions that were allowed by the children's respective mothers.

Findings

Ray's mother required that he communicate with her in order to gain what he wanted. She explained that as parents, she and her husband “need to put him in challenging situations if we want him to progress” (Meaden, Halle, Ostrosky & DeStefano, 2008, p. 42). Though his ways of requesting “more” of something were somewhat idiosyncratic; hitting a book or his leg to indicate his desire, his mother also required him to make eye contact with her and to vocalize on occasion. Ray exhibited much more purposeful control over his environment than did Ethan, in large part due to the work done by his mother to encourage his communication skills (Meaden, Halle, Ostrosky & DeStefano, 2008, p. 41-43).

Though Ethan exhibited plenty of instances of communication initiation, he exhibited a total of 0 communication repairs. The researchers found that this was due to his mother's style of interaction with him; if he needed something she tended to anticipate his need and provide him with whatever he needed, giving no opportunities for distress in which Ethan might discover that he needed to repair communication. His mother's act of anticipating his needs unknowingly removed a significant number of opportunities to

initiate communication. Ethan also showed a great deal more independence in attempting to gain his needs and wants for himself without seeking adult help. Ethan was the child in this study whose older brother also had autism, and the researchers surmised that due to this fact, their parents may have encouraged the boys to be more self sufficient in order to simplify a home situation that was fairly complex (Meaden, Halle, Ostrosky & DeStefano, 2008, p. 43-45).

The authors found that these case studies showed that “there are at least three potential environmental variables related to increased communication opportunities” (Meaden, Halle, Ostrosky & DeStefano, 2008, p. 45). These were the frequency of communication breakdowns, the responsiveness of the communication partner, and the physical arrangement of the environment. If desired materials and toys are not easily accessible, then it becomes necessary for the emergent language-learning child to develop the skills to ask for help to gain access to those materials and toys. If there is not a sufficiently responsive communication partner, however, even a carefully arranged environment will not cause development of those communication skills.

This study has implications for both home and school use. Parents can be made aware that the qualities of interactions that they have with their children can affect how their children in turn communicate with them and with others. School speech and language specialists can place communication adversity in the way of their students in order to elicit increased communication repairs and improved language facility. Though more studies with more participants would be ideal for proving the internal validity of this study, the results are promising.

*Repair Strategies Used by Elementary-Age Beginning Communicators with Autism:
A Preliminary Descriptive Study*

Guiding Questions

This was a study done to examine the communication repair strategies used by 3 elementary school aged children with Autism Spectrum Disorders. Communication breakdown is something that frequently happens with children under a certain age due to limited language acquisition; with children who have known social interactive difficulties such as those who have Autism Spectrum Disorders, those breakdowns can be more pronounced and more difficult to repair by the communicator.

Communication may be important for maintaining the Least Restrictive Environment clause of the Individuals with Disabilities Education Act (IDEA, 2004), and Ohtake, Yanagihara, Nakaya, Takahashi, Sato, and Tanaka (2005) acknowledged that “[c]ontrolling one's environment in ways that ensure a desired outcome is an important learning outcome for students with severe disabilities”(p. 158). When a child who experiences difficulties with communication experiences a communication breakdown, that creates a restriction in their environment and ability to shape the environment to make themselves comfortable.

The most frequent types of communication breakdowns are requests for clarification, defined as “a listener's response to a communication act that asks the...communicator to repeat or modify the original communication act”; nonacknowledgment, defined as “a listener's lack of response to a communication act within a reasonable length of time”; and topic shifts, which is defined as the listener's

response to a communication act “by shifting the topic away from the child's intent and toward a different topic” (Ohtake, et al., 2005, p. 158).

Ohtake, et al. (2005) stated their research questions as follows:

1. Do elementary-age children with autism and severe cognitive disabilities who are prelinguistic to emergent use one-word communicators to repair communication breakdowns?
2. Which type of communication repair is the most frequently used?
3. When modifications are used as a repair strategy, are the strategies effective and conventional?
4. Are there any relationships between the type of repair strategy and the type of breakdown? (p. 159)

As with many other studies about interventions used with children with autism, the authors chose to work with younger children with the idea that if the intervention can be implemented early enough in a child's lifetime, it will allow the child to create building blocks for further development where a later intervention might be too late.

Participants

This case study focused on 3 children with autism. “Takeshi” and “Chiharu” were both in 2nd grade, aged 7 years 9 months, and 8 years 1 month respectively. “Minoru” was in 5th grade and aged 10 years 10 months. All participants lived with at least 2 adults and at least 1 older sibling. Takeshi and Minoru both utilized one-word utterances and could follow one-step spoken directions, and Minoru also utilized picture cards and pointing to obtain desired objects. Chiharu had no recorded recognizable words, but communicated by “guiding a listener's arm toward an object, extending an object, joining

open palms together, patting his stomach, or vocalization (e.g. 'baba') to indicate his request” (Ohtake, et al., 2005, p. 159-160).

Research Design and Methodology

All participants “were being educated using Treatment and Education of Autistic and Related Communication Handicapped Children [TEACCH] which provides structured teaching environments so that students with autism can understand what to do, how to do it, where to do it, how long to do it, and when it will be finished” (Ohtake, et al., 2005, p. 160). This type of autism education system is accomplished in special education classes separate from regular classrooms. The structure of the program was also used for the study, to make the events of the study comprehensible to the subjects.

Four teachers that the participating children were familiar with served as the communication partners for the study. Working with the authors, these teachers suggested activities that would be likely to elicit communication attempts and that were enticing enough that the children would also be likely to try to repair communication breakdowns in order to do those activities. The following activities were identified as desirable activities: “tickling, sprinkling with water, playing seesaw, picking the child up, drawing, riding in a car, swinging, jumping on a trampoline, sliding in a ball pool (a pool filled with numerous small balls) putting the child on the adult's shoulder, and picking flowers” (Ohtake, et al., 2005, p. 160-161). Times selected for study were free time and the time normally set aside for life skills learning. Routine was introduced and the children became used to engaging in these activities during the identified time periods.

Following the setting of routine, the teachers then went to step 2 of the

experiment; “interrupting the chain of the routine and waiting for the student's request for 7 seconds. For example, in tickling, the communication partner raised her arms, sang a song, or said some ritualistic phrases; then she stopped” (Ohtake, et al., 2005, p. 161). If the child initiated a communication response to the interrupted routine within 7 seconds, the routine was immediately resumed. If the child did not initiate a communication response, the teacher stopped the trial and found another opportunity to repeat the process. The routine initiations and interruptions were repeated 2-3 times “to encourage the most communication acts because the students did not frequently initiate communication” (Ohtake, et al., 2005, p. 161).

Five different kinds of breakdowns were used deliberately to try to elicit a response from the children. These were “(a) attending but not responding, (b) not attending and not responding, (c) spoken request (e.g. 'what do you want?'), (d) gestural request (e.g. folding arms and making a face), (e) wrong response (e.g. gave a ball to the student who asked for singing a song...)” (Ohtake, et al., 2005, p. 161). These were communication breakdowns thought by the teachers and researchers to be representative of the kinds of breakdowns that the students would frequently encounter.

Over the course of 3 weeks, data was taken on the students' communication repairs. “Data collection continued until eight episodes for each of the five types of communication breakdowns had been collected, totaling 40 episodes per participant” (Ohtake, et al., 2005, p. 161). Types of breakdown were also recorded, categorized as repetition, modification-augmentation or modification-substitution, and termination (Ohtake, et al., 2005, p. 162). The breakdown episodes were planned, but occurred at

spontaneous times due to the nature of the communication types that were recorded. The researchers did not observe any of these episodes; all data were collected by the teachers who participated in the program (Ohtake, et al., 2005, p. 161). Intercoder reliability was 93.8% for Takeshi, 87.5% for Minoru, and 100% for Chiharu (Ohtake, et al., 2005, p. 162).

Findings

The authors found that “all the participants selected repetitions or modifications during approximately 90% of the breakdown opportunities” (Ohtake, et al., 2005, p. 162). This indicated that all of the participants tried to repair communication breakdowns most of the time. One of the children used modification and repetition strategies equally, and two used modification preferentially over repetition strategies.

Each of the children used a different frequency of effective communication strategies. Takeshi and Chiharu generally used open palms and Minoru used one-word utterances to initiate communications. These were augmented for all of the participants following communication breakdown by leading, additional one-word utterances (if the child used them,) and gestures ranging from more conventional to slightly unconventional. Children also utilized substitutions of communication forms following breakdown. “In short, the communication forms added by the participants subsequent to the occurrence of breakdowns were likely to enhance the readability of the communication forms used in initiations” (Ohtake, et al., 2005, p. 163).

The relationship between type of breakdown and type of repair strategy was found to be difficult to determine, as the children tended to use certain types of repair strategies

for all breakdowns. The only exception to this equal use across type was that modification types of repairs were used more frequently when the teacher used the “not attending and not responding condition” to elicit repair response (Ohtake, et al., 2005, p. 165). This condition also caused the children's repair responses to be drastically higher than other breakdown conditions; “all of the students selectively modified rather than repeating the original communication act when the communication partner diverted attention away from them” (Ohtake, et al., 2005, p. 165).

As an example, two of the students preferred open-palmed gestural-type communication to request preferred activities. If the teacher ignored them, then the gestural communication would not work. This caused modification to the original communication attempt. Most of the children showed non-conventional communication forms for their first attempts at request, and only occasionally did their frustration at not having been understood present as challenging behaviors such as temper tantrums. Ohtake et al. (2005) suggested that in situations where repairs are not immediately successful or where children are not given sufficient opportunity to repair communication breakdowns, temper tantrums and other challenging behavior would be much more likely to be presented by the child should their attempt to be understood be ineffective (p. 166-167).

Though limited in scope, this study showed some things that teachers of young students with autism should be aware of. In order to foster future success, children should be taught how to effectively communicate their wants and needs *and* be taught effective means of repairing misunderstandings. Additionally, parents and teachers of

very young children with autism may do their students a disservice by “understanding” what the child needs or wants right away, as the child will have no reason to learn communication repair.

*Narrative Ability in High-Functioning Children with
Autism or Asperger’s Syndrome*

Guiding Questions

Losh and Capps (2003), like Ohtake et al. (2005) also were interested in discovering the link between language (narrative) ability and social skill ability. “As a primary means of cognition and communication, narrative represents not only an important communicative tool but also an essential mechanism for making sense of experiences and relationships” (Losh & Capps, 2003, p. 239).

Losh and Capps stated that their main goal for the study was “to expand current knowledge of the narrative abilities of children with autism and AS by documenting the pattern of strengths and weaknesses exhibited by children across two different contexts” (p. 242). Children with autism are known to experience difficulties in affective language and in nonformulaic storytelling, particularly when the story narrative is about something personal. Losh and Capps postulated that this may be more due to the children's autism and a difficulty understanding theory of mind than it is due to a language deficiency (p. 241).

Participants

Twenty eight children who had been diagnosed with either High-Functioning Autism or with Asperger's Syndrome who had been recruited through 1 of 5 local children's medical centers comprised the clinical group. The control group was

comprised of 22 typically developing children who had been recruited from local schools and after school programs (Losh & Capps, 2003, p. 241-242).

Eight participants in the clinical group met DSM-IV and ICD-10 requirements for autism, the remaining 20 showed autism-like characteristics “but did not manifest clinically significant delays in language, cognitive development, or adaptive skills” so were diagnosed with Asperger's Syndrome “based on current diagnostic specifications” (Losh & Capps, 2003, p. 242). Children were “matched on chronological age and verbal IQ using the WISC-III” and were aged 8 to 14 years (Losh & Capps, 2003, p. 242).

Research Design and Methodology

Two methods of storytelling were used in this study, both storybook narrative and personal narrative. The storybook narrative used a 24 page wordless picture book titled *Frog, Where Are You?* in which a boy searches for his lost frog, and eventually finds it with a mate and a bunch of baby frogs (Losh & Capps, 2003, p. 242). The participating children were asked to look at the book and then provide a narrative for the pictures. Once the children began telling the story, the experimenter limited her contributions to “requests for elaboration and clarification of ambiguous or confusing statements” (Losh & Capps, 2003, p. 242).

The personal narratives were likewise uninterrupted unless the experimenter needed the child to clarify something “when the experimenter was unable to follow the theme of the narrative” (Losh & Capps, 2003, p. 242). Before asking the child the prompt question for the personal narrative, the child was engaged in “semistructured conversational storytelling for approximately 10 minutes” where they were introduced to

the idea that “storytelling is a good way to get to know one another” (Losh & Capps, 2003, p. 242). The child was engaged in a conversation about his or her pets, family or friends, and asked about favorite things to do. “When responses were scriptlike or overly general, children were prompted for specific accounts” such as “Can you tell me about a *specific* time you went on vacation?” (Losh & Capps, 2003, p. 242). As stated, once the interviewer had asked the official prompt question and the child had begun on his or her narrative, the interviewer kept her contributions to the conversation to a minimum.

The storytelling sessions were presented to the children in random order; some told storybook stories first and others gave personal stories first. All sessions were video and audio taped, “stories were transcribed and then coded for narrative complexity and structure” (Losh & Capps, 2003, p. 242). Length was determined by how many clauses, i.e., how many verbs and arguments were present in each story. This was done to remove story length as a variable in the final analysis, though in the end length was not a significant factor as the children's stories were of similar length across groups (Losh & Capps, 2003, p. 245).

Evaluative, grammatical and structural aspects of all narratives were assessed by the experimenters. Evaluative statements were coded as *causal statements*, i.e. “the jar broke because the dog fell”; *emotion and cognition*, i.e. “the boy was sad” or “the boy frowned”; *negatives*, i.e. “the boy didn't know he was holding a deer's antler”; *hedges*, i.e. “he could be there”; *character speech, onomatopoeia, and sound effects*, (self explanatory); *intensifiers and attention getters*, i.e. “he's still looking for the frog” or

“look at that!”; and *subjective remarks* such as “what a beautiful day for a walk through the woods!” (Losh & Capps, 2003, p. 243).

Grammatical complexity was measured by the frequency and range of complex syntax used, defined as “sentences in which the syntactic structures underlying two simple sentences were combined within a single utterance contour” (Losh & Capps, 2003, p. 243). Coordinate clauses, verb complements, adverbial clauses, relative clauses and passive constructions were all considered to be examples of complex syntax.

Language structure was the most complex variable that was recorded by the researchers. Both narrative types used were different enough in structure and format such that “these two tasks called for separate measures of narrative structure for each” (Losh & Capps, 2003, p. 243).

For the personal narratives, the experimenters tallied the total frequency of different narratives given through the course of the conversation, and the topics of these were recorded. Types of prompts used by the experimenter were also recorded and tallied, as were any “off-topic bizarre, or irrelevant remarks” (Losh & Capps, 2003, p. 243).

For the storybook narratives, whether all basic components of the story were included was measured. The setting and the first momentous thing in the story (the frog escaped), the 6 main search episodes and the resolution of the story with the boy having found the frog were recorded using a scoring scale ranging from 0 to 8. The acknowledgment of the searching theme of the story was given a score from 0 to 4 determined by whether the child said the boy was looking for the frog, and if the child also noted the

repetitive theme of the search. As with personal narratives, experimenter prompts, off-topic, bizarre or irrelevant remarks were also all recorded and tallied (Losh & Capps, 2003, p. 243-244).

Findings

Across evaluative criteria (complex syntax, evaluation, and syntactic and evaluative diversity of language,) it was found that though children in the control group had significantly higher scores in their personal narratives, the scores of the children in the clinical group and those of the children in the control group were nearly identical in their storytelling narratives. It is also notable that the overall scores for storytelling narratives were always higher than personal narratives for the children in the clinical group, but always lower than the scores for personal narratives achieved by the control group (Losh & Capps, 2003, p. 245-246).

The length of story was also significantly correlated with the accuracy of identification of emotions felt by characters in the storybook. “With respect to specific types of evaluative devices, the ability to define emotions was correlated with the frequency of mental state language in both the personal and storybook narratives” (Losh & Capps, 2003, p. 247). This suggests also that having and understanding vocabulary for emotive conditions allows context building to occur.

Ultimately, the researchers found that “whereas nonretarded individuals with autism or AS do not experience the same difficulties narrating storybooks as lower-functioning autistic groups, even highly intelligent individuals with autism or AS encounter problems independently producing thematically integrated and elaborated

narratives of personal experience” (Losh & Capps, 2003, p. 248). This means that children with Autism Spectrum Disorders, regardless of intellectual ability, are likely to suffer from some social difficulties because social interactions are unpredictable like conversations about oneself. Storytelling narratives are predictable and thematic, and it is therefore no surprise that, having become familiar with the particular discourse and language of storytelling, that the children from both groups scored similarly in that narrative type. Stories have their own language.

Discussion of Experiences of Children who have Autism Spectrum Disorders: Language Barriers, Processing Language, and the Development of Communicative Language

The Individuals with Disabilities Education Act (IDEA 2004) makes provisions for children being educated within the “Least Restrictive Environment,” (LRE). This means that children with disabilities must be able to influence their environments to the same extent that typically developing children are able to, and if they cannot, they must have accommodations that allow them to influence their environments as much as possible. Language barriers provide significant obstructions to the ability of a child with a communication disability to influence his or her environment, therefore support for the development of language and communication ought to be part of the educational plans for children who exhibit communication difficulties.

So far as socialization goes, there are different reasons that children choose to initiate communication. Either it is because they need or want something, they feel the need to call attention to something, or they wish to engage in social interactions.

Meaden, Halle, Ostrosky and DeStefano (2008) and Ohtake et al. (2005) brought up the important question of how these factors can be controlled in such a way as to encourage more practice in communication breakdowns and repairs. It seems that, somewhat counter-intuitively, the best way to ensure that a child with ASD is a good communicator is to introduce frustrations to communication early in his or her life, and to continue to “force” the child to try different means of making his or her wants and needs known and understood. The children in these studies who did not have adults making those communication breakdowns and requiring the children to repair the breakdowns did not exhibit any communicative growth. While fostering early independence in a child with autism may be desirable for the parents, a balance must be struck, as habits of independence will ensure that no habits of interdependence are learned.

The use of narratives to determine children's communicative ability may prove to be extraordinarily useful in the future. It is clear that “storytelling narrative” is a genre known by most children by the time they reach a certain age if they have been exposed to the idiom. Stories have a certain pattern to them, and it is a pattern learned early on by children who are building their literacy skills. Personal narratives have different and less predictable kinds of patterns. Teaching highly verbal children with ASD how to recognize and create patterns in their personal narratives may vastly improve their interpersonal skills.

Interventions in School or in the Home Without Peer Models:
Social Skills Treatments Within the Classroom

Many researchers choose to observe what kinds of interventions can be successful in classrooms without involving peers as mediators in the interventions. This is undoubtedly due to one of several reasons; the researchers may not want to burden peers with the responsibility of aiding their disabled peers, and they may not want to create focus on the children in the clinical portion of the study for fear that the attention will be negative. There is also the factor of liability; involving classroom peers as participants in a study creates exponential amounts of paperwork and increases the liability of the researchers by quite a bit. There may also be a concern that, because children with ASD tend to be socially isolated, their peers simply may not want to help them.

*Generalization of Autistic Children's Social Behavior Change:
Effects of Developmentally Integrated and Segregated Settings*

Guiding Questions

When this study was written, the debate about whether to include children with disabilities in mainstream public school classrooms still resulted in the decision to keep the classes separate more often than in the decision to integrate (Strain, 1983). Philip Strain (1983) asserted that children with autism and children who are typically developing experience benefits when they are given the opportunity to learn how to interact together (p. 23-24).

Strain (1983) designed this study “to test whether generalized behavior change following social behavior treatment would more likely generalize in developmentally segregated or integrated environments” (p. 24). Children who have autism experience

difficulties and delays with the ability to generalize appropriate social behaviors without assistance and structured modeling. When in separate classes that are designated for children with autism and other developmental delays, the only models that are available are other children who experience difficulties with appropriate social behaviors; there are no typical models for peer socialization.

Participants

Four children participated in this study. All were “autistic-like boys” enrolled in a classroom that served 10 children with severe disabilities. “Steve” was 8 years old and exhibited verbal and cognitive skills typical of a child of 30 months. “He engaged in a wide variety of stereotypic acts, including object twirling, lint picking, and finger flicking” and was capable of speaking in two word sentences (Strain, 1983, p. 24).

“Ted” was 9 years old and showed high capability for self-care. Ted was able to speak in multiple-word sentences and follow 2 to 3 step directions, though his vocalizations were generally “single-word object labelling” (Strain, 1983, p. 24-25). He almost always rocked unless engaged in an activity in which rocking was impossible. Ted had been in autism support classrooms since the age of 4 and had undergone a lot of behavioral intervention therapies prior to this study (Strain, 1983, p. 24-25).

“Joe” was 7 years old and was a recent arrival to the classroom. He did not have any independent self-care abilities, including the ability to self-feed. His typical actions involved “manipulat[ing] mucous and saliva with his fingers while humming to himself” (Strain, 1983, p. 25). Food was used to reward Joe for on-task behavior, as “he had not eaten for 18 hours” (Strain, 1983, p. 25).

“Tom” was 10 years old and was able to perform most self-care tasks at an age-appropriate level. He enjoyed athletics, was able to read at a 1st grade level and to answer reading comprehension questions for material that had been read to him at a 3rd grade level. He had previously been enrolled in 6 different autism treatment programs that had used “[i]ntensive tutorial instruction and the use of contingent physical punishment” to control his autistic-like behaviors (Strain, 1983, p. 25).

None of the participants with autism was known to actively avoid or seek out social interactions with peers, and all were willing to work for social reinforcement from adults that they knew. These children were chosen out of their class of 10 because they showed the most reliable attendance.

A class of 24 typically developing children, 14 boys and 10 girls, provided a group within which the 4 participating children could learn and practice their social generalization skills (Strain, 1983, p. 25). One 7 year old boy whose teacher described as “socially skilled and patient in his interactions with peers”, and who showed himself to be academically successful, was asked to be the intervention/training agent for the 4 boys in the autism group. After the researcher described the role and what would be expected of the boy, he agreed (Strain, 1983, p. 28). The remainder of the children in the class of children with severe disabilities served as an informal control group, though no data were taken from those children.

Research Design and Methodology

Data was taken during 3 times each day that this study took place. Each of those 3 data sets came from a different setting, the first in a 3 x 4 m. playroom with familiar

toys; this was where the peer social initiation treatment sessions took place with only the researcher and one of the 4 children with autism at a time (Strain, 1983, p. 25).

The intervention sessions took place with the aid of the 7 year old “peer confederate” who initiated and participated in “six 20-minute training sessions in which specific social approach behaviors were trained and rehearsed” (Strain, 1983, p. 28). The peer confederate used specific language and actions to reach the target play behaviors required by the intervention, such as “Let's play trucks” for the verbal play organizers, sharing play items, or physical assistance to play a game, such as pulling the child in a wagon (Strain, 1983, p. 28).

The second setting was a large gymnasium with the kinds of toys and play equipment that the children in the typically developing group were familiar with from their recesses. These children were aware that they were participating in a program to help the 4 boys to learn how to interact with other children, and accordingly strove to include the boys in their games and activities (Strain, 1983, p. 25-26).

The third setting was the children's regular classroom with their usual classmates. This involved the children doing what they normally did during their scheduled recess (Strain, 1983, p. 26).

Strain (1983) previously developed a system to observe and measure dyadic interactions. Social initiation behaviors such as “play, organizers, shares, assists, and two general classes of behavior—other vocal-verbal and other motor-general” were used and coded as having occurred as an initiation or a response within an interaction sequence. An action was considered to be a response if the child did that action within 3 seconds of

a initiation action. Additionally, whether the teacher prompted student interactions was noted and coded along with the children's interactions. The children's actions were then coded for which were more likely to gain positive social responses (Strain, 1983, p. 26).

Findings

The author and his assistants collated and analyzed the results to an agreement of more than 80%. There were two aspects of peer behaviors that were assessed in the generalization sessions, “(a) the number of social initiations that peers directed toward the target children; and (b) the percent of social initiations by target children that were responded to positively by peers” (Strain, 1983, p. 29). It was very plain that “without any systematic training or setting modifications the developmentally integrated generalization setting consistently provided each target child with more social bids to play and more responsiveness by peers to social initiations made by the autistic-like boys” (Strain, 1983, p. 29-30). 65% of the target children's interactions were in response to initiations by others, the rest consisted of initiations made by the target children; opportunities not found in their separate classroom (Strain, 1983, p. 30).

Strain (1983) found that the intervention has to happen with the target child in order to have any positive effect; there was not “any evidence that a subject's social behavior was affected by intervention applied to fellow target children” (p. 32). This is supported by later studies that show that proximity to other children alone will not be sufficient to teach children with autism how to interact with those children.

The social integration program was very successful in increasing the positive social behaviors of all of the subject children. The integrated sessions caused the children

with autism to have a “substantial increase in initiations” and positive social interactions, whereas the baseline condition in the separate classroom remained very similar to baseline throughout the study (Strain, 1983, p. 33). This suggests that having access to typically developing children who realize that it is part of their responsibility while playing to include the children with disabilities into their playgroup is the best way to improve the quantity and quality of social interactions experienced by those children who had previously been segregated from their typically developing peers.

Strain (1983) noted that the treatment worked to increase and improve the target children's social interactions almost immediately, and therefore “the peer social initiation intervention *does not qualify as a skill-building procedure*. Rather, the provision of an increased number of social initiations sets the occasion for target subjects to display *existing social skills*” (p. 33, emphasis in the first sentence mine, in the second, the author's). Further, he noted that measuring children's social abilities when they are enrolled in a separate classroom from their typically developing peers is not an accurate way to determine those children's potential for social performance (Strain, 1983, p. 33).

Clearly the need to integrate children of all ability levels into the same classrooms will be of benefit to all of those children. The typically developing children in this study had greater opportunities to interact with people who were different from them, and it is likely that those children also increased their social interaction and empathy skills. Since this study was written, more school districts have begun to place children of all ability levels and with different diagnoses into general education classrooms; this study should still stand as a convincing piece for those that have not yet done so.

*A Social Stories™ Intervention Package for Students with Autism
in Inclusive Classroom Settings*

Guiding Questions

In this study, Chan and O'Reilly (2008) examined “the use of a Social Stories intervention package on the social communication behaviors of 2 students with autism enrolled in full-inclusion kindergarten classrooms” (Chan & O'Reilly, 2008, p. 405). This study sought to prove that full inclusion classrooms can be of benefit to children with autism if they are given the skills to access their peers in a socially acceptable manner. Using social stories, the researchers attempted to help the two children who participated in the study to reach certain target behaviors with the continued goal of the behaviors becoming self-perpetuating.

Participants

Two boys, both diagnosed with autism and both attending a full-inclusion kindergarten, were the foci of this study. “Ted” was 5 years old and of Caucasian American ancestry and “Matt” was 6 years old and of Asian American ancestry. Each child had access to a paraprofessional for some portion of his day. Both children had a sufficient mastery of English to be able to fully utilize the Social Story format (Chan & O'Reilly, 2008, p. 405).

Research Design and Methodology

Both of the participants of this study had target behaviors that were to be addressed by using Social Stories. Matt was to reduce inappropriate social interactions, such as standing too close to people, to use appropriate hand raising, and to reduce inappropriate vocalizations. Ted was to use appropriate hand raising, initiate appropriate

social interactions such as approaching his peers to ask them to play, and also to reduce inappropriate vocalizations. Frequency counts were used to keep data on occurrence of desired as well as undesired behaviors (Chan & O'Reilly, 2008, p. 406).

Baseline behavior patterns were determined during 2, hour-long observation sessions. Introduction and repetition of Social Stories followed a formula following the baseline observation, and occurred 1-4 times per week. The formula for the Social Stories always went the same way each time: first the participant or an assistant read the Social Story out loud. One of the participants occasionally elected to read silently to himself. Second, the instructors asked 3 questions about the story to see if the child comprehended what the story was about, such as "What can I try to do when my teacher asks questions?" If the child was not able to provide an answer, or if he answered with an inappropriate action, the child was asked to read the section of the story that dealt with that question once more. Finally, the child and the instructor did a role play of the situation depicted in the Social Story (Chan & O'Reilly, 2008, p. 406).

After the boys had been participating in the program for a while, the researchers conducted follow-up probes "with Matt at 1, 3, 5, and 10 months after completion of the intervention" and "with Ted at 2 and 7 months" (Chan & O'Reilly, 2008, p. 407).

Findings

It was found that both boys benefited from the implementation of a Social Stories program. Matt showed "(a) an immediate decrease in inappropriate social interaction behavior, (b) a progressive increase in hand raising, and (c) a reduction of his

inappropriate vocalizations” (Chan & O'Reilly, 2008, p. 407). Ted showed “(a) an increase in hand raising to higher and variable levels, and (b) an increase in appropriate social initiations” (Chan & O'Reilly, 2008, p. 407). Ted decreased his inappropriate vocalizations independently and so that intervention was not used. These positive behaviors were reliably maintained over time and into the next school year.

This study is unique in that it addresses the use of Social Stories within inclusive classrooms rather than within separate special needs classrooms or within individuals' homes. This study, while showing that Social Stories can be successfully used with individuals through their case study of two boys, did not show that the same program could be used reliably with other children. A lack of control group and statistically significant clinical group would be required to prove that this method works with other children.

Teaching Children With Autism to Respond to and Initiate Bids for Joint Attention
Guiding Questions

Taylor and Hoch (2008) conducted a 3 child case study to investigate whether children with autism could be taught to respond to and initiate bids for joint attention through the use of novel visual stimuli. They conducted this study to see if “social contingencies alone...can function as reinforcement for joint attention responses in children with autism” (Taylor & Hoch, 2008, p. 378).

The abilities to respond to a person's bid for joint attention or to initiate a bid for joint attention independently are skills that are often notably absent in children who have autism. What is meant by “bids for joint attention” is “coordinated gaze shift between an

object or event in the environment and a familiar person” (Taylor & Hoch, 2008, p. 377).

Inability to use joint attention before 1 year of age is an early indicator of autism (Taylor & Hoch, 2008, p. 377).

Participants

Three children with autism participated in this study. One girl, aged 8 years, and two boys, aged 5 and 3, all of whom “displayed characteristic language and socialization deficits associated with autism” and none had ever “been observed to initiate bids for joint attention” (Taylor & Hoch, 2008, p. 379). None of the 3 children reliably responded to adult bids for joint attention. All children had limited affective language skills, and all attended a school-based program for behavior management for children with autism.

Research Design and Methodology

The researchers used a multiple baseline design with four dependent variables. The research sessions were all conducted within the classroom, using “toys that were novel or potentially visually enticing...or...toys that the participants had seen before but were now arranged in some unusual way so as to be potentially enticing” (Taylor & Hoch, 2008, p. 379).

The 4 variables were “the number of trials in which the participant looked at the target item in response to the instructor's point...the percentage of trials in which the participant commented appropriately about the target item...the percentage of trial sin which the participant looked back at the instructor within 5 s after looking at the item and making the comment...[and] the number of bids for joint attention initiated by the child”

(Taylor & Hoch, 2008, p. 379). In order for the researchers to count an action as a successful joint bid for attention, the child had to “(a) point toward the item, (b) make a directive statement [such as 'wow' or 'look'], and (c) make a comment about the item”, specifically, about the state of the item, such as “it's a mess” (Taylor & Hoch, 2008, p. 379-380).

If the child repeated a bid, or initiated a bid “toward items that the instructor determined were not novel or arranged in some atypical manner” the bid would not count in the final tally (Taylor & Hoch, 2008, p. 380). Additionally, if the child made a bid about something the researcher had already drawn attention to, that bid was not counted.

If the child made a comment that the researcher counted as a successful bid for attention, the researcher responded in kind, for instance, if the child made a comment about a mess, the researcher said “somebody made a big mess” (Taylor & Hoch, 2008, p. 380). If the child commented about something else in the room that the researcher did not find unusual or remarkable, the researcher did not respond to the child.

Each session had 6 potential items about which the child could make a successful bid for attention. Each session consisted of the researcher (instructor) initiating an activity with one of the children, in a room with these 6 items placed in unusual places or ways where the child could easily see them. If the child did not initiate a bid, the researcher initiated a bid using formulaic, single-syllable language every 30 seconds about objects the child had not yet commented about. If the child responded to the researcher's bid for attention, the researcher responded “with an appropriate social response” (Taylor & Hoch, 2008, p. 380-381). During these sessions, the

researcher/instructor also attempted to train the target child to direct eye gaze toward the object that she made comments about by using exaggerated gestures and vocalizations.

If the target child made a comment about something that the adult was not trying to draw attention to, such as “a book on a shelf as opposed to a doll hanging from the ceiling” the child was told, “We see books all the time, it's not necessary to talk about books” (Taylor & Hoch, 2008, p. 382). The child was then directed toward one of the unusual objects and enticed to make a comment about it.

Findings

The researchers found that the children could be trained to initiate a bid for joint attention within 2-13 seconds of being exposed to an unusual item in the presence of an adult. Different means were used for different children; the boys both responded to verbal initiations, but the girl required an index card and a checklist to use that instructed her how to find the objects and make the bids for attention (Taylor & Hoch, 2008, p. 382).

The focus of this study was so specific that it may have missed the point of initiating joint bids for attention, which is that it is a skill that is supposed to advance the conversational and interaction skills of those that use the joint bids. The act of discouraging the children from commenting about books that may or may not have looked out of place to those children, or not responding to comments made by the children that were not approved bids for attention may have harmed the children's ability to converse more than their conversational skills were advanced. The researchers used a lot of out of context items and statements to entice the children to respond, but it may be

that the training was only successful in teaching the children to respond to weird and out of place things, and not to make real social interactions.

Discussion of Interventions in School or in the Home Without Peer Models: Social Skills Treatments Within the Classroom

It is clear from some of these studies that adult-only interventions can help children with ASD to develop social skills, but that the success is limited to adult-only interactions, and in some cases as Taylor and Hoch's (2008) study, success is simply limited.

School based programs that seek to use non-peer-mediated programs to help children with ASD to develop their social skills should be done with the awareness that without peers to interact with, results will be limited. Peer models are able to model behavior that is more likely to be peer-approved, and so any intervention program that is to be successful must balance adult and peer interactions.

Social Stories™ are an example of teacher created behavior modification programs that can be effective without specific peer input, as they use hypothetical peers as models, using a personal narrative-type format. This provides practice with a couple of interactive skills; that of the personal narrative and that of practicing observation of peers' actions and reactions to realistic situations.

Inclusion within regular education classrooms has been proven by Strain (1983) to be beneficial for the children with whom he conducted his study. Since then it has entered into common parlance that inclusion is *probably* better for all students, but that common statement is also frequently followed by a reason given as to why inclusion is

not practical. More work will need to be completed with more children, to show unequivocally that inclusion is more beneficial for all students than being in separate classrooms. Experientially and logically, just as structured programs with peer models are more effective than teacher-mediated single-student interventions, it stands to reason that most children with Autism Spectrum Disorders will benefit from structured inclusion with their typically developing peers.

Interventions in School or in the Home Without Peer Models: Family and Extracurricular Programs

Unlike teacher-mediated interventions, those conducted in the home with parental support can be more effective because of the close relationships that tend to be held between parental figures and their children. Parents or parent-like guardians are adults that children interact with every day, and before they attend school, those adults are their models for what is normal and expected in their lives.

Family provides the anchor in a child's life; what is experienced in the home has a huge impact in what that child know how to do by the time he or she arrives at school, and remains influential as long as the child continues to return home to interact with parents and siblings. Developmentally, most language abilities are formed by the brain mirroring what it has experienced 'hearing' language, (Zull, 2002, p 197-199) which means that when children are developing language, their development mirrors the language they have seen and heard at home. Family interactions provide the bulk of these developmental opportunities before a child is old enough to attend school, and continue to be reinforced when the child is at home.

In a typically developing child, language and communication skills have largely finished developing by the time they are ready for school. For a child with an autism spectrum disorder, language acquisition may still be in process by the time they begin school, but what happens in the home is still the most influential factor in that child's communicative development.

Parental Talk About Internal States to Their Child with Autism

Guiding Questions

Kay-Raining Bird, Cleave, Curia and Dunleavy (2008) described the parental use of internal state (IS) language in this case study involving one 3 year old girl with “history and findings...consistent with a diagnosis of an autism spectrum disorder” (p. 168). The researchers wanted to discover the overall frequency of talk in general, as well as the frequency of IS language, to what extent that IS language is used, whose internal states are reflected in the “child-referenced talk”, to what degree the causes of IS are elaborated, and whether the IS language of mother and father differ, and if so, to what extent (Kay-Raining Bird, Cleave, Curia & Dunleavy, 2008, p. 168).

Participants

One girl, aged 3 years 7 months, and her mother and father, were participants in this study. The girl was the youngest child of three; her two older siblings were typically developing. The parents were both college educated and both worked full time jobs.

The girl, “CD” attended full time preschool, and used limited, single-word vocabulary to communicate vocally, and made other needs and wants known by actions or gestures. She was able to understand single words used in familiar contexts. She was

reported to enjoy manipulative toys such as puzzles, but “did not engage in symbolic or pretend play” (Kay-Raining Bird, Cleave, Curia & Dunleavy, 2008, p. 168).

Research Design and Methodology

All interactions that occurred during the time that CD was at home with her parents before she went to daycare were recorded using an audio device. There were 6 hours 4 minutes total that were not recorded; these occurred during “excursions outside of the home” (Kay-Raining Bird, Cleave, Curia & Dunleavy, 2008, p. 168).

During the time of recording, the mother and father were kept blind to the goals of the study to avoid creating a biased variable toward increased IS talk. Each instance of IS language was coded into 1 of 7 categories: desire, sensory, physiology, emotion, cognition, obligation or judgment. Additionally, each IS statement was coded into who the statement was about, either CD as an individual or part of the family group, i.e., 'you,' or 'we', the speaker [father or mother], or another person (Kay-Raining Bird, Cleave, Curia & Dunleavy, 2008, p. 169-170).

Findings

The total time recorded was 19 hours and 35 minutes. During this time, 3,427 utterances directed at CD by either of her parents were recorded. Of these utterances, 1,015 showed use of IS terms; the mother used 699 and the father used 316. The IS terms used most frequently by either parent were in the sensory category, followed by the desire category, where the word “want” was most frequently used. “Judgment and emotion categories were used with comparable frequency...positive judgments such as 'good girl' constituted almost all of the uses” (Kay-Raining Bird, Cleave, Curia & Dunleavy, 2008,

p. 170). Emotions were generally spoken of in terms of affective behaviors rather than felt emotion, “kiss” versus “love”. The father showed more use of the cognitive category, but this was due to idiomatic use of phrases such as “you know” (Kay-Raining Bird, Cleave, Curia & Dunleavy, 2008, p. 170).

In nearly all instances of IS speech, CD was the subject of the speech; categorized for the study as “the experiencer”. The cognitive IS speech was the exception, “the mother referred as frequently to her own cognitive states as CD's while the father referred twice as often to his cognitive states than his daughter's” (Kay-Raining Bird, Cleave, Curia & Dunleavy, 2008, p. 170-171). Most elaborations given to CD by her parents also involved cognitive terms, as well as obligation terms.

Typically developing children between the ages of 11 and 18 months tend to receive between 56 to 793 utterances per hour from their parental figures. Children from families in a higher socioeconomic position tend to receive utterances on the higher end of that range. Though the IS utterances directed at CD fall within the typical range, they came in within the lower end of the range. “In the current case, both of CD's parents were professionals with high levels of education. Therefore, they would be expected to have high rates of input to their child” (Kay-Raining Bird, Cleave, Curia & Dunleavy, 2008, p. 171). It may be that CD's disability affected the way that her parents addressed her. Kay-Raining Bird, Cleave, Curia and Dunleavy (2008) suggested that this lesser rate may have affected CD's language development, that she may have had more affective language at her disposal if she experienced more internal state language. The authors were careful to say that, “[b]ecause this is a case study, the obtained results should be

viewed as hypothesis generating rather than hypothesis testing” (Kay-Raining Bird, Cleave, Curia & Dunleavy, 2008, p. 174). The results for this case study suggest that some parents with autistic children may not be speaking to their children frequently enough to provide a good vocabulary about internal states; it is further implied that having that vocabulary is a first step in children with autism being able to identify their own internal states.

*Autism Spectrum Symptomatology in Children:
The Impact of Family and Peer Relationships*

Guiding Questions

Kelly, Garnett, Attwood and Peterson (2008) sought to identify the potential impact of family and/or peer conflict and cohesion on the ability of children with an Autism Spectrum Disorder to form peer relationships and interact with others in an appropriate manner. As “[i]nterpersonal relationships have long been thought to be important in both diminishing and increasing psychological and physical health in vulnerable people”, and that “[f]amily and peer interactions may have different effects on the levels of anxiety/depression experienced by children with ASD relative to other groups”, the authors found it important to determine what social difficulties could be mitigated for children with ASD through family and peer interactions (Kelly, Garnett, Attwood & Peterson, 2008, p. 1069-1070).

Negative social interactions have long been a concern for children who belong to socially vulnerable populations. Children with autism tend to have poorer quality friendships when compared to other children, and instances “of bullying [are] four times higher for children with ASD compared to other children” (Kelly, Garnett, Attwood &

Peterson, 2008, p. 1070). Other studies prior to this one have found that children with ASD benefit from peer mediated interventions, but none had come to the authors' attention that addressed the problems of social anxiety as associated with peer relationship problems among children with ASD.

The specific hypotheses that the authors proposed were as follows:

- | | |
|------------------|---|
| Hypothesis 1 | There will be a significant positive relationship between the child's anxiety/depression and ASD symptomatology. |
| Hypothesis 2a/2b | Family conflict/peer victimization will indirectly predict ASD symptomatology via anxiety/depression. |
| Hypothesis 3a/3b | Family cohesion/positive friendships will indirectly negatively predict ASD symptomatology via anxiety/depression. |
| Hypothesis 4 | Given that children with ASD are likely to find family conflict particularly distressing and may have limited capacity to understand and utilize the benefits of friendship, negative peer and family relationships will have a greater effect on anxiety/depression than positive relationships. (Kelly, Garnett, Attwood & Peterson, 2008, p. 1071) |

This study examined family and peer relationships through the lenses of these hypotheses, and a model of relationships and how they may affect the anxiety and depression felt by children with ASD was created. Special attention was given to “peer bullying and rewarding friendships” in regard to how these factors affect adolescents in particular (Kelly, Garnett, Attwood & Peterson, 2008, p. 1071).

Participants

The clinical sample of participants consisted of 322 children and their parents; these families were referred from two different autism clinics. The specific disorders held by the children were “Autistic Disorder ($n=76$), Asperger Disorder ($n=188$),

Pervasive Disorder Not Otherwise Specified ($n=21$), and children with a non-ASD or no diagnosis ($n=37$)” (Kelly, Garnett, Attwood & Peterson, 2008, p. 1069). The children who had no diagnosis of an ASD “had elevations in social cognitive dimensions of the ASASD...relative to a normal control group...but who were not diagnosed as having ASD” (Kelly, Garnett, Attwood & Peterson, 2008, p. 1071).

Research Design and Methodology

Parents/guardians of the children in the study filled out Likert scale questionnaires about the family’s socioeconomic status, family relationships, the peer relationships they thought their children had, and how often the parents/guardians thought their children were involved in bullying or teasing, either as the antagonist or as the target, and a final Likert scale questionnaire about the visible emotional states exhibited by their children (Kelly, Garnett, Attwood & Peterson, 2008, p. 1072-1074).

The relational variables measured by the Likert scales were family relationship variables and peer relationship variables. Conflict and cohesion were specifically measured in the questionnaire of family relationship variables, which included measures of “We fight a lot in our family” and “Family members really help and support one another”. The anxiety and depression Likert scale consisted of a scale five items of emotional measure, such as “many worries, often seems worried,” and “often unhappy, downhearted, or tearful” measured on a scale of 0 to 2 (Kelly, Garnett, Attwood & Peterson, 2008, p. 1073).

Language mastery, incidence of ASD in other members of the participants' families, participants' age and gender were all variables that were taken into account in

this study. Data were compiled by the researchers for each of these variables, garnered from the Likert questionnaires completed by each family (Kelly, Garnett, Attwood & Peterson, 2008, p. 1073).

All of these data were used to test the 4 hypotheses using structural equation modeling. Four models were created to show the complexities of how each variable acted on the others; these models were in line with the 4 hypotheses. Model A showed ASD symptomatology and observable anxiety and depression, Model B added negative family and peer influences to Model A and Model C added positive family and peer influences to Model A. Model D was a comprehensive model that retained all significant paths shown in Models B and C and discarded all non-significant pathways (Kelly, Garnett, Attwood & Peterson, 2008, p. 1074-1075).

Findings

Through the comprehensive model, Kelly, Garnett, Attwood and Peterson (2008) found that family conflict strongly predicted heightened anxiety and bullying levels in the children. They also found that the correlation between a family having one or more children with an ASD also predicted heightened family conflict, possibly due to heightened stresses of having more than one child with an ASD; “the findings suggested that ASD symptomatology is potentially responsive to relatively mild levels of family conflict” (Kelly, Garnett, Attwood & Peterson, 2008, p. 1077). In other words, the more conflict a family shows, the stronger the negative symptoms of autism that show most strongly through anxiety and depression will be.

There were families who had enlisted to participate in the study who did not

complete all questionnaires. It may be that some of the results were skewed because these families had “children who were older and had less traumatic interactions with peers” (Kelly, Garnett, Attwood & Peterson, 2008, p. 1075). However, the findings of the study that show heightened clinical significance of anxiety, depression, and other ASD symptoms in children of families that show conflict at a less than clinically significant level suggest that those children with “less traumatic interactions with peers” may also have experienced greater cohesion in their homes.

This suggests that children in school who have heightened anxiety may have families who are experiencing conflict at home. Strengthening peer support programs while simultaneously providing support systems to the children's families may go a long way toward helping alleviate children's trouble with anxiety and bullying. See the discussion section for more in-depth analyses of these ideas.

*Effectiveness of a Cognitive-Behavioral Treatment on the
Social Behaviors of Children with Asperger Disorder*

Guiding Questions

In this study, Thomeer, Volker and Nida (2006) investigated the efficacy of a summertime cognitive-behavioral treatment program on modifying the social behaviors of children with Asperger's Syndrome. This study's purpose “...was to present preliminary data on the effectiveness of a summer treatment program aimed at enhancing the social behaviors of 6- to 13-year-old children with AD” (Thomeer, Volker & Nida, 2006, p. 238).

Participants

Twenty one boys with Asperger's Syndrome participated in this study. The mean

age of the participants was 10.05 years old. 1 child was 6 years old, 2 were 7 years old, 4 were 8 years old, 3 were 10 years old, 6 were 11 years old, 2 were 12 years old and 3 were 13. All subjects participated in a three stage screening process for diagnosis confirmation.

Research Design and Methodology

This study followed a ROXO pretest/posttest design, and was largely qualitative in nature. Parents completed pretest forms prior to first day of the program, and staff working at the program completed pretest forms on the 8th day of the program, after gaining some familiarity with the children: these were independently scored twice, and then used as baseline.

The treatment lasted for 6 weeks, 5 days a week, 6 hours a day, and data came from the program years 2003 and 2004.

Following the treatment period, the parents and program staff completed the posttest forms, which were independently scored twice. The pretest and posttest data were compared and discussed by the researchers.

Participants were rigorously screened to meet criteria of the program before entering, participants were selected from a volunteer group; all participants that met criteria (cognitive domain, emotional domain, language ability, AS as sole diagnosis) were admitted to the program.

Parents completed pretest forms prior to first day of the program, and staff working at the program completed pretest forms on the 8th day of the program, after gaining some familiarity with the children. The children who were the participants in the

program the first year ($n=4$) received both social skills and behavioral treatment (abbreviated SS+BT). The children who participated during the second year ($n=17$) “age-matched pairs were randomly assigned to one of two treatment conditions” either social skills intervention only (SS) or social skills and behavioral treatment (SS+BT) (Thomeer, Volker & Nida, 2006, p. 239). Data were analyzed to determine the effectiveness of the whole program and whether one form of intervention was more effective than the other. Thomeer, Volker and Nida described the treatment cycles as having:

...consisted of four 70-min treatment cycles with additional time allotted for transitions and lunch. The 70-min treatment cycles included 20-min structured social skills instruction followed by 50-min therapeutic activities. All participants received three identical core treatment components targeting social behaviors, including intensive social skills instruction, face-affect recognition, and interest expansion. With the exception of interest expansion, which was only administered during the therapeutic activities phase, all core components were administered during the 20-min social skills groups and 50-min therapeutic activities. (p. 239-240)

All activities were designed to guide the participants to learn how to interact socially with peers in a reciprocal manner. Therapeutic activities included cooperative games designed to require at least two children to complete the task, facial expression recognition activities, and interest expansion activities. The latter were based on some of the interests held by at least one of the participants, but not necessarily by the others, and were intended to broaden children’s ability to think about subjects that might interest others.

The difference between the two groups was that the SS+BT group received rewards in the form of tokens for “following program rules, following directions, and

demonstrating prosocial behaviors and skills taught in the program. Participants lost tokens for failing to follow program rules and directions and for displaying inappropriate social skills or behaviors...Participants who achieved a pre-set and individualized number of points each day received an edible reinforcer” (Thomeer, Volker & Nida, 2006, p. 241). Points were also used to determine which students would go on the end-of-week field trips, as well. Points needed for each, individualized by participant, increased each week.

Participants who were in the SS group “received...naturalistic feedback [consisting] of spontaneous, broad, and general feedback (e.g., ‘Good job’)...Because no behavioral or social skill contingencies were imposed, all participants in this condition received the end-of-day edible reinforcer, and attended the end-of-week field trip” (Thomeer, Volker & Nida, 2006, p. 241).

Following the treatment, both staff and parents completed a posttest outlining what kinds of behaviors the children exhibited at the end of the time they participated in the program.

Findings

The researchers hypothesized that there would be general improvement of all participants, but the posttest results did not completely concur with this hypothesis: the parents almost unanimously found that their children’s behaviors had improved, and that they were exhibiting fewer “atypical” or unusual behaviors at home following the program. The staff of the program found that there was a general increase of “atypical” and undesirable behaviors among the participants.

The researchers stated several reasons as to why there was not agreement between the two sets of posttests:

1. The staff may have been unfamiliar with “the more subtle idiosyncratic and unusual behaviors...of the children before making their initial ratings”, and parents could “make their ratings on the basis of more extensive and prolonged observations” (Thomeer, Volker and Nida, 2006, p. 243).
2. It is possible that the staff experienced a “honeymoon period” with the children, where they were on their best behavior because they were in a new situation.
3. It is also possible that the changes in environment were responsible for the discrepancies in observed behaviors.

The authors were careful to point out potential limitations to this study: “The three primary limitations include the small sample size, children being rated by those aware of their treatment status, and lack of a nontherapeutic or no-treatment control group” (Thomeer, Volker & Nida, 2006, p. 243). The authors are also careful to point out that these same limitations also represent potential threats to internal validity. Thomeer, Volker and Nida (2006) additionally noted that their “...study begins to address some of the weaknesses noted in the existing research...this study utilized established psychometrically sound measures (something that Attwood [2000] identified as lacking in the current research) and reasonable preliminary analyses” (p. 243).

It would be beneficial to future researchers in this subject to find a larger pool of participants, as well as female participants and children who come from different ethnic backgrounds who also have Asperger’s Syndrome, to see how those different factors play in to the efficacy of the program.

The program itself was designed in a very behaviorist manner, which many think

works best with children with Asperger's Syndrome. The discussion section will address the relative merits of reward and incentive based programs versus those that are simply predictable enough to be effective.

The Impact of Social-Behavioral Learning Strategy Training on the Social Interaction Skills of Four Students with Asperger Syndrome

Guiding Questions

Using a Social-Behavioral intervention previously developed by the author, (Bock, 2000, as cited in Bock, 2007), this study attempted to show the answers to three questions. “First, can children with AS learn thinking strategies that will effectively guide their information processing during social interactions? Second, if so, will children with AS use these thinking strategies to guide their information processing during social interactions? And third, if used, will these strategies facilitate effective problem solving by children with AS when they participate in social interactions?” (Bock, 2007, p. 88).

Bock (2007) hoped to show that social-behavioral learning strategy training could be made easily and effectively with children who have AS, in such a way as to self-perpetuate following the end of the intervention.

Participants

Four children who had been diagnosed with Asperger's Syndrome and who attended public elementary schools in rural communities in the northern plains region of the United States (Bock, 2007, p. 89). All children were from middle income families, and ranged in age from 9 years 3 months to 10 years 6 months when the study began. Three of the children were Caucasian-identified, and 1 identified as being Native American. All participants had IQ scores that “fell within the normal range” and all met

the criteria for Asperger's Syndrome as outlined in the DSM-IV (APA 1994). Prior to this study, all of the participants had undergone a year long training to develop their Theory of Mind; it is important to realize this may have had something to do with the success of the intervention (Bock, 2007, p. 89).

Four typically developing boys from the students' classes were anonymously chosen to act as a control group. Data was taken for these boys at the same times that data was taken for the clinical group. All children in the study had parental approval to participate (Bock, 2007, p. 89).

Research Design and Methodology

The intervention program was titled SODA, which stands for Stop, Observe, Deliberate and Act. This is a mnemonic acronym created to allow the participating child to remember what to do, and in what order. “The first three steps...include three to five self-talk questions or statements to guide information processing. The final step...helps youngsters develop a specific list of things they will say and do when participating in the social activity” (Bock, 2007, p. 88). Scripts for the SODA program were developed for each participant by the researcher and the special educators who usually worked with those students. During the duration of the intervention, data was collected 3 times a day by the researcher or 2 assisting graduate students “during cooperative learning activities in social studies, noon recess, and lunch” (Bock, 2007, p. 89). Following the completion of the program, maintenance probes were conducted once per month for 5 months.

Data was taken at baseline “once per day across all three settings for each of the participants” (Bock, 2007, p. 90). During baseline data acquisition, the only corrective

measures taken for students' behaviors was to ask them to return to their desks to complete assignments alone.

All of the boys who participated in the study had the same 3 replacement behavior goals, which were to “(a) participate in cooperative learning activities for the duration of the activities during fourth- or fifth-grade social studies, (b) play an organized sport game (e.g., kick-ball) for the duration of noon recess, and (c) visit with one or more peers while eating lunch for the duration of lunch period” (Bock, 2007, p. 90).

Prior to each of these time periods during the school day, the students each had a SODA story intervention that gave a close-to-real situation written in the first person with leading questions and statements allowing the student to know what appropriate actions could be taken, and how certain actions would make certain people act or feel. Students would practice using SODA when reading these stories, and were encouraged to use SODA when they didn't know what to do or felt confused by what was going on (Bock, 2007, p. 90-92).

One month following the program, interviews were taken with each of the 4 boys, as well as their special education teachers “to evaluate the social validity or overall usefulness of the program” (Bock, 2007, p. 92). Student questions had to do with what SODA taught them to do, what actions they took when following SODA, when and how they used SODA, and what opinions they had about the program.

Educator questions had to do with how effective they found the program to be for their students, and how they could tell that it was effective or not, whether they would use the program again, and their general opinion of the program (Bock, 2007, p. 92). Data

from the collection periods during baseline, intervention and maintenance were collated and entered into graphical format.

Findings

All participants in the clinical group showed drastic improvement in cooperative learning and social interaction skills during and following the intervention as compared with their own baseline behaviors. Children in the control group showed high percentages of cooperative behavior most of the time, ranging from 74%-100% of the time depending on the peer and the activity.

“Bob” began the program with baseline cooperative and social behaviors ranging from 0-<10% of the time observed. During the intervention period his cooperative and social behaviors showed a gain of 58.00% from baseline, and were maintained during the 5 months following SODA training, showing 77.80%, 84.80% and 49.00% for cooperative learning, noon recess, and lunchtime, respectively (Bock, 2007, p. 92). “Joe” began the program with baseline cooperative and social behaviors ranging from <10%->20%, and he showed a gain of 52.58% overall in those behaviors from baseline following the start of the program. In the 5 months following the intervention, he showed 76.00% for cooperative learning, 81.80% for noon recess, and 49.20% for lunchtime conditions (Bock, 2007, p. 92-93). “Alex” showed a baseline of <5%-<20% range of time spent engaged in cooperative and social behaviors. During the intervention, he showed an overall gain of 47.67%, with maintenance levels in the following 5 months held at 68.00% for cooperative learning, 88.60% for recess, and 48.40% for lunchtime conditions (Bock, 2007, p. 93). “Craig” showed a baseline ranging from <15%-<25% in

time spent engaged in cooperative and social behaviors. Immediately following intervention he had an overall gain of 55.00% from baseline. Maintenance behaviors were shown to be 78.80% in cooperative learning, 84.40% in noon recess, and 66.60% for lunchtime socialization behaviors (Bock, 2007, p. 94).

In the followup interview, all children indicated that they continued to use SODA as they had been taught “because it helped them make sense of what their peers did during social studies group, at noon recess, and at lunch” (Bock, 2007, p. 94). Additionally, “Bob” reported that he also used SODA in his other classes in order to help him make sense of what was expected of him by his teachers and peers. The special educators who were involved with helping to implement this intervention reported that SODA was a “highly effective intervention for their student with AS” and that they were highly interested in continuing to use the program with these and other students (Bock, 2007, p. 94).

It should be remembered that this intervention was implemented for these students following a year-long intervention that taught them how to use a Theory of Mind model of “mind-reading” (Howlin et al., 1999 as cited in Bock, 2007, p. 94). Bock (2007) suggested that the programs together were likely to be more effective than the programs conducted one without the other, and suggested further studies to determine the levels of efficacy that could be achieved with single vs. dual interventions (Bock, 2007, p. 94-95). Though the results obtained from this study cannot be generalized to other students due to the small sample size, the efficacy and efficiency of results produced for these students is impressive, and may bear repeating.

Discussion of Interventions in School or in the Home Without Peer Models:
Family and Extracurricular Programs

Kelly, Garnett, Attwood and Peterson (2008) found that if a child's home life is unpredictable or full of conflict, that child will experience greater challenges outside of the home that may at first appear to be unrelated to his or her family. If a teacher notices a child experiencing experiencing extremely traumatic interactions with peers, it may be due in part to the stresses experienced at home. If the child is experiencing abnormally high anxiety when faced with social demands or changes at school, and heightened anxiety due to conflict or other stressors within the home, then no matter what interventions are done to help the child's social skills progress, that child will still struggle.

If that hypothetical child also has limited affective language for talking about his or her feelings, there will be little to no way to determine what stressors in their life can be changed in order to alleviate that anxiety in order to make socialization easier. Interventions will need to focus primarily on helping that child develop affective and expressive language.

Kay-Raining Bird, Cleave, Curia and Dunleavy (2008) showed that affective language skills are very important for effective communication, but they did not show how children acquire those affective language skills. More studies are needed about how language development is tied to theory of mind (Kay-Raining Bird, Cleave, Curia & Dunleavy, 2008, p. 174) if affective language is to be something that can be modified to help children to learn better socialization skills.

If parental interactions can be teamed with peer modeling programs, it is possible

that children with ASD will experience much greater success overall. Additional variables will always need to be addressed in combining programs, but it also seems clear that one alone will not be sufficient for complete socialization to take place.

Interventions That Involve Peers: Studies of Social Integration

The first step in developing a supportive peer network is understanding the social networks that exist within the overlapping environments of school and classroom. Children and adolescents with ASD often feel excluded or awkward around same-age peers, and are frequently cast as low-status children (Cohen, 1994) within the classroom and may select friendships with other lower status children who are at risk for “problem behaviors” (Pearl, et al., 1998) simply because those are the children who are 'left' who are willing to allow someone with marked social awkwardness into their peer group. This is not always the case, as Chamberlain, Kasari and Rotheram-Fuller found in their (2006) study one child with autism had a “'nuclear' social network centrality” among the other children in her class. This girl's situation in and of itself might constitute a distinct form of social intervention (p. 237). A common thread throughout all of the studies that explored peer interactions was that students can be told to interact and communicate with their peers who have autism, but “a better plan [is] to develop the desire among their peers to communicate” with them (Cooper, Griffith & Filer, 1999, p. 112).

Given the difficulties in social interactions faced by children with ASD, it makes sense to try to enlist and train their peers in ways that will not only support the children with autism but will also enhance the peer groups of the other students in the schools.

*Cognitive-Behavioral Group Treatment for Anxiety Symptoms in
Children With High-Functioning Autism Spectrum Disorders*

Guiding Questions

This research article was written as a report of how successful a pilot program in Cognitive-Behavioral Group Treatment proved to be with older adolescents and young adults (Reaven, Blakeley-Smith, Nichols, Dasari, Flanigan, & Hepburn, et al., 2009). This intervention program was intended to help individuals with ASD to who had missed the opportunity to learn how to build social interaction skills when they were younger. It has become clear in the scientific and research communities that children with autism benefit from the earliest possible interventions in order to learn social skills that appear to be more fluent and natural. With this in mind, the researchers developed a program that was intended to create a supportive situation within a group of peers. The researchers' goal was to determine whether this program would alleviate social anxieties, and to additionally determine if such a support group would create a friendship group that the participants would have continued access to after the program was complete (Reaven et al., 2009, p. 27, 32).

Children with Asperger's Syndrome and HFA are at much greater risk for having high anxiety symptoms than are other children of the same ages and demographics (Bellini, 2004 & 2006). Anxiety can interfere with the ability to be socially active to a significant degree, and in a population that already shows social deficits, this is a real issue. The ability to overcome anxiety may make socialization easier for children with AS and HFA (Reaven, et al., 2009, p. 27-28).

Participants

All of the participants in this study were diagnosed with an Autism Spectrum Disorder, and all exhibited significant anxiety symptoms. These symptoms were “(a) parent report of clinically significant symptoms of social phobia, separation anxiety, or generalized anxiety...or (b) exceeding the subscale cutoffs on the Screen for Child Anxiety and Related Emotional Disorders” (Reaven, et al., 2009, p. 29).

The children were between the ages of 7 and 14 years, with a mean age of 11 years. All had a general IQ above 70, and all had the “spontaneous, functional verbal language of the complexity required to complete Module III of the [Autism Diagnostic Observation Schedule]” (Reaven, et al., 2009, p. 29).

Ninety families agreed to participate in this study, of those families, 56 met all criteria for participation. Twenty three of the 56 qualified families were also eliminated from the study for a number of disqualifying reasons, such as behavioral difficulties or participating in a different program. Thirty three children and their parents fully qualified to be part of this study; these families were asked to keep all other interventions for their children, i.e. medications or therapy, as they were at the beginning of the program, to avoid having changes in variables partway through the study (Reaven, et al., 2009, p. 29).

Of the participating families, the first 10 to complete the baseline anxiety assessments were entered into the treatment program; the remaining families were placed on a 3 month long wait list, and were used as a control group during the time that they were not undergoing treatment. Treatment groups did not exceed 5 children each (Reaven, et al., 2009, p. 29).

It would not have been practical for some of the children to cease medication schedules, so there was a significant percent of the children in the study who were on one or more types of medication to help alleviate anxiety symptoms. Nine children were taking one medication, 6 were taking 2 medications, 2 were taking 3 medications, and 5 were taking 5 medications. Ten of the 33 children were also on restricted diets (Reaven, et al., 2009, p. 29).

Research Design and Methodology

Prior to beginning the program, two to three 2-hour long sessions were held where participating families completed a number of baseline assessments, including the Autism Diagnostic Observation Schedule (ADOS), the Social Communication Questionnaire, the Wechsler Abbreviated Scales of Intelligence (WASI), the Schedule for Affective Disorders and Schizophrenia for School-Age Children—Present and Lifetime version (K-SADS-PL), and the Screen for Child Anxiety and Related Emotional Disorders (SCARED) (Reaven, et al., 2009, p. 30-31). The SCARED was also administered to families that completed the program, creating a pretest-posttest design of research.

Each group of children participated in 12 weekly sessions that each lasted approximately 1 ½ hours. Each group was roughly grouped by age, in order to have children with developmental similarities working together (Reaven, et al., 2009, p. 31). Groups were kept to a strictly paced schedule, and children were given reinforcements when they exhibited in-group behaviors (Reaven, et al., 2009, p. 32).

The families were provided with manuals to use when in the groups and when at home. These were developed specifically for this study, and were written for parents, for

children, and for group facilitators (Reaven, et al., 2009, p. 31). Fidelity to the treatment was double-checked using videotape that was reviewed by the researchers, and was maintained at 85% accuracy across-treatment (Reaven, et al., 2009, p. 32).

Findings

Anxiety can prevent children from voluntarily entering into social interactions; fear of failure is only one factor to consider. Person-to-person interactions can cause anxiety because of shyness, misplaced worries, et cetera, and these become all too real issues for the anxious person to deal with. It can also be difficult for other people to judge the level of anxiety felt by an individual even if that individual is well known. In this study, “parents reported significant decreases in anxiety symptoms in their children following participation in the manualized cognitive-behavior group therapy intervention” (Reaven, et al., 2009, p. 33). However, the self-report from the children who participated in the study shows that, either there was no significant effect on decreased anxiety symptoms, or, in some cases, there was a slight increase in anxiety symptoms (Reaven, et al., 2009, p. 32-33). Reaven, et al. (2009) elected to use the parent report as proof that their intervention was effective, without considering the children's self-report as valid. As “[a]pproximately 25% of participating children reported an increase in anxiety symptoms after treatment”, it is possible, as Reaven, et al. (2009) surmised, that the children “underreported their symptoms of anxiety at pretreatment” (p. 34-35). It is equally possible that the children were accurately reporting their anxiety symptoms before and after treatment, and caution in surmising one way or another should be used.

It was additionally noted by the researchers that the small group size and lack of

control group were significant drawbacks to the validity of this study (Reaven, et al., 2009, p. 34). If this program is to be utilized to positive effect, more research will be necessary to determine whether it is in fact beneficial, or whether more alterations to the program will be necessary to create something that is reliable for reducing symptoms of anxiety to the degree that children will be more free to engage in social interactions.

The Influence of Gender Patterns and Grade Level on Friendship Expectations of Middle School Students Toward Peers with Severe Disabilities

Guiding Questions

In this study, Kyoung Gun Han and Janis G. Chadsey (2004) sought to find how gender and grade level are implicated in friendship expectations of middle school students in regard to their peers who have severe disabilities. The implications of this study are wider reaching than children who have autism, but the overarching question regarding children with severe disabilities is inclusive of children with autism. This study's findings will therefore be relevant to intervention strategies done with children who have Autism Spectrum Disorders. The authors worked under two assumptions: "For students with disabilities, it is now widely affirmed that friendships are considered important for a high quality of life" and "[a]s children become young adolescents, friendships with peers become increasingly important because peers offer necessary models and back-up supports formerly provided by family members" (Gun Han & Chadsey, 2004, p. 205). The authors realized that appropriate and functional peer relationships are not necessarily reliably accessible to children and young adolescents with severe disabilities, but that such relationships do exist. The assumption has long been "that girls develop more intimate friendships than boys" and that friendship

expectations will change qualitatively as children progress into young adulthood (Gun Han & Chadsey, 2004, p. 206).

Participants

Two different schools, one middle school and one junior high school, from “two small Midwestern communities” were chosen to be a part of this study. The junior high school had 680 students, and was in a middle class urban area; 9% of the students at this school were identified as having some form of disability, with 10% of those students having been classified as having a severe disability. The middle school had 682 students, and was in a “middle- to upper-middle-class suburban area” 18% of the students at the middle school were identified as having some form of disability, with 7% of those students having been classified as having a severe disability. Students from grades 6-8 were selected at random from classrooms whose teachers had volunteered to participate in the study. In each school, each grade was represented through three classrooms, and students from those classrooms were ultimately the participants in the study. “A total of 137 students from six classes (i.e., one from each grade and three classes from each school) [sic] were asked to fill out the MSF, and 65 students did so, yielding a 47% response rate” (Gun Han & Chadsey, 2004, p. 206). The ethnic makeup of the respondents was 90% European American, 4.5% African American and 3% Hispanic. 43% were boys and 57% were girls, and of the total respondents, 26% had at least one family member with a disability and 14% reported having friends with severe disabilities (Gun Han & Chadsey, 2004, p. 207).

Research Design and Methodology

Using the Middle School Friendship Survey (MSF), the researchers explored “the factors of gender and grade level differences in friendship expectations” (Gun Han & Chadsey, 2004, p. 206). The MSF is a 6-page, 5-section survey, created by the researchers and based on “a review of published research on friendships in children and young adolescents...and the perceptions and attitudes of students without disabilities about their peers with severe disabilities” (Gun Han & Chadsey, 2004, p. 207).

The 5 sections of the MSF are as follows; 1: demographic information, 2: friendship activities with friends without disabilities, 3: friendship activities with friends who have severe disabilities, 4: perceptions about friendships with peers who have severe disabilities, and 5: friendship expectations for peers with severe disabilities (Gun Han & Chadsey, 2004, p. 207). This test was piloted first with a fifth-grade student and then with 4 eighth-grade students to ensure that it would be understandable to the target age and developmental groups that were to be surveyed. The 5th section of the test was the primary dependent variable for this study, and consisted of 32 items in 3 groups such as “Individual Characteristics, Shared Activities, and Relational Characteristics” all with subcategories that described qualitative friendship characteristics that were rated by importance on a Likert scale of 1-6. Students who participated in the survey were rewarded with a small gift such as a pen or gift certificate to a bookstore (Gun Han & Chadsey, 2004, p. 207).

Data were cross-checked using SPSS 10.0 for Windows and a doctoral student in special education. The data for parts 1-4 “were analyzed only descriptively according to

gender pattern and grade level because the questions were open-ended and the main dependable variable was Part V” (Gun Han & Chadsey, 2004, p. 208).

Findings

The authors found that the activities done by students with peers who did not have disabilities versus activities done by students with peers who did have severe disabilities were drastically different, as well as quantitatively different across gender but more so across grade. In regard to activities done with peers who do not have disabilities, “[m]ore than 70% of the boys across all grade levels indicated that they participated in sports at school...Girls also mentioned [different] sports as their number-one in-school activity...Talking with others at school and playing games were also mentioned as frequently occurring activities by boys and girls” (Gun Han & Chadsey, 2004, p. 208). After school activities with non-disabled peers also included sports (among both genders) with girls additionally having listed that they “talked on the phone, shopped, visited with friends and were involved in clubs” and boys additionally saying that “they played with video games and computers” (Gun Han & Chadsey, 2004, p. 208). When asked to report about interactions with peers who have severe disabilities, 14% said they did have friends with severe disabilities; of these 9 respondents, 6 were girls. Four were in 6th grade, 5 were in 8th grade, and none were in 7th grade. Most of these students reported having met their friends with disabilities in their classes at school, or at church, with a lesser amount reporting that they'd met their disabled friends through non-disabled friends. In contrast to the more active pastimes done with non-disabled peers, the most frequently reported activity done with severely disabled peers was talking.

Most students interviewed indicated that they would be willing to befriend peers with severe disabilities regardless of the gender of the interviewee. A smaller portion of those interviewed indicated that they would prefer that their hypothetical friend with severe disabilities be of the same gender. Two students said that they did not want to have friends who have severe disabilities (Gun Han & Chadsey, 2004, p. 209).

Reasons given by respondents to the survey for not having friends with severe disabilities make it abundantly clear that all students need to have training about how to interact with students who have disabilities, and that all classes need to be much more inclusive than they are currently. These reasons were fairly consistent across gender, and were most frequently “They are not in my classes...They are always with teaching assistants...I don't know any...I feel uncomfortable around them...I would not know what to say.” Three reasons that were more frequently given by boys than girls were “They could not do things I like to do” “My friends might tease me” and “I am a little afraid of them” (Gun Han & Chadsey, 2004, p. 210).

Friendship characteristics were also fairly consistent across gender, with girls emphasizing relationship characteristics such as intimacy, support, loyalty and peer pressure slightly more than did the boys (Gun Han & Chadsey, 2004, p. 210). The researchers found that the large difference in emphasis on friendship characteristics happened across grade. Students in grade 6 were more likely to put more importance on similarity of individual characteristics and shared after school activities than were the two older grades. Likewise, students from grade 6 placed more importance on appearance than did the older students. Students from grade 7 placed more importance on intimacy

and support than did the other two grades (Gun Han & Chadsey, 2004, p. 201-211). This indicates an evolving idea of what friendship means as students mature and progress through the years of early adolescence.

As one of the frequent reasons for not befriending students with severe disabilities was that they were too frequently closely attended by support staff, it may be important to attempt to provide times that students can interact without the close interference of adults. Gun Han and Chadsey (2004) cited a study by Giangreco, et al., (1997) that said “when paraeducators work too closely with students with disabilities, it does not allow typical students and students with disabilities to have natural opportunities to interact with each other” (p. 212).

There are several marked limitations of this study. First, the size of the eventual sample population was quite small; this research should have included all of the classes in the schools chosen, and would have improved with the addition of several more school populations to the pool of respondents. In addition to this limitation is the possibility that “respondents may have had a positive response bias and provided socially acceptable answers” (Gun Han & Chadsey, 2004, p. 213). Students taking the survey may simply have provided answers that did not make them feel like they were 'bad' people.

In spite of the limitations, this study shows that there are several areas in which the development of friendships between typically developing students and students with disabilities can be improved. The students in this study indicated that they would like to have friendships with their peers with disabilities, but seemed unsure about how to make that happen, or felt put off by the too-close presence of adult paraeducators. The qualities

and roles of friendship changed by age of student, so that should be kept in mind when developing programs to help children build interpersonal relationships with their peers. “[T]he designers of friendship programs need to be aware of the social networks that exist among typical students” (Gun Han & Chadsey, 2004, p. 213); the designers of friendship programs must be able to build on the kinds of social networks that are known to exist among typically developing students and incorporate those structures into programs that enlist the help of those typically developing students. As we begin to see, peer involvement in social integration programs is essential, possibly even more important than adult interventions.

*Involvement or Isolation: The Social Networks of Children with
Autism in Regular Classrooms*

Guiding Questions

Chamberlain, Kasari and Rotheram-Fuller (2006) wrote about children's perceptions of friendships and social group interactions. They were most interested in understanding how children with High Functioning Autism and Asperger's Syndrome experience loneliness within classroom settings. The authors utilized guiding questions such as “[w]hat is the nature of the social structure into which the child is being included? What peer relationships are available, and how will participation influence the child's status in the classroom?” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 230). This study was conducted due to the concern that inclusion of children with autism into regular classrooms is frequently done without the types of support that might be needed to avoid the high incidence of rejection and isolation reported by teachers and parents of children with autism in an inclusive classroom.

Participants

The researchers surveyed a group of 2nd-5th grade students, 398 total, (196 boys) and of this sampling, 17 children (14 boys) had Asperger's Syndrome (AS) or high-functioning autism (HFA). The children with AS or HFA were randomly matched with children of the same age and gender to be used as the control group. All participating children were enrolled in regular general education classrooms for the majority of their school day, with the children in the clinical group “receiving designated services such as speech and language or occupational therapy on a 'pull-out' basis or integrated into their classroom activities” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 232). These participants were from seven different schools in two school districts. “Upon completion of consent forms, parents of the children with ASD provided demographic information via a brief questionnaire....Separate consent forms were sent to the parents of all classroom peers, describing the research as a study of 'friendships in school’” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 232). No mention was made of children with disabilities in the latter consent form, both as a way to protect confidentiality and as a way to avoid bias.

Research Design and Methodology

All of the children in the study were given surveys during a 45-60 minute portion of their classes “during which one researcher read aloud to the students a written questionnaire containing...social network, acceptance, loneliness, and friendship quality measures...while another researcher circulated around the classroom, providing assistance to any children who needed it” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 232).

The survey consisted of a 9 page questionnaire that included social network questions and a measure of loneliness and friendship qualities. Participants were asked to rate their friends in three categories: “Buddies”, in which the participants were asked to list all of their classmates that “they 'like to hang out with””; “Top 3”, in which participants were asked to name their three closest friends; and finally “Best Friend”, in which participants were asked to name their one best friend in the class (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 233).

Reciprocity was determined among “Top 3” categorizations by dividing the number of nominations possible by the number of nominations received. “Best Friend” reciprocity was determined by “whether or not the person whom the subject nominated as 'Best Friend' also nominated the subject as 'Best Friend' reciprocally” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 233). The social networks were then analyzed as follows: “participants were asked to list all the names of children in their class who hang out together; they were also reminded to include groups of the opposite sex, and to include themselves if they hang out with a group” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 233). This data was compiled to determine participants' “Social Network Centrality” by creating social network maps based on the whole class' responses (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 237-238).

In addition to the social network survey, participating children were asked to complete the Asher Loneliness Scale, which “consists of 24 statements such as 'I feel left out of things at school', or 'I get along with my classmates”” which was self-assessed using a 1-5 Likert scale ranging from “never” to “always”. 16 actual items were

interspersed with 8 “distracter” items; surveys were scored by the research investigators (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 234).

Additional information was gathered by surveys given to the parents of children with autism regarding parents' perceptions of their children's social interactions and loneliness, as well as informal observations conducted by the researchers at the beginning of the study.

Findings

In general, the researchers found that the “Top 3” and “Best Friend” friendship reciprocity reports became less reliable as the sample or participants got older, but that social network groups became more reliable among “same-matched peers” in the groups of older students. The reciprocity among social networks was also much less reliable among all of the participating children who had an ASD, for instance, “[c]hildren with autism nominated significantly more peers as buddies they 'like to hang out with'...than nominated them” whereas with matched peers “this comparison was not significant” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 236).

Overall, the researchers found that “the children with ASD tended to be less centrally involved in the social structure of the classroom” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 235). In comparison to age-matched peers, who scored as follows: 6% peripheral, 47% secondary and 47% nuclear, 35% of the children with autism scored as peripheral, 47% as secondary and 18% as nuclear in regard to positions of centrality in peer relationships. Despite this, “children with ASD did not report any

greater loneliness than the matched peers group” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 236).

Parent reports showed that some of the (male) peers of the children with ASD take advantage of the social awkwardness by being “competitive” and cruel, “such as when one group of boys gave a boy with autism a nickel to lick the toilets” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 235). Parents reported that girls are more likely than boys to befriend a child with autism; they were described by some parents as being more “socially mature” and “helpful” than their male peers. The authors noted that “boys still tend to be drawn together by common, gender-related interests, such as video games and card-based battle games” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 235).

Parent involvement was beneficial for one girl who participated in the study, enough so that the authors took special note of the fact. The parents of this particular girl were proactive in their involvement with the school, the girl's teacher, therapist, and other parents. They also developed a number of social scripts for their daughter which they rehearsed at home, and the program of inclusion was successful enough that this girl was granted nuclear centrality on the network survey by the other girls in her class (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 237-238).

This girl's success was in direct contrast to another child. As reported by Chamberlain, Kasari and Rotheram-Fuller (2006), one boy with autism, who participated in their study, was essentially a social isolate though he did not see himself as such. The authors observed him playing a game of “Corners” with his class, and observed not only his current inability to 'lose' but also the way that the other students monitored the way

that he interacted with them during the game. They allowed him to play even though he had been called out until it became clear that he needed to sit out so that the actual winners of the game could complete the game, he was then required by his peers to sit out. “The supportiveness of the boy's peers was clear; they had to draw a fine line between accommodating his differences and setting limits” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 239).

The researchers seemed initially surprised at the data they received from the children with autism, in that they seemed satisfied with their social arrangements rather than lonely or isolated, even though it was clear that they were not, in general, central to the social groupings in the classroom. The researchers found it unlikely that the children with autism would deliberately falsify their reports of loneliness, and therefore *likely* that the children were in fact satisfied with their limited social interactions. In light of how some of the other children treated some of the participants with autism, though, it seems just as likely that the children had a skewed perception of how well they fit into the social schemata of the classroom. “The notion that children with autism may experience a degree of happy obliviousness regarding their social status is supported by several features of this study” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 240). There was no reported statistical correlation between loneliness and degree of social network involvement; leaving the authors to surmise that “typical children realize whether they are left out of the social groupings, and report greater loneliness if they are, whereas the autistic children show less sensitivity to their own lack of involvement” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 240). It is at this point that children with autism may

need the most assistance in recognizing social cues and indications that typically developing children pick up on as a matter of course.

The researchers attempted to avoid negative confirmation bias toward peers by using positive data gathering strategies. It was noted that in the past, other studies of a similar nature using rating systems of “liking, disliking and neutrality” raised ethical concerns about “whether such ratings may reinforce negative judgments toward peers” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 233). The authors were careful to avoid that kind of negative reinforcement by only using positive nominations, assuming that the lists that the children generated would form a complete enough picture of the social networks in the classroom once they had been corroborated with other student lists.

A minor oversight by the researchers in this study was that they did not take into account any social networks outside of the single classroom. It is possible that some of the children who appeared to be social isolates may have had friendship connections with children in other classrooms or from other social situations such as church (Gun Han & Chadsey, 2004, p. 209), autism support groups or other extracurricular activities.

Though none of the children in the study were complete social isolates, they may not be a complete representation of all children with autism. Some parents chose to withhold their children from the study “because they felt the subject of friendships was too painful for their children to address” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 240). The authors recognized that this created a weakness in their study, that the children with autism who did end up participating “may have been highly motivated to demonstrate positive results” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 240).

The authors noted that future study will be needed to fully understand the phenomena of social interactions among children with Asperger's Syndrome and High Functioning Autism.

The Social Integration of Students with Mild Disabilities in General Education Classrooms: Peer Group Membership and Peer-Assessed Behavior

Guiding Questions

Pearl, Farmer, Van Acker, Rodkin, Bost, Coe, and Henley (1998) wrote about perceptions between children with mild disabilities and their peers while in an elementary school setting. Though this study did not specifically address Autism Spectrum Disorders, it held relevant information regarding how children in general education classrooms viewed and interacted with their peers with *any* mild disability, ASD included. The authors stated 4 guiding questions: “(1) Do classmates perceive students with mild disabilities as being members of peer groups? (2) How do peers perceive the behavior of students with mild disabilities? (3) Is the peer-assessed social behavior of students with mild disabilities who are isolated different from the peer-assessed behavior of students with mild disabilities who are in peer groups? (4) What are the characteristics of the peer groups of students with disabilities who are not isolated?” (Pearl, et al., 1998, p. 170). Within these questions is the assumption that students with mild disabilities will not be welcomed into peer groups, or that they may form their own peer groups separate from the other students. The authors also indicated their initial concerns that “many students with disabilities have problematic social behavior and are not well accepted by their classmates in mainstream settings” (Pearl, et al., 1998, p. 167). Concern was expressed about the kinds of group affiliations that rejected children might form around

the identity of being rejected by their “prosocial” peers. (Pearl, et al., 1998, p. 169).

Participants

1,538 students in grades 4-6, from 59 elementary schools participated in the survey, 198 of these students were diagnosed with mild disabilities and were included in general education classrooms. Forty nine percent of children in the sample were female, 59% of the children in the sample lived in Chicago, 41% of the children in the sample lived in North Carolina. Of the whole sample set, 49% were white, 44% African American and 7% Hispanic. Of all students in the sample, 83% were in general education, 13% were diagnosed with mild disabilities, and 4% were classified as gifted students (all but two of these last were in the North Carolina district).

The researchers chose to use an all-encompassing category of “mild disabilities” because they found that the peer group interactions were similar across sub-group between the children who had those disabilities and the other children in the general education classrooms (Pearl, et al., 1998, p. 170). They stated that, “[a] single mild disabilities category protected against inaccurate comparisons across disability areas” and that their “aim in this study was not to identify characteristics associated with specific disabilities” (Pearl, et al., 1998, p. 170). Therefore, all “mild disabilities” were placed within the same realm whether identified as learning disabilities, Autism Spectrum Disorders or other developmental disabilities. The purposes of this study precluded specific designation by disability; rather, the focus was on how peer perceptions of disability influenced peer groups and interactions.

Research Design and Methodology

This was a quantitative study of randomly assigned groups using a multimethod survey design. Although several “self-, teacher-, and peer-report measures [were used] in data collection” the researchers focused entirely on peer reports, as their emphasis of study was on student perceptions of social structures and interactions, not teacher observations (Pearl, et al., 1998, p. 172). The use of whole-school samples across schools in different cities created a satisfactorily random sample; the initial “data were collected with a group-administered questionnaire in the middle to late fall” (Pearl, et al., 1998, p. 172).

This questionnaire included questions that were designed to give data to the researchers to build “Social Cognitive Maps,” such as “[a]re there some kids in your classroom who hang around together a lot? Who are they?” (Pearl, et al., 1998, p.172). For this portion of the questionnaire, students were asked to list as many social groups they could think of, and as many students as they could think of who were in those groups. The researchers took this information and created charts to see if the students' reporting was internally accurate. They found “high consistency among students in their reports of group membership...and relatively high behavioral homogeneity among members of the same peer group” meaning that students reported their peer groups accurately according to the other students involved in the survey process (Pearl, et al., 1998, p. 173).

Following the initial survey, students were then asked to complete another survey addressing the behaviors of their peers. There were ten items on this behavioral

assessment: “Cooperative...Disruptive...Acts shy...Starts fights...Seeks help...Leader...Athletic...Gets in trouble...Good student...[and] Cool” (Pearl, et al., 1998, p. 173).

Students were instructed to “nominate three peers who best fit descriptors” for the aforementioned items: they could nominate themselves, and they could nominate one person for more than one category (Pearl, et al., 1998, p. 173).

Findings

The researchers found through assessment of the student surveys that not all children with mild disabilities were social isolates, but that the children who did have mild disabilities “were overrepresented as isolated and as members of antisocial groups, and they were underrepresented as members of prosocial groups” (Pearl, et al., 1998, p. 179). The authors expressed concern in their findings that this trend of isolation or membership of antisocial groups among children who have mild disabilities is an indication that those children are more vulnerable to “associating with deviant peers” (Pearl, et al., 1998, p. 180). The researchers expressed real concern about children who fall into the categories covered by the blanket term “mild disabilities” as being more vulnerable to such things as gang activity, drug usage, and exposure and possible participation in petty crime than their peers without disabilities (Pearl, et al., 1998, p. 181).

The authors provided some suggestions for support for the students who might be at risk for developing unhealthy peer relationships; among these suggestions are social skills training for the students with mild disabilities, encouragement to associate with peers “who show prosocial tendencies” and an increase of inclusion strategies designed to

create fewer opportunities for “antisocial” groups and more opportunities for “prosocial” groups to form (Pearl, et al., 1998. p. 181).

School Intervention for Inclusion of Students With and Without Disabilities

Guiding Questions

This research was informed by the authors' understanding that students with disabilities, specifically Autism Spectrum Disorders, have a “tremendous need in the area of socialization” (Cooper, Griffith, & Filer, 1999, p. 110). The researchers involved in this study were interested to discover how effective their particular intervention strategy was for improving the inclusion and social interactions of two upper-elementary-school-aged children with ASD.

Participants

This study consisted of a two-student case study. Both students were male, white, and attended public schools. One student was a child with noticeable impairments in “nonverbal behaviors, such as facial expression and body posture” who additionally faced challenges with spoken language, and with somewhat destructive spontaneous behaviors like “rushing toward people, grabbing hair, biting, making incoherent sounds, and throwing himself to the floor” (Cooper, Griffith, & Filer, 1999, p. 110). This student, “Jeremy,” was placed in a self-contained classroom separate from the rest of the students in the mainstream environment. The other student, “John,” had language skills that “appeared normal to his third-grade classroom teacher” and little to no delays in cognitive development; John did, however, display “behaviors that alienated and separated him from his classmates” (Cooper, Griffith, & Filer, 1999, p. 110). “Jeremy”

was diagnosed as having an autistic disorder, and “John” was diagnosed as having Asperger's Syndrome.

Research Design and Methodology

The researchers utilized a modified pretest/posttest design, but failed to provide a control group. It was known by the researchers before conducting the research that these two students experienced difficulty with social interactions. The final assessment was conducted in an informal manner, and almost all information about the study is presented in a qualitative manner.

The two students from the clinical sample were reintroduced into fully integrated general education classrooms following a period of physical separation from those classrooms and age-group peers, either within the classroom or by separate rooms. A four-part, school-wide program was developed to build understanding and to create support in the interactions that general education students had with their peers who were in special education was instituted among all students with an emphasis on teaching students the importance of empathy and showing caring toward one another.

The first portion of the program was called “Heroes Care” and was intended to “create the disposition to care” by redefining the term 'hero' in the terms of someone who exhibits caring for their peers. (Cooper, Griffith, & Filer, 1999, p. 112). During this portion of the program the students “learned that caring included acts of kindness, compassion, and empathy, especially when shown to schoolmates alienated and separated from the group because of differences or inabilities” (Cooper, Griffith, & Filer, 1999, p. 113). This portion was intended to create the desire to show caring toward peers by

instilling the idea that doing so would make the caring person a hero.

The second portion of the program was “Puncturing Negative Peer Pressure” and was intended to help students to get away from the kinds of negative peer pressure that create a non-caring environment. The researchers were operating under the idea that most children would show caring toward their peers “more often if it were not for classmates who tease, harass, and ridicule” them for doing so (Cooper, Griffith, & Filer, 1999, p. 113). This activity promoted positive peer pressure over negative peer pressure.

The third portion of the program was “The Need to Belong” and was intended to show the students that everyone has a basic need to belong to a social group. The researchers believed that the student body would become “more empathic to others once they identify and assume the role of those being excluded” once they had the idea that belonging is a basic need (Cooper, Griffith, & Filer, 1999, p. 113).

The fourth portion of the program focused on the definitions of “Good and Bad Deeds” toward peers (Cooper, Griffith, & Filer, 1999, p. 113). This was intended to give the students an idea of what constituted good or bad deeds, and to give the educators at the school an idea of how to promote prosocial behaviors rather than to focus on negating antisocial or 'bad' behaviors. As was seen in Chamberlain, Kasari and Rotheram-Fuller's study (2006), it is more beneficial to focus on the prosocial and positive behaviors and to promote those, since focusing on antisocial and negative behaviors, even when the intent is to negate them, will ultimately create a confirmation bias in favor of those negative behaviors.

After the four portions of the program were complete, Jeremy and John became a

more specific focus of conversation with the students who had completed the program.

The researchers' goal was to make the “disposition to care [translate] into a greater desire to understand Jeremy and John and to develop the skills to interact and communicate more effectively” with them (Cooper, Griffith, & Filer, 1999, p. 113). It seems that this created an environment in which there were some students willing to step outside of their normal social circles in order to interact in a kind and constructive manner with Jeremy or John, and with other children who “appeared alienated and separated from the group” such as a girl with Down Syndrome who was befriended by a graduate of the program who took it upon herself to defend the girl against teasing (Cooper, Griffith, & Filer, 1999, p. 113).

Findings

Cooper, Griffith and Filer (1999) wrote that “Following the program, Jeremy and John became an integral part of their school. A ripple effect began as more students became more at ease with the students with special needs. The educators’ fear and trepidation transformed into feelings of excitement and pride” (p. 113). Through the intervention program, the whole student body was transformed into a support system for the boys who were the focus of the study, as well as for other vulnerable children who attended the school.

It is to be hoped that the focus on the two students who were the target of this study would not have simply singled them out for further ridicule. Extensive compassion training beyond the four activities of the “Heroes” program would be necessary to build not only understanding of the role of the students as caring peers, but also would be

needed to build empathy for children who were so different from the typically developing children who participated in the program.

The program that was instated in the school seems to have had a positive effect on the interactions that typically developing peers had with their peers who were disabled, and was in keeping with the authors' assumption that “[a] model for inclusion of students with disabilities in the general education classroom should be deliberate and comprehensive” (Cooper, Griffith, & Filer, 1999, p. 114). In situations where the children in question are both disabled and included in mainstream classrooms, the findings of this study are very relevant.

Discussion of Interventions That Involve Peers: Studies of Social Integration

Given these pieces of research, it becomes very clear that children with autism and other developmental disabilities are at risk of developing unhealthy peer relationships, or not developing peer relationships at all. Pearl, et al., (1998) brought up valid concerns about peer affiliation and “antisocial” behaviors that could be either legally or physically harmful, and further, may be pigeonholed into those group affiliations by adults who may perceive the students themselves to be antisocial rather than their behaviors. This kind of perception can become self-fulfilling, leaving those children whose social skills need the most support to develop in a healthy manner at the greatest risk for learning more “antisocial” behaviors and being punished for the same.

The girl who participated in the study conducted by Chamberlain, Kasari and Rotheram-Fuller (2006) is a good example of the kind of social success that can be

brought about when there is extra effort taken by the adults in a child's life to ensure that they have the support needed to learn necessary social skills. This girl was particularly fortunate in having parents who were proactive about helping her to learn how to interact with her typically developing peers. Not every child who is affected by ASD will be so fortunate; not all parents will be as well educated as this girl's parents were in what to do to best help their child with ASD, and not all parents will have the resources to do so even if they do know what needs to be done.

Importance of involving peers in intervention programs in order to create greater efficacy can be of great benefit, but care must be taken when involving peers. School programs must be developed with the intent to involve peers without leaving openings for those peers to target the children they are intended to help. Sometimes typically developing peers may fear disability by association, the notion that somehow by being friends with and helping a child with ASD, they too feel affected and think they may be treated by other typically developing peers accordingly. Any schoolwide program must take this phenomenon into account.

Interventions That Involve Peers: Measures of Social Interaction

It has been shown in these studies that have been reviewed herein, and it is generally accepted in the academic community that children with ASD experience difficulties in social interactions. In fact, one might say that this whole paper is about that academic truth. In order to know what kinds of social interactions children with ASD are already able to do when at school, it is helpful to have measures of social

interactions to be able to determine also what is lacking or what is the most difficult for those children.

Children with ASD have different levels of social ability and demonstrate different levels of comfort with interpersonal interaction. Assessment tools to determine where strengths and weaknesses lie will be helpful in creating interventions to help children build on weak areas. The following research article reviews address modes of assessment for degrees of social interaction to determine what, if any, interventions should be attempted.

Measurement of Social Communication Skills of Children with Autism Spectrum Disorders During Interactions with Typical Peers

Guiding Questions

The goal of this research article was to report on the pilot program which was developed to measure how well children with high functioning autism are able to communicate and interpret communication in social situations. The authors were particularly interested in communication that happens between children with ASD and children who are typically developing, in natural, day-to-day interactions. The authors pointed out that this sort of assessment program is necessary, as “[s]imply receiving a diagnosis of autism may not serve as sufficient documentation...that social interaction skills are impaired” and that teachers must be aware that sometimes children in their classrooms will need extra support that is neither required by the students' IEPs, or provided or funded through the school district (Murdock, Cost & Tieso, 2007, p. 160). The Social-Communication Assessment Tool (S-CAT) that was tested through this research was developed as a means to provide proof to school districts of children's social

impairments, so that it is more likely that those children will receive extra assistance so they may learn how to interact with other people.

Current assessments for autism and social skills “rely heavily on parent [and teacher] reporting, which can be subjective” and are generally considered to be anecdotal (Murdock, Cost & Tieso, 2007, p. 160). Despite these drawbacks, these are the *only* kinds of assessments that are currently available, widely used and generally accepted. Because of this, these assessments may also be disputed because they are not as scientifically reliable as an objective assessment would be. The authors stated that “[m]ore specific, precise measures are needed in the following areas: social functioning, peer relationships, spontaneous communication, and language” and that they hope to provide one of those more precise measures (Murdock, Cost & Tieso, 2007, p. 160-161). Given the higher number of studies intended to measure the same kinds of social interactions between children and adults in a constructed clinical setting, Murdock, Cost and Tieso (2007) made the S-CAT one that requires viewing children in naturalistic settings, in natural interactions with other children (p.161).

Ultimately, the purposes of this study were “to identify core behaviors which could be easily measured...[to assist] educators in quantifiably documenting deficits in social communication” and “to create a simple, direct-observation assessment tool to quantify social communication deficits” for children with an autism spectrum disorder in relation to their typically developing peers (Murdock, Cost & Tieso, 2007, p. 161).

Participants

16 children who were diagnosed with some form of high functioning autism were selected to participate in this study, and age-matched peers from the same public school classrooms were chosen as a control group. All participants spoke English as their primary form of communication; all children in the clinical group were “met the Alabama Department of Education...requirements for eligibility under the autism category” (Murdock, Cost & Tieso, 2007, p. 163). The age range of the children in the study was from 5 years 11 months to 10 years 9 months; mean age 7 years 6 months. All of the participants attended public school in two different southeastern school districts that served students from a range of socioeconomic groups (Murdock, Cost & Tieso, 2007, p. 163). The participants from the typically developing group and the clinical group were closely but not completely gender matched; there were 15 male and 1 female participant in the clinical group and 14 male and 2 female participants in the typically developing group (Murdock, Cost & Tieso, 2007, p. 165).

Research Design and Methodology

Prior to taking data in the field, all of the observers underwent training using videos of children who were not participating in the current study. 85% agreement on preliminary video recordings were required of the observers before actual field observations were made; observers were required to have the same level of agreement on actual observations as well (Murdock, Cost & Tieso, 2007, p. 163).

During classroom observations, the participating teachers attempted to place the target children near each other but did not create unnatural groupings; “[c]hildren were never placed in groups with children with whom they did not typically interact”

(Murdock, Cost & Tieso, 2007, p. 163-164). This was done to allow the researchers to more easily observe all target children unobtrusively. Additionally, participating children from the clinical group were never placed with children in the control group. The observers attempted to get data from a number of different in-school situations. “Observations occasionally took place in the lunchroom, in the gymnasium, or on the playground” (Murdock, Cost & Tieso, 2007, p. 164). In each observation environment, children were with multiple potential communication partners.

Communication behaviors that were rated were as follows: verbal initiations, verbal responses, joint attention, and nonverbal communication attempts (Murdock, Cost and Tieso, 2007, p. 165). These behaviors were recorded over 4 intervals of 15 minutes each, for a total observation time of one hour. Each participating child was observed no more than 2 times each day. Observations were required to be contiguous for those 15 minute periods; if an observation was interrupted, that observation period was discarded. (Murdock, Cost & Tieso, 2007, p. 164).

Findings

The S-CAT showed that children with ASD tended to engage in social interactions and communication about half as often as their peers. “The students with ASD exhibited 40% to 57% less of each communicative behavior than their classroom peers” (Murdock, Cost & Tieso, 2007, p. 168). Children with AS showed more verbal attempts at communication and instances of joint attention than did other children in the clinical group, but children with autism showed more nonverbal attempts at communication than did the children with AS or PDD-NOS (Murdock, Cost & Tieso, 2007, p. 168).

The truly interesting part of these findings has to do not only with the kinds of initiations undertaken by different children with different kinds of autism, but also in the kinds of social initiations given to those children by their peers. “The number of times a child can verbally respond is dependent upon the number of verbal initiations directed toward him or her, whereas verbal initiations and joint attention can be exhibited independent of peer behavior” (Murdock, Cost & Tieso, 2007, p. 169). It may well be that the typically developing children chose to communicate more and in different ways with the different children in their class depending on perceived ability.

The S-CAT classification scheme was able to correctly identify 28 out of 32 participating students; 13 TD and 15 with ASD. 50% of the children in the study had an ASD, and most of them were classified correctly. However, depending on how the data was entered, up to 75% of the typically developing students were classified as having an ASD. The authors state that due to this, “the S-CAT would not be appropriate as a diagnostic tool due to the overidentification of the sample population” (Murdock, Cost & Tieso, 2007, p. 167-168). Fortunately, this assessment is not intended to be a diagnostic tool, but it appears that more focused and specific criteria will be required before it can be considered to be a reliable assessment tool.

The pool of participants for this study was too small to provide a reliable statistic majority or minority, and therefore this study would need to be repeated with a larger pool to have reliable results. Additionally, the non-clinical setting, while more realistic in regard to how people generally communicate, created a setting in which the researchers did not have full control over all variables (Murdock, Cost & Tieso, 2007, p. 169).

However, with further research, it may be that the S-CAT will provide a useful tool to public school teachers seeking to gain support for their students who are at a social disadvantage and who are in need of extra support to build social interaction skills.

*Social Cognitive Processing in Elementary School Children
with Asperger Syndrome*

Guiding Questions

This article had two levels of inquiry; the first “was to determine the relative effectiveness with which both students with Asperger syndrome and typically developing students are able to interpret the social intentions of their peers in situations in which there are conflicting cues between the intention and the outcome of an action” and the second looked to determine whether, “with a given interpretation of social intention, there is a difference in the social interaction strategy chosen by students with Asperger syndrome and typically developing students” (Carothers & Taylor, 2004, p. 178).

Participants

Twenty children with Asperger's Syndrome were age and grade matched with 20 children who were typically developing. Both groups were given the same assessment of their ability to decipher social situations. All participants were between 9-10 years old and were in 4th grade at the time of the study. There were 18 males and 2 females in each group. The students with Asperger's Syndrome were chosen from a pool of volunteers from the University of Miami's Center for Autism and Related Disabilities.. The students who were typically developing were also chosen from a pool of volunteers, though the researchers were not specific about where the volunteers were from (Carothers & Taylor, 2004, p. 178).

Research Design and Methodology

The age and gender matched groups were given an assessment to determine their “social-cognitive processing of social perception and social strategy generation” using videotaped vignettes created by Dodge, Pettit, Bates and Valente (1995) (Carothers & Taylor, 2004, p. 178). These vignettes consisted of 18, 30-second long situations depicting hostile, benign, and ambiguous social intentions of both protagonist and antagonist characters of varying gender and ethnicity. In each case, the protagonist wore a numbered shirt.

Each participant was observed individually; each was asked to imagine that they were the child in the numbered shirt, each got two practice videos/interviews before data was collected. During the participant interviews, the children were asked to describe, “What happened in this story,” with the followup prompt of “Did anything else happen in the story?” Answers were recorded, then the participants were asked “Were the other children in the story being mean or not mean?” followed by “How can you tell that the other child was being mean or not mean?” Only the responses to the vignettes showing “benign intentions” were used for the study, with particular attention to “instances in which the participant noticed benign intention cues but did not believe them.” Participants were also asked to identify what they would do in the same situation: responses were scored as aggressive, assertive, accommodating, appeal to authority, avoidant, and other (Carothers & Taylor, 2004, p. 178-179).

Findings

The researchers found that children with Asperger’s Syndrome have less accuracy

“encoding social information” (Carothers & Taylor, 2004, p. 181). More specifically, “students with Asperger syndrome first encod[ed] fewer benign intention cues than the typically developing group, and then reject[ed] a higher percentage of those cues that they did encode”, i.e. “she said she was sorry, but she didn’t mean it” (Carothers & Taylor, 2004, p. 182).

What this means is that the students with Asperger’s syndrome were not correctly identifying interactions that were intended to be benign in nature. Students from the TD group identified more “mean” interactions as benign if there were benign cues present, and students from the AS group were more likely to identify interactions including more benign cues as “mean,” and also more likely to see ambiguous cues as “not mean.” However, the two groups identified similarly across-board: the researchers speculate “both groups were equally likely to consider a peer ‘mean’ when presented with conflict situations containing a variety of conflict cues”, but if closely examined in context with other responses, it was possible to guess if a student would rate a cue as mean or not mean if the origin group was known (Carothers & Taylor, 2004, p. 182).

Students with Asperger’s syndrome were far more likely to give aggressive, sometimes excessively aggressive, responses to situations than were students who were typically developing. The responses that were most-to-least likely to be used by the TD group were: avoidant, assertive, appeal to authority, accommodating, other, and aggressive. The responses that were most-to-least likely to be used by the AS group were: avoidant, assertive, aggressive, appeal to authority, accommodating, other.) Some individuals from the AS group had “other” strategies that seemed irrelevant to the

researchers, such as “I’d tell him he has a spot on his tie” even if the antagonist character did not have a tie, and some of the “aggressive” strategies given by individuals from the AS were quite aggressive or disturbing, including tamer “aggressive” responses such as, “I’d knock over the table where they were sitting” or “I’d spit in her mouth” (Carothers & Taylor, 2004, p. 183).

Discussion of Interventions That Involve Peers: Measures of Social Interaction

Is it possible to teach children with Asperger's Syndrome and other Autism Spectrum Disorders to show benign-looking actions in order to support their success in group environments? If it is, would it help to alleviate the kind of peer strife shown by Carothers & Taylor (2004)? It would be necessary to give full disclosure to the student with AS as to why they were asked to behave in that particular manner. What would happen if peers were taught to act in a manner such that their peers with Autism Spectrum Disorders could more easily interpret their actions? Rather than simply trying to teach actions because they are social actions that everyone does, perhaps it would be better to take the stance with children with ASD to do X action *because* it will create Y result, using a similar structure to a Social Story.

Is it possible that the children with Asperger's Syndrome that participated in Carothers and Taylor's study (2004) were acting based on prior experiences with their peers? Is there a point between only identifying inappropriate actions and being unable to tell the difference between *real* benign actions and *teasing* “benign” actions? That may be a difficult distinction to make, and it may be that some of the more bizarre

reactions that were given by the children in that study were due to pent up frustrations from prior experiences where a peer seemed to be acting in a kind manner, but later proved to have been acting in a cruel manner. The participants may also have been working with internal 'scripts' they had learned for situations they thought were similar to those situations presented in Carothers and Taylor's (2004) study.

“Certainly, teachers and parents recognize which children have social communication needs. However, allocating funding and qualified staff members to serve children with such needs typically requires some form of objective documentation” (Murdock, Cost & Tieso, 2007, p. 169). Funds for intervention programs, as identified by Murdock, Cost and Tieso (2007) can be difficult to procure in school systems that are already feeling financial pressures from all of the programs and classes that they support.

Interventions That Involve Peers: Training Peers to Provide a Supportive Environment

As shown by Strain, (1983) and as written by Laushey and Heflin (2000), “it is necessary for students with autism to have some exposure to typical peers in order to foster the learning of appropriate social skills” (Laushey & Heflin, 2000, p. 183). This exposure cannot be simple proximity exposure, however, or it will be worse than ineffective. Simple proximity exposure only ensures that the age-group peers will see each other but it will not ensure that the typically developing peers will interact with the children with ASD in a way that is beneficial for both parties. It will be seen in these next few studies how effective whole-class peer intervention programs can be if they are undertaken in a very deliberate and careful manner, and if the peers are provided with

sufficient interaction and sensitivity training, they can help to support their peers with ASD rather than exacerbate social anxieties.

Peer Imitation: Increasing Social Interactions in Children with Autism and Other Developmental Disabilities in Inclusive Preschool Classrooms

Guiding Questions

This study sought to find what observational learning strategies were used by preschool-aged children with autism and other disabilities in their preschool class, and whether the intervention program developed by the authors would be effective in improving the observational learning strategies employed by those students with disabilities. The researchers believed that children must become imitators of their peers before they can become effective observational learners (Garfinkle & Schwartz, 2002, p. 27). Garfinkle and Schwartz (2002) found 5 main reasons to undertake this project:

1. Peer imitation is an important developmental skill.
2. Effective teaching strategies...are predicated on peer imitation skills.
3. Children with special needs often have deficits in peer imitation skills.
4. There has been little empirical work that has evaluated strategies designed to be taught in the context of contemporary preschool activities.
5. Few studies have examined the broad effects of learning peer imitation skills. (p. 28)

The authors sought to create a program to help teachers to support the development of peer imitation skills to increase the effectiveness of group learning. Previous studies have yielded evidence that it is possible to teach children with autism and other disabilities the skills required to successfully imitate and learn from their peers, allowing them to advance past the learning that they would otherwise have been able to do alone

(Garfinkle & Schwartz, 2002, p. 27). This study evaluated the effects of an intervention program for peer imitation that was developed “using strategies from various previously examined protocols...[such as] typically developing children imitate the target child; provide attending cues and other verbal information; train multiple exemplars; provide effective and efficient prompting” all for use in an integrated preschool classroom (Garfinkle & Schwartz, 2002, p. 28). The researchers also sought to find a broad measure of the effectiveness of the intervention program through observing “peer imitations during the training sessions, peer imitation in a generalized setting, social interactions in the training sessions, social interactions in the generalized setting, the number of imitations made of the target child by typically developing peers,” and other measures of social learning skills (Garfinkle & Schwartz, 2002, p. 28).

Participants

Four children with disabilities who were in an integrated preschool that was affiliated with the local university participated in this study. The ages of the participants ranged from 3 years 7 months to 5 years 5 months. Garfinkle and Schwartz stated that “[a]ll the children had significant social, communication, and cognitive delays, and all qualified for special education services” (p. 28). Three of the children were diagnosed with an autism spectrum disorder, one had documented developmental delays. All participants exhibited echolalia, three of the four children used a Picture Exchange Communication System (PECS) to communicate their wants and needs; two communicated their protests by screaming, one had a few single communicative words, and one child had limited functional speech. All participants already exhibited imitative

behaviors in regard to the adults with whom they had frequent contact, particularly actions and gestures shown during teacher-directed activities (Garfinkle & Schwartz, 2002, p. 28).

During playtime, three of the participating children exhibited peripheral play behavior; playing near but not with peers. One child did not play near peers at all. Two of the three who exhibited peripheral play behavior also would occasionally request toys from peers, one of these would also greet peers verbally. All children exhibited preference for interacting with adults over interaction with other children (Garfinkle & Schwartz, 2002, p. 28-29).

Research Design and Methodology

This study used a single-subject research design across the four participants (Garfinkle & Schwartz, 2002, p. 26). The research was conducted within classroom and was integrated into the children's everyday classroom activities. A baseline for the participants' normal mode of social interactions during free play was established before the program was implemented (Garfinkle & Schwartz, 2002, p. 29-30).

The intervention program took place during the students' normal small group activity time, which “consisted of the same four or five children and the assistant teacher each day” (Garfinkle & Schwartz, 2002, p. 30). The assistant teachers were responsible for putting the intervention into place; all assistant teachers had between 1 and 6 years of experience working in special education preschools and all had at least a bachelor's degree in the field of early childhood education (Garfinkle & Schwartz, 2002, p. 30).

During small group activities, the children were given roles. The assistant teacher

told the children in the small group at the beginning of the activity, “Today kids can have turns to be leaders. When you are a leader you can [teacher listed several activities]. When you're not the leader, you can do what the leader is doing” (Garfinkle & Schwartz, 2002, p. 30).

The assistant teacher used 3 different ways to select who would be the leader for each activity, “(a) a child volunteered to be the leader, (b) the teacher asked a child to be the leader, or (c) the teacher assigned the leader” (Garfinkle & Schwartz, 2002, p. 30). It was preferred that the children volunteer, and if there were simultaneous requests, the teacher decided based on individual criteria and promised the other child(ren) that he or she would be the leader next time. If a child requested to be the leader so much that the other children did not have a chance to be leader, that child was also asked to wait for another time. If no children requested to be leader, the teacher chose a child; if that child did not want to lead, the teacher would say, “Okay, tell me when you are ready” (Garfinkle & Schwartz, 2002, p. 30).

During group time, the teacher would prompt the children who were not the leader to do what the leader was doing, and would “bring attention to the salient behaviors that were appropriate for imitation” (Garfinkle & Schwartz, 2002, p. 30). During the prompting period, the teacher would ask children to observe what the leader was doing, and whether they had the same materials. If the target child did not have the same materials or was not imitating the leader following several prompts, the teacher would physically assist the child to do so. Once the children had experience with the intervention, they began to call attention to their own behaviors if they were leading; in

this case the teacher would allow the child leading to provide prompts (Garfinkle & Schwartz, 2002, p. 31).

Children received praise for imitating the leaders' actions, regardless of how often they needed to be prompted to do so. Children received prompts and praise until all were imitating the leaders actions, at which point the teacher would announce that it was time for a different leader and the process was repeated (Garfinkle & Schwartz, 2002, p. 31).

The intervention continued until each child had a chance to be leader twice, at which point the students returned to baseline conditions. Children were not assigned to be leader, and were also not prompted to follow any of the other children. If a child requested to be leader, that request was honored, but no prompts were given by the teacher for the other children to imitate that child's actions. Data were collected at this baseline as well as at the beginning baseline, and during intervals in small groups and free play time throughout the program (Garfinkle & Schwartz, 2002, p. 31-32).

Findings

At beginning baseline, children targeted by the study showed no peer-imitative behavior. Following the training all participating children showed a small increase in the number of peer imitations, though some children required significantly more prompts from the teacher to perform the imitative acts than did some of the other children and only one child showed sustained ability to imitate peer behaviors following the removal of the program back to baseline (Garfinkle & Schwartz, 2002, p. 33).

Also following the intervention program, there was a small increase in the total number of social interactions both during group work and free play time across all target

children. In comparison to the other children in the class, though, the social interactions remained low. The teachers noted that the other children in the classroom seemed to be more sensitive to the social needs of the children with social delays in the classroom, and that they “were better at waiting and taking turns” (Garfinkle & Schwartz, 2002, p. 35).

Nonsocial engagement, meaning time spent actively engaged in teacher directed, non-play activities, for all 4 participating children increased from baseline and was maintained after the program was removed. The imitation of peers by the target children was “limited to the time that corresponds to the intervention time—it was not present in baseline and did not maintain into follow up” (Garfinkle & Schwartz, 2002, p. 35). This means that if this program is to be effective in teaching children how to learn from others by imitation, the program must be maintained and something else must be added to the program in order to make it stick beyond the implementation of the program (Garfinkle & Schwartz, 2002, p. 35).

When asked to rate the program, all adult participants said that it was easy to use and that they would use it again. These adults also suggested that the program could be implemented during other times of day, such as during gym, to increase the possibility of success in small groups (Garfinkle & Schwartz, 2002, p. 35).

This program might have greater success if it were implemented over a longer period of time. Additionally, the researchers would be sure to know whether it was truly an effective program with a larger pool of participants and the addition of a control group. Though the teachers that participated in the program reported that they noticed permanent improvements in their students, the researchers were not able to document

those improvements. More research into this kind of program will be needed before it can be certain that it is beneficial to the children who need to gain experiential social skills.

*Enhancing Social Skills of Kindergarten Children with Autism
Through the Training of Multiple Peers as Tutors*

Guiding Questions

Laushey and Heflin (2000) conducted this study in order to determine how a classwide peer tutoring program affects the social behaviors of kindergarten children with autism. Laushey and Heflin (2000) conducted this study in order to:

determine if a peer-initiated procedure that is taught to all peers in a kindergarten class will yield more or less effective results than a proximity approach to peer involvement. It is expected that the training of an entire class, including those students with autism, will increase the generalization of social skills across tutors. (p. 185)

Unlike Garfinkle and Schwartz' (2002) study, Laushey and Heflin (2000) began their study with the belief that proximity and imitation of peers will not automatically beget appropriate social interaction skills; that children with autism, in particular, need other children to consciously model for them and include them in their social activities (p. 183-184).

Participants

Two kindergarten-aged boys with autism were in the clinical group for this study; the rest of the children in their kindergarten classes were in the control group (Laushey & Heflin, 2000, p. 185). One of the children, "John," had a score of 41 on the Childhood Autism Rating Scale (CARS), which "is suggestive of behaviors or development within the severely autistic range" (Laushey & Heflin, 2000, p. 185). "John" was 5 years 8

months old at the beginning of the study. The other child, “Pat,” who was 5 years 6 months old at the beginning of the study, had a score of 26.5 on the CARS, which normally would be classified as being in the nonautistic range. A private psychologist “determined that Pat met the criteria for PDD and stated that scoring in this range is characteristic of children with high-functioning autism or mild pervasive developmental disorder” (Laushey & Heflin, 2000, p. 185). Both children were able to read at grade level with some comprehension, and both were able to write some words, such as their names, names of peers, colors, and names of preferred toys. Both children could draw pictures easily if the picture subject were self-chosen, but exhibited difficulty drawing pictures with requested subjects. Both children “had difficulty reading social cues and waiting for another's response...[and] engaging in conversations for more than two turn-takes” (Laushey & Heflin, 2000, p. 185).

The children in the control group were in the same classrooms as the children who were participants in the clinical group, and ranged in age from 5 years 2 months to 6 years 3 months. The teachers of each classroom reported anecdotally that 10% of these children also had difficulty with taking turns and waiting for conversation partners' responses (Laushey & Heflin, 2000, p. 185-186).

Research Design and Methodology

This study is a qualitative look at the quantified social experiences of two case-study students before, during and following a peer tutoring intervention. Four dependent variables were used to identify what constituted successful social interactions and the improvement of social skills: Asking for an object and responding according to the

answer given, appropriately getting the attention of another child, waiting for a turn, and looking at or in the direction of another person who is addressing the target child (Laushey & Heflin, 2000, p. 187-188).

One of the researchers entered the classrooms of the children who were the subjects of the study, and provided training to the whole class following a proscribed procedure in five steps. In the first step, the researcher invited the children in the classroom to say 5 ways that she and their teacher were alike, and then 5 ways that they were different (Laushey & Heflin, 2000, p. 186)

In the second step, the researcher explained that, just as people can look the same and different, people can be the same and different in ways that can't always be seen. She then shared 5 things about herself, and the teacher shared 5 things about herself, and the students were invited to point out ways that they noticed the teacher and researcher were alike and different again.

The researcher then told the students “sometimes we choose our friends because they are like us and they like to do the same things that we do. However, it is fun to learn about people who are different than we are. Sometimes it is fun to learn about people who are different than we are. Sometimes it is fun to pick friends who like things that are different than what we like because we can learn something new” (Laushey & Heflin, 2000, p. 186).

In the third step, the researcher explained to the children that they would have an opportunity to learn more about their peers, and that they would have a certain time during each day when they would be paired with a different child in a “buddy system”

(Laushey & Heflin, 2000, p. 186-187). She outlined to the children that they would play with their buddy during certain times of day, and during those times they should stick with their buddy, talk to their buddy, and share toys with their buddy, and that “because there will be a different buddy each day, everyone will have a chance to play with some people who are like them in many ways and some people who are different than they are in many ways,” but that even people who are different from them could potentially be a friend. (Laushey & Heflin, 2000, p. 186)

The fourth step introduced the “buddy chart,” which was a name board that listed which children were to be buddies on a given day. The children received instruction that when the teacher told them that it was “buddy time,” that they were to check the name board to find out who their buddy was to be for that day (Laushey & Heflin, 2000, p. 187).

The fifth step set down guidelines for the children's interactions with their buddies. There were three ground rules, explained to the students as “three things...to do to be a good buddy” which were to “stay with, play with and talk to your buddy” (Laushey & Heflin, 2000, p. 187). Each of these requirements were then further explained to the children so that they all had a baseline definition of each rule.

One of the researchers observed each classroom at least once a week, and “used a three-step procedure to verify that the program was being implemented correctly” (Laushey & Heflin, 2000, p. 187). This was done by checking that the name board matched a researcher-held graph (for circulation from child to child,) and observing “the dyads’ social interactions to ascertain that they were staying, playing, and talking”

(Laushey & Heflin, 2000, p. 187). This researcher also talked with the teachers in the classroom during each visit.

The teachers and paraprofessionals underwent training to be classroom observers for this experiment, given by the visiting researcher. They were entrusted with some of the formal daily data gathering (Laushey & Heflin, 2000, p. 186).

Prior to the implementation of the program, a focus group made up of “six persons knowledgeable of the characteristics of preschoolers and kindergartners, devised a list of four social skills deemed as necessary for the social acceptance at the kindergarten level” (Laushey & Heflin, 2000, p. 187). This group included one preschool teacher of a special needs classroom, one kindergarten teacher of a special-needs classroom, one preschool teacher, one (regular ed.) kindergarten teacher, a kindergarten speech and language pathologist, and a parent of a kindergarten student. This list of traits was used to determine whether the program was successful in improving the boys’ social interactions.

The program was instated for 4 weeks, and then the children returned to baseline for 6 weeks before the program was reinstated for another 7 weeks. During each of the intervals, data was taken on the four dependent variables of the participants' social interaction behaviors once every 10 days, at an average of 10 minutes each data-taking session (Laushey & Heflin, 2000, p. 188-189)

Findings

The findings almost unequivocally show that “the buddy program elicited more appropriate social skills in the students with autism than the passive proximity approach”

(Laushey & Heflin, 2000, p. 189). In both cases, the lowest number of appropriate social interaction behaviors shown by a child during the “buddy pairs” intervention was still higher than the highest number of appropriate social interaction behaviors shown at baseline.

Moreover, it is clear that the longer the children remained at baseline conditions following successful inclusion in the intervention program, the fewer appropriate social skills they exhibited; it seems that the children craved the social structure that was provided to them during the intervention program, and struggled more than they had before when, once having been provided, it was removed (Laushey & Heflin, 2000, p. 189-190).

It was also found, incidentally, that the other children were more willing to reach out to their peers who were different, whether they were the children with autism, or other children whom they had not previously interacted with in the classroom. This shows that this program is “socially valid for both children with autism and those without disabilities” (Laushey & Heflin, 2000, p. 190).

The following year, after the buddy system program had been used for the rest of the kindergarten school year, the researchers checked in with one of the participants of the clinical group of the study, and found that his social behaviors in 1st grade continued to be near the levels measured during the intervention program in kindergarten, and that he seldom exhibited behaviors like his baseline behaviors from the previous year (Laushey & Heflin, 2000, p. 191).

The authors found that some of the children in the control group were more

gregarious than others, and that some were more withdrawn; these children elicited different social responses from the children with autism. “Rather than being viewed as a limitation or detriment, the variability of peer behavior was perceived by the authors to be more representative of the normal distribution of social behavior and therefore afforded more naturalistic interactions” (Laushey & Heflin, 2000, p. 191). This program provided a marked improvement across board for all children was achieved by a program that requires little effort on the behalf of the teachers involved. These criteria make this program very attractive for continued use among younger grades, and further inquiry into its success rates after implementation would be welcomed by the scientific and educational communities.

Keys to Play: A Strategy to Increase the Social Interactions of Young Children with Autism and their Typically Developing Peers

General Questions

Nelson, McDonnell, Johnston, Crompton and Nelson (2007) conducted this study with the understanding that children with autism almost unilaterally experience difficulty in learning how to insert themselves into social interactions. “Young children acquire social knowledge and skills in play...It is within play that they learn to coordinate interpersonal skills such as turn-taking and reciprocity and learn the strategies necessary for collaborative and symbolic pretend play” (Nelson, et al., 2007, p. 165). Utilizing the widely accepted idea that, the younger the child is when intervention is begun, the better, they conducted this study in preschools with 4 young children who were diagnosed with autism.

The authors also conducted this study with the understanding that children with

autism tend to respond more readily to visual stimuli than spoken; it was their hope to show that “peer-mediated instruction that was embedded within ongoing preschool activities [could] teach the use of a visual strategy for initiation” (Nelson, et al., 2007, p. 166). Using this visual strategy, Nelson, et al. (2007) sought to answer these questions:

(a) Does the Keys to Play intervention package increase the play initiations of young children with autism? (b) Does the Keys to Play intervention package increase the time young children with autism spend engaged in playgroups? (c) Does the Keys to Play intervention package affect the child with autism's concomitant or singular use of another communication strategy such as speech, sign language, or manipulation of play materials to enter playgroups? and (d) How do classroom staff and family members rate the acceptability and perceived effectiveness of the Keys to Play intervention package for children with autism?” (p. 166-167)

Nelson et al. (2007) used this system with very young children.

Participants

Four boys with autism were selected from different preschool programs, “including two Head Start classes, a community preschool class, and an integrated special education class in which the majority of children were typically developing” (Nelson, et al., 2007, p. 167).

The boys ranged in age from 3 years 9 months to 4 years 5 months old. 3 participants were identified as Caucasian, 1 was identified as Latino and African American. Most of the boys had limited language proficiency in either English or Spanish, 2 showed no language use at school at the beginning of this study, and 1 used his name instead of the first person pronoun, “I”. All participants showed no involvement with their peers during playtime, engaging in solitary play or other activities on the periphery of the majority of the activity in the room during playtime, and showing very

little intent to try to play with the other children beyond glancing at them infrequently (Nelson, et al., 2007, p. 167-169).

Research Design and Methodology

The intervention program was titled “Keys to Play,” and was presented to the students within their day-to-day normal interactions with their peers within a preschool classroom; all children were involved in the program. It was intended to be a “class-wide, peer-mediated teaching strategy to promote the use of a laminated paper key that was shown to peers to initiate play” (Nelson, et al., 2007, p. 166).

Prior to the clinical group of children receiving their paper keys, the program was introduced to the rest of the children in the classes; the children with autism simply wore their keys either on a cord around their necks or on a belt with Velcro. None of the children with autism used their keys during the time that the other children were becoming familiar with the program. During the implementation of the intervention, children with autism were first encouraged to attempt to interact if the interventionist noticed that they showed interest in a play activity. If the child did not attempt within 5 seconds, the interventionist would model appropriate use of the key combined with the phrase, “I want to play” followed by another verbal prompt after 5 seconds if the child did not attempt: “You can use your key to say you want to play” (Nelson, et al., 2007, p. 171). If the child still did not attempt, the interventionist would physically guide the child to the play area and physically move the child through presenting the key to gain entry to playing with the other children. The teachers ensured that there were plenty of opportunities for potential play initiation attempts by providing activities that they knew

would be enticing to the students with autism (Nelson, et al., 2007, p. 168).

Dependent measures that were used included the percentage of times the target child used his “Key to Play” versus other means such as verbal or sign language communication, or by attempting to gain entry to the playgroup by manipulating like objects to what the other children were playing with. The time spent engaged with 1 or more peers within 2 feet “either manipulating play or learning materials in a similar manner as other children in the group, or interacting with peers” was cumulatively totaled for each session (Nelson, et al., 2007, p. 168). If the child was showing “acting-out behaviors such as hitting, crying or having tantrums,” that time was not counted as time engaged socially.

Data were collected during baseline, intervention and maintenance conditions. Maintenance condition was only entered into if the target child “achieved a stable rate of 75% unprompted initiations in the classroom” and lasted for 4 weeks (Nelson, et al., 2007, p. 168).

A Personal Digital Assistant (PDA)-based data collection system was used; this system was designed to prompt the data-taker with questions during potential opportunity sessions, the answers of which were then date-stamped and saved in the database. The prompt questions were “(a) Is there an opportunity? (b) Is the opportunity for initiation or responding? (c) If there is an opportunity for initiation, did the child initiate?” (Nelson, et al., 2007, p. 168, 170). If the answer to (c) was “yes,” communication mode possibilities were presented for the data taker to choose from. If the answer to (c) was “no,” a series of possible errors was given to chose from: “(d) when the opportunity was for the child to

respond to an invitation, three choices (ignore, affirm, deny) appeared on the screen; (e) each time yes was answered for opportunity, a question also appeared asking for level of adult prompt, (f) when a child entered the play group, the data collector pushed an icon that activated a timer to record engagement time; and (g) a final question appeared that asked for the level of play primarily used by the child as per the 1932 Patten Scale” (Nelson, et al., 2007, p. 170).

Findings

All participants had a general upward trend of engagement from baseline throughout the intervention period. The 2 participants who made it through to the maintenance phase maintained high levels of “correct and successful” unprompted initiations to play (Nelson, et al., 2007, p. 172).

The types of initiations used by the participants were coded as verbal, gestural, positional (e.g. where they were in relation to the play group), parallel manipulation of play objects or other materials, use of “Key to Play”, and use of “Key to Play” along with verbal request. No participants used sign language in conjunction with “Key to Play” use (Nelson, et al., 2007, p. 173). During and following the intervention period, the types of initiations used by each participant became much more diverse, with the children who had used one type of initiation previously, when they had used initiations, using multiple types with greater facility than they had previously shown, which was not expected by the researchers (Nelson, et al., 2007, p. 174-176). Additionally, the child who had no affective language at the beginning of this study began to develop the use of the phrase “I want to play” and to understand what it meant within context of actions, and the pronoun

use of the child who had previously only used his name for self-reference, shifted to using the first-person “I” as the phrase, “I want to play” was used more frequently by the other children (Nelson, et al., 2007, p. 176). Interaction with peers with a provided script increased the affective language usage of these two children.

Of the educators who were interviewed following the completion of the program, “30% said that the strategy was very useful in helping the child with autism successfully play with peers, 40% said it was useful, and 30% said it was somewhat useful” (Nelson, et al., 2007, p. 176). 60% found the program to be nondisruptive, and 40% found it to be a little disruptive, largely because of the increased number of adults present in the room during the time that the program was implemented. 60% found the program easy enough to implement without the further aid of the researchers, 30% thought it would be “somewhat easy” and 10% thought it would be “somewhat difficult” (Nelson, et al., 2007, p. 176). 90% of the educators interviewed found “the time required to implement the strategy was worth the observed benefits”, and 80% said that they would use the program in the future (Nelson, et al., 2007, p. 176).

Curiously enough, once the children began to use independent bids for inclusion, they generally did not show preference to use the “Key to Play” as the researchers thought they would given the visual and physical nature of having an object representative of a request. This may not be the case for all children with autism, and it is impossible to determine whether other children would utilize the program in the same manner, or even whether other children would benefit from the program.

Supporting the Inclusion of Students with Moderate and Severe Disabilities in Junior High School General Education Classes: The Effects of Classwide Peer Tutoring, Multi-Element Curriculum, and Accommodations

Guiding Questions

This study sought to identify how effective a school-wide peer training program with multi-element curricula and accommodations for support is in increasing the inclusion of junior high school students with moderate and severe disabilities, including Autism Spectrum Disorders.

Participants

The participants consisted of three students who were selected randomly from a potential pool of 11, with “moderate to profound mental retardation or multiple disabilities” and who were enrolled in at least one general education class. The teachers of those classes also participated in this study; three general education students who were matched by age, grade level, and classroom with the three students with disabilities were the control group.

Research Design and Methodology

McDonnell, Mathot-Buckner, Thorson and Fister (2001) used “[a] multiple probe across subjects design...to examine the effects of an instructional package consisting of a classwide peer tutoring program, multi-element curriculum, and accommodations on the academic responding and competing behaviors of three students with severe disabilities who were enrolled in general junior high classes” (p. 141).

The peer tutoring program that was used as a base for this program was “designed to establish peer tutoring dyads so that all students can serve in both the tutor and tutee

roles” The researchers decided instead to utilize peer tutoring triads, in which each student “played one of three instructional roles during the peer tutoring sessions including tutor, tutee, and observer” (McDonnell, Mathot-Buckner, Thorson & Fister, 2001, p. 149).

For the multi-element curricula, the participating general education teachers and special education teachers “worked cooperatively to develop instructional objectives for students with disabilities that focused on a subset of skills that were contained within the general curriculum” (McDonnell, Mathot-Buckner, Thorson & Fister, 2001, p. 149).

Students who were served by special education received differentiated goals that were similar to their peers', in an attempt to make their participation equitable.

Accommodations were made “for each student that would meet their unique learning needs”, further distinguishing and making specific the forms of differentiated instruction used with those students (McDonnell, Mathot-Buckner, Thorson & Fister, 2001, p. 150).

The program was used for a set period of time, then was removed from use, and was then once again implemented in the participating classrooms: student responses were observed through baseline, intervention, return to baseline and return to intervention.

Findings

There was a marked increase in the academic/ability responses of all of the students (special needs and control groups,) as well as a marked decrease in the “competing behaviors” (McDonnell, Mathot-Buckner, Thorson & Fister, 2001, p. 155) of all students, including the control group. The researchers found that “a classwide peer tutoring program, combined with multi-element curriculum and accommodations, improved levels of academic responding and decreased levels of competing behaviors by

students with moderate and severe disabilities enrolled in junior high school general education classes” (McDonnell, Mathot-Buckner, Thorson & Fister, 2001, p. 157). The academic achievements of all participating students in this study rose significantly, including the achievements of the typically developing students.

Discussion of Interventions That Involve Peers: Training Peers to Provide a Supportive Environment

It was posited by Garfinkle and Schwartz (2002) that, “[f]or children to take advantage of observational learning opportunities, they need to attend to multiple cues such as the model's behavior, the context, and the consequences of the behavior” (p. 26). Children with ASD must be exposed to peer models, and they must have a structured situation in which to learn from those peers. Nelson et al. (2007) showed that it doesn't matter so much what the initiation program is, what matters is how early in the child's schooling the intervention happens, and whether the children with autism are specifically assisted to learn how to become integrated into the typical play behaviors of their peers. In all of the studies reviewed above, it has been shown that the earlier an intervention can be implemented, the more lasting effects that intervention will have in the ability of the child in question to be more successful in social situations.

Laushey and Heflin (2000) stated that “simply placing typical peers and children with autism together may not be enough to provide the necessary acquisition of [social] skills” because children with autism will probably “have difficulty imitating appropriate social behaviors” (p. 183). It is thought by some that children with ASD have a higher propensity toward logical thought; if this is true, Laushey and Heflin's (2000) statement

makes sense in the sense that imitation eventually has to have something about it that makes logical sense, or imitation will not be an effective strategy, as imitation of actions and behaviors can happen at inappropriate times and in inappropriate situations.

The solution suggested by Laushey and Heflin was this: “Training all peers, including the children with disabilities, enhances the likelihood that the child with autism will have more opportunities to engage in generalized practice of the social behaviors...Using all peers in a classroom as possible social partners did...occasion greater variability of skill demonstration from the children with autism” (p.191). If the whole class or even the whole school is used as a support system for vulnerable children, suddenly those children are no longer quite so vulnerable in that particular situation.

Chapter Summary

All of the research combined shows that in reality, the strategies and techniques that work to help children with ASD understand how to interact in social school settings are almost as many and varied as the children themselves. The research shows that the best methods for successful social training involve giving the children with ASD some kind of social script to follow. The best methods for integrating classrooms heavily rely on the involvement of other children in the success of the classroom community as a whole, with an emphasis on the importance of ensuring success for all peers. The final chapter of this paper will summarize the findings of this literature review, and suggest possible applications to the classroom as well as areas in need of more research.

CHAPTER 4: PUTTING IT TOGETHER

Introduction

Children with Autism Spectrum Disorders notoriously have difficulty with social interactions and with learning how to function in situations that call for advanced interpersonal skills. This makes public school a somewhat burdensome environment, especially these days as more teachers recognized the inherent benefits of group work for the majority of their student. Children with Autism Spectrum Disorder can also benefit from group work, certainly, but they must be explicitly taught how to interact with their peers on that level. Children with ASD share the “specific social nature” common to all humans (Vygotsky, 1978, p. 88) to some degree, varying by individual, and they must learn how to access social groups, if that is desired.

Though there are differing opinions about whether some diagnoses belong on the autism spectrum, the fact stands that, diagnosis or no, there are a significant number of children who find the types of social interaction required in public schools to be prohibitively difficult. It is not impossible, but quite unlikely that a child with ASD will independently develop the interpersonal skills necessary to easily participate in cooperative learning. As most children spend most of their waking hours at school, it largely falls to classroom teachers to help children who find social situations to be challenging. In order to do this, teachers must be aware of different strategies and techniques available in the field of autism research. It is not enough to simply put a structure in place. Teachers and other adults who work with children who struggle socially must constantly maintain the structures of community support.

Given the increase in diagnoses of autism over the past few decades, it is more than likely that most public school teachers will have at least one child with ASD in her or his classroom every other year or so. It is equally likely that there will be children who exhibit similar social and interpersonal challenges but who do not have a diagnosis. It is therefore imperative to answer these questions in a comprehensible manner: What techniques and strategies exist to help to support children who have an autism spectrum disorder to succeed academically and socially within inclusive public school classrooms? How can an average teacher incorporate these techniques and strategies into a regular education classroom?

Many studies in the field of autism research are limited in their scope in some way. Race, ethnic and cultural background, and familial economic status are rarely considered. There is a remarkable lack of studies that consider gender, though that factor is more frequently considered over any other. It is hard for researchers to generalize across the autism spectrum because individual abilities are very different from person to person. Because of this, most researchers elect to focus on a smaller group than would normally be considered to be statistically viable. Due to this research it is possible for the histories of autism and of cooperative learning to finally overlap. Though work within the two topics has been constant since their inception as fields of practice, work in collaborative learning has been conducted with typically developing children, whereas autism research has focused primarily on figuring out what autism is, and what to do with children who are afflicted with a disorder on the spectrum.

In the early 1940s both Hans Asperger and Leo Kanner developed descriptions of disorders they each termed “autism”. It is likely that both men borrowed the term from an earlier psychological researcher named Eugen Bleuler (Frith, 1991; Bluestone, 2005). Asperger and Kanner each described and characterized a different 'end' of what is thought of today as the autism spectrum. More severe, “classic” autism is sometimes called Kanner's Syndrome, and there is a very fine line drawn between High Functioning Autism and Asperger's Syndrome (Grandin, 1995; Sicile-Kira, 2004). The increase of incidences of autism diagnoses has been drastic enough over the past several decades to have caught the attention of researchers in other fields, leading to recent research combining disciplines of group work *and* autism.

Collaborative work with peers has been practiced and written about for several decades longer than autism has been a subject of research. Piaget in 1926 (Slavin, 1995) and Dewey in 1938 were early proponents of the value of peer relations in a learning environment, and each man contributed to the idea within their own specific areas of interest. Slavin (1995) cited Piaget's idea put forth in 1926 that “social-arbitrary knowledge...can be learned only in interactions with others” (p. 17). Dewey (1938) believed that children could be taught responsibility to each other and to community through socialization in schools (p. 56). Both men found the responsibility for maintaining productive social learning environments to belong to educators. Dewey and Piaget both had many followers who opened schools that followed the ideals of socialization, collaboration and cooperative learning, though what that meant to those followers differed depending on their personal philosophies.

During the same time period that Piaget and Dewey worked in the United States, Lev Vygotsky (1978) conducted his studies in Russia about the effects of cooperative learning upon individual development. Vygotsky's theory of the Zone of Proximal Development (ZPD) did not reach the United States until Vygotsky's work was translated in the late 1970s. The Zone of Proximal Development is “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (Vygotsky, 1978, p. 86).

This translation opened the way for more cooperative learning education theorists. Ideas originally generated by Vygotsky are still in use today, and cooperative learning models are quickly becoming the norm in public education. Given the inception first of the Education for All Handicapped Children Act in 1975, then the revision of that act as the Individuals with Disabilities Education Act (IDEA) in 1997, these cooperative learning models will be encountered by more children with disabilities who are in general education classrooms. For children with ASD, the Least Restrictive Environment clause of the IDEA indicates a high likelihood that children with high-functioning ASD in particular will be in general education classrooms.

In this paper, research that is related to creating or using strategies and techniques for classroom social integration of children with ASD has been sorted into three major categories with relevant subcategories within each major category. For the remainder of this paper, to answer the questions posed at the beginning of this paper, each subcategory will be summarized. This will be followed by a discussion of implications for classroom

practice and suggestions for further research in the fields of autism and cooperative learning in education.

Summary of Findings

Experiences of Children with Autism Spectrum Disorders

Identification, Personal Experiences and Psychological States

In order to understand how to work with children on the autism spectrum within a general education classroom, it is necessary to first understand what it is that distinguishes these children as being different from the other children in that same classroom. Some of these differences are at the root of the social difficulties typically experienced by people on the autism spectrum, others could just as easily be considered 'quirks': harmless and within the realm of social acceptability. What affects the quirks and the roots of social awkwardness differs from person to person, and the causes of these things are the foci of many research theses.

Some professionals in the field of autism research claim that gender can affect the tendency toward either empathy or the tendency to systematize. Myles et al. (2007) found no difference between males and females in their study, rather that all individuals with ASD exhibited “low or moderately low adaptive skills across all domains” such as communication, daily living skills, and socialization (p. 460). Myles et al. (2007) also found that most participants in their study experienced some form of sensory sensitivity. Results varied in Myles et al.'s study when measures of behavior or social capability were scored by the participants, their parents and teachers. Parents were more likely to give

their children scores that placed them in the “At Risk” category for problem behaviors, the teachers tended to give them “Average” scores, whereas the adolescents that participated in this study “perceived themselves to be similar to neurotypical peers in all areas” (Myles et al., 2007 p. 454). In other studies where the participants and their parents and teachers were involved in providing data for behavioral research, this was a common trend.

Macintosh and Dissanayake (2006a) noted the differences between parent, teacher, and self-reports in autism research. They noted that “impairments in social interaction are a core feature of both high-functioning autism and Asperger's disorder, [and] comparative research on social behavior is scant. The research to date...has relied almost solely on parents' and teachers' reports, [and] has indicated that where differences do exist, people with high functioning autism have invariably demonstrated greater social deficits than those with Asperger's disorder” (Macintosh & Dissanayake, 2006a, p. 200). The authors sought to find whether children with HFA and children with AS have different qualities of social interaction in the schoolyard, and how those social interactions differ between children with those two Autism Spectrum Disorders.

Macintosh and Dissanayake (2006a) found that “[t]he children with high-functioning autism spent the majority of their time unoccupied while those with Asperger's disorder spent most of their time engaged in conversation. In contrast, the typically developing children spent most of their time in simple social play” (p. 205). The authors also noted that typically developing children generally interacted in larger groups of three or more children, with children in both of the clinical groups spending

“significantly more time not interacting in comparison to the typically developing children” (Macintosh & Dissanayake, 2006a, p. 206). Children in both clinical groups also did not differ significantly from one another in terms of the number of interaction partners they had; generally fewer than three. The authors found no negative or antisocial interactions experienced by any of the children in any of the groups of the study, and interactions initiated by the children in the clinical group likewise were rarely negative or antisocial. The children in both of the clinical groups were less likely to interact socially with their peers than were the children in the control group, and the duration of those interactions tended to be much shorter than those of the children in the control group. The children in both control groups also showed less likelihood of being involved in “simple social play” (Macintosh & Dissanayake, 2006a, p. 213).

Macintosh and Dissanayake's (2006a) study suggests that children with AS are more motivated toward social participation than other children on the autism spectrum. Motivation and success are different matters. Children with AS have no more or less success in their social interactions than do other children with ASD.

Macintosh and Dissanayake (2006b) found that teacher and parent reports differed when measuring social skills. In their study where they sought to identify whether there was a significant difference between children with High Functioning Autism (HFA) and Asperger's Syndrome (AS) they utilized a standardized questionnaire to measure parent and teacher perception. They predicted that if there were a difference between HFA and AS, it would be discernible through parent and teacher reports of different kinds of “problem behaviours” (Macintosh & Dissanayake, 2006b, p. 1067). Parents and teachers

reported differently on the social skills sub-scales of the Social Skills Rating System (SSRS) but were in general agreement that typically developing children tended to be more cooperative and assertive, and that they also tended to show greater self control than the two clinical groups in the study. Children with Asperger's Syndrome tended to show greater self control than children with HFA, and both groups were reported as having similar levels of assertions skills. Parent and teacher reports differed again about which group exhibited greater cooperation skills. (Macintosh & Dissanayake, 2006b 1070).

Despite the different parent and teacher reports, the researchers found that there was minor but measurable difference between the two groups on the independent self-reporting tests given to the adolescent participants. Not only did the researchers find that AS and HFA are separate disorders on the autism scale, but also that children with Asperger's Syndrome tend to show more problem behaviors than do their peers with High Functioning Autism. It was suggested that this was due to more attempts on the parts of the children with AS than the children with HFA to make social connections. When those attempts fail, the children making the attempts show their frustration through those “problem behaviors.” More problem behaviors occur when there are more frustrations.

Bellini (2006), like Macintosh and Dissanayake, used previous research to inform this study. Bellini (2006) found that impairment “in social functioning... significantly increases the chances for negative peer interactions and social failure” (p. 143). Bellini also found that children with ASD experience heightened anxiety as compared to typically developing children, which inhibits their ability to initiate social interactions.

This impairment “in social functioning then significantly increases the chances for negative peer interactions and social failure” (Bellini, 2006, p.143). When viewed with the findings of Macintosh and Dissanayake, it becomes clear that children with ASD have neurochemical reasons for having difficulty in social situations.

Though there are differences across the autism spectrum, based on these four pieces of research it is clear that almost all children on the autism spectrum do experience impairments in socialization. Obstructions to communication may be dealt with in unorthodox ways by children who have not yet learned how to interact with other in more appropriate ways. “Inappropriate behaviours may be strategies the child has developed to achieve desired social responses, in the absences of more socially appropriate or conventional methods” (Macintosh & Dissanayake, 2006b, p. 1074). Whether these behaviors become entrenched habits has a lot to do with the types of behavior interventions and training that is available for children affected with ASD.

How Others are Experienced by Children with Autism Spectrum Disorders

Other people will experience children with Autism Spectrum Disorders very differently than those children experience themselves; as we have seen, children with ASD frequently do not view themselves as being notably different than their peers. This has sometimes been seen as a lack of empathy, and the belief that others are privy to the private thoughts and experiences of the individual with autism has been termed “mindblindness” by Simon Baron-Cohen (1995). There is a fundamental disconnect between many people with ASD and their typically developing peers. Whether this disconnect is due to a lack of empathy or not is really a point of contention for many

autism researchers, who will doubtless be arguing that point for years to come.

Youth and adolescents with ASD are at greatest risk of social difficulties and lasting emotional effects of social rejection in puberty. Bock (2007) stated that “adolescents with AS are often unable to understand the social customs associated with dating and other age-expected interactions. This confusion regarding social customs continues through adulthood” (p. 88). Adults with ASD who did not receive intervention when they were younger are at greater risk of “high levels of social isolation and frustration” (Bock, 2007, p. 88). Church, Alisanski and Amanullah (2000) found that adolescence was a time that youth with ASD are most at risk for developing “increasing anxiety, obsessive-compulsive tendencies, behavioral challenges, and ever-changing social skill deficiencies” (p. 19). As children with ASD become older, the ways in which they experience other people can change. That change can be for better or for worse depending on whether any effort is made on the part of the adults in the lives of those adolescents to support more functional interpersonal skills and understanding of other people.

Church, Alisanski and Amanullah (2000) found that the high functioning children in their study showed wide variety in social skills deficits, but found that social skills “remained the greatest challenge for these intellectually bright and verbal children” (p. 12). All of the participants showed some form of social deficit at each stage that data were available, and all experienced some degree of difficulty interacting with their peers. Church, Alisanski and Amanullah (2000) also found that, the older the child or adolescent got, the more entrenched their habits became, whether habits of dysfunctional social

interaction, or more functional habits, such as being strict about the recycling. Church, Alisanski and Amanullah (2000) suggested that it is beneficial to begin working with children with AS as early as possible, but that it is equally or more important to work with older children and adolescents to help them develop and keep appropriate social practices.

Carrington, Templeton and Papinczak (2003) supported Church, Alisanski and Amanullah's 2000 study with their research, providing “specific examples and illustrations provided by a group of students who have Asperger syndrome” (p. 211). The goal of their research was to “advance understanding of the social difficulties that are characteristic of the social difficulties that are characteristic of individuals with Asperger syndrome while providing a voice to this group of students” (p. 212). Carrington, Templeton and Papinczak (2003) identified an important mechanism used by children and adolescents with Asperger's Syndrome to cope with social deficits that they experienced. They termed this coping mechanism “masquerading”. This mechanism appeared in their subjects' speech as fictionalized, inflated, or possibly misperceived friendship networks. These adolescents reported either having “the most friends” or that they had a phone bill that was “far too high” though they either did not appear to have any friends, or did not receive or make many phone calls at all. It is likely that this is related to the findings of Myles et al. (2007) and Macintosh and Dissanayake (2006b) that children with ASD often maintain that they are the same as their neurotypical peers. When viewed as masquerading, this behavior and belief can be seen as making it possible for the children doing the masquerading to have a positive self-image of themselves as

socially apt persons. Masquerading can also be seen as a way to project that image of a social competent to others. Carrington, Templeton and Papinczak (2003) additionally related their report of students' masquerading to Church, Alisanski and Amanullah's (2000) research that showed that children with AS claimed much wider friendship webs than would claim them. Carrington, Templeton and Papinczak (2003) cited Church, Alisanski and Amanullah (2000) as a reason to be “speculative about the true nature” of the self-reported friendships of their subjects (p. 216).

Both studies showed that children and adolescents with ASD are often confused about what kinds of actions and reactions to other people would bring them friendship. When children are young this confusion results in fewer conventional friendships, but as the children grow older, the confusion about friendship and friendly behaviors exhibited by other people can become dangerous for the adolescent, and possibly for other adolescents who become the foci of confused attention.

Language Barriers, Processing Language and the Development of Communicative Language

Understanding what someone has to say, and understanding how to say what one has to say, are at the very base of the ability to use social communication. Language, gestural and nonverbal cues are often mysterious to very literal individuals with ASD. Many diagnoses of ASD stem from a slow development of communicative language; Asperger's Syndrome is notable in that one of the markers for the disorder is early development of language. Children with AS tend to show excellent grasp of language use, but a good deal of trouble understanding idiom. Children with other Autism Spectrum Disorders may not develop communicative language at all, and may not grasp

the language use of others. Even minor language delays can create a barrier to communication, and that creates a barrier to social interactions. Public schools have a vested interest in intervention, as it is difficult to provide a Least Restrictive Environment if a child cannot make basic needs and wants known.

Koning and Magill-Evans (2001) focused specifically on boys with Asperger's Syndrome and their “idiosyncratic use of words...poor speech prosody...and many other semantic and pragmatic language abnormalities” (p. 24). These researchers sought to identify the specific nature of language deficits and social perception difficulties experienced by boys with AS as compared to a control group of similarly aged typically developing boys. On the Child and Adolescent Social Perception measure, 19 out of 21 students in the clinical group “scored more than one standard deviation below the mean on the emotion score...and 15 scored more than one standard deviation below the mean on the non-verbal cues score” compared to 2 children from the control group who scored below the mean in both sections (Koning & Magill-Evans, 2001, p. 28).

Children with AS were found to have “used facial cues more often than other cues, such as tone of voice, for inferring emotions” where the control group “focused on facial and body cues proportionately more often than did the Asperger group” (Koning & Magill-Evans, 2001, p. 28). As has been seen in several other studies, the parent and teacher scores differed from the student self-assessed scores provided by the student tests. Once again, children with Asperger's Syndrome self-rated their social competence as much higher than their teachers and parents. Interestingly, the children in the control group self-rated their social competence as “slightly lower than teachers' ratings and

slightly higher than parents' ratings” (Koning & Magill-Evans, 2001, p. 29-30). The children with AS and the children in the control group scored similarly on receptive and expressive language scores, confirming that there is no deficit in expressive language skills of children with AS. Koning and Magill-Evans found that children with AS can identify emotion and intent from facial expressions in still pictures, but that “difficulties become apparent when dealing with the *simultaneous* presentation of facial, voice, body and situational cues” (p. 32). Unlike in Carrington, Templeton and Papinczak's (2003) study, the clinical group did not attempt to use masquerading to hide their social ineptitude. Most children in the clinical group for Koning and Magill-Evans' (2001) study “reported having virtually no friends” (p. 33). Koning and Magill-Evans surmised this was not necessarily due to complete lack of social skills, rather that the children did not “have the motivation to make friends or interact with peers on a regular basis” (p. 33), though they did not speculate about what would cause the children to have or not have that motivation.

Saulnier and Klin (2006) sought to show what would cause children with HFA and AS to “fail to translate their cognitive potential into real life adaptation” (p. 788). The children in the autism showed slightly lower IQ scores than the children in the AS group. The children in the AS group showed a discrepancy between their verbal and performance IQ scores, showing that they did not reach the potential performance that their verbal scores suggested they would be able to achieve (Saulnier & Klin, 2006, p. 790). Both clinical groups scored markedly lower than the typical standard in all areas. Both groups scored very low in interpersonal skills and socialization, though the children

in the Asperger's group showed greater social aptitude than the HFA group through their scores for play and leisure as well as in the social/communication categories. As both groups scored far below typical standard, Saulnier and Klin (2006) wrote that the "...results underscore the severity of social and communicative deficits in AS despite the fact that these symptoms may be milder than those observed in prototypical autism" (p. 791). This indicates that the on-paper scores alone are not enough to show how well children with autism and other ASD will actually function. Real-life analysis of communicative ability should be conducted for each child about whom there is concern regarding social and communicative abilities.

Meaden, Halle, Ostrosky and DeStefano (2008) looked at the real-life ways that two young children with autism repaired communication breakdowns in their homes. These researchers focused on environmental, not developmental variables. Between the two children who participated in this study, it was found that the child whose parents required him to repair communication more often, because they *deliberately* created communication breakdowns, had a much more advanced grasp of communicative language than did the child whose parents anticipated all of his wants and needs and provided accordingly. Both sets of parents were equally attuned to what their child wanted or needed, but the means by which the child could acquire those things differed drastically by household. Meaden, Halle, Ostrosky and DeStefano found that a little adversity built better language skills.

Ohtake, Yanagihara, Nakaya, Takahashi, Sato, and Tanaka (2005) also conducted research to determine what types of communication repair were used by children with

autism. The most frequent types of communication breakdowns are requests for clarification, nonacknowledgment, and topic shifts (Ohtake, et al., 2005, p. 158). Like Meaden, Halle, Ostrosky and DeStefano's (2008) study, this study also used a very small focus group of young children. Ohtake et al. (2005) stated their research questions as follows:

1. Do elementary-age children with autism and severe cognitive disabilities who are prelinguistic to emergent use one-word communicators to repair communication breakdowns?
2. Which type of communication repair is the most frequently used?
3. When modifications are used as a repair strategy, are the strategies effective and conventional?
4. Are there any relationships between the type of repair strategy and the type of breakdown? (p. 159)

They found that “all the participants selected repetitions or modifications during approximately 90% of the breakdown opportunities” (Ohtake, et al., 2005 p. 162). The types of breakdown that were recorded were repetition, modification-augmentation, modification-substitution, and termination (Ohtake et al., 2005 p. 162). All of the participants in this study tried to repair communication breakdowns most of the time. One of the children used modification and repetition strategies equally, and two used modification more often than repetition strategies.

It was difficult for the researchers to determine the relationship between the type of breakdown and the type of repair used, as the children tended to prefer one or two kinds of repair only. One exception was that modification types of repairs were used more frequently when the teacher used the “not attending and not responding condition”

to elicit repair response (Ohtake, et al., 2005 p. 165). The researchers suggested that in situations where repairs were not immediately successful, or where children did not have opportunity to repair communication breakdowns, temper tantrums and other challenging behaviors would be more likely to occur in the child's attempt to be understood (Ohtake, et al., 2005 p. 167). Ohtake et al. (2005) and Meaden, Halle, Ostrosky and DeStefano (2008) showed that parents and teachers of very young children with autism who are developing language may do those children a disservice by “understanding” what the child needs or wants right away. If this is always the case, the child will have no opportunity or reason to learn communication repair, and will likely show communicative language deficits much later in life.

Losh and Capps (2003) sought “to expand current knowledge of the narrative abilities of children with autism and AS by documenting the pattern of strengths and weaknesses exhibited by children across two different contexts” (p. 242). This research was conducted with the assumptions that children with autism experience difficulties in affective language and nonformulaic storytelling, especially when the story narrative is about something personal. Compared to the control group, the children in the autism group showed nearly identical complex syntax, evaluation, and syntactic and evaluative diversity of language in formulaic storytelling narratives. Ultimately, the researchers found that “whereas nonretarded individuals with autism or AS do not experience the same difficulties narrating storybooks as lower-functioning autistic groups, even highly intelligent individuals with autism or AS encounter problems independently producing thematically integrated and elaborated narratives of personal experience” (Losh & Capps,

2003, p. 248). Children with Autism Spectrum Disorders are likely to suffer from some social difficulties because social interactions are unpredictable much like conversations about oneself. Storytelling narratives are predictable and thematic, and it is therefore no surprise that, having become familiar with the particular discourse and language of storytelling, that the children from both groups scored similarly in that narrative type.

Comparison of Studies

Macintosh and Dissanayake (2006a & 2006b) found that children with Autism Spectrum Disorders are much less likely than typically developing children to have social interactions with other children. This is due to a complex number of variables, some having to do with a lack of social competence, and some having to do with the fact that many children with ASD seem to be satisfied with fewer social connections than would be considered to be 'normal' for a typically developing child (Carrington, Templeton & Papinczak, 2003). Within the autism spectrum, children with Asperger's Syndrome are far more likely than other children with ASD to show motivation to initiate social interactions but are no more or less likely than other children with ASD to experience success in those social initiations, they will simply show higher rates of frustration due to higher instances of failure (Macintosh & Dissanayake, 2006a).

Higher functioning children with ASD will often use "masquerading" (Carrington, Templeton & Papinczak, 2003) to appear to be more socially competent than they actually are. This is likely done both for the reason of having the exterior appearance of social competence so that others will not think poorly of them, but also to have a better personal image of themselves. It is unclear whether masquerading is due to autistic

children's tendency to view themselves as not being notably different from their peers, (Baron-Cohen, 1995) or whether that belief stems from years of successful masquerading. Masquerading sometimes does and sometimes does not extend to pretending to have friends that don't actually exist as seen in some of the subjects in Carrington, Templeton and Papinczak's (2003) study. Most of the subjects of Koning and Magill-Evans' (2001) study "reported having virtually no friends" but still viewed themselves as socially similar to their typically developing peers. Whether the masquerading extends to manufacturing imagined friendships may be dependent on age and environment, and may also be dependent on severity and type of Autism Spectrum Disorder. It is important to note that some children with ASD *are* in fact content with having fewer friends than their typically developing peers. Koning and Magill-Evans (2001) found that many of the children in their study did not "have the motivation to make friends or interact with peers on a regular basis" and *did* report complete satisfaction with their limited social networks (p. 33).

Children with ASD have been assumed by many to lack empathy, and this has been thought by many to impact their ability to correctly interpret social cues. Children with ASD do not necessarily lack empathy, but they do have difficulty interpreting multiple social cues such as facial expression, tone of voice, situational and body cues. Koning and Magill-Evans (2001) found that children with Asperger's Syndrome tend to focus only on one of these aspects of social indication at a time, primarily facial cues.

Adolescence is a challenging time for any child, more so for a child with ASD. Bock (2007) stated that "adolescents with AS are often unable to understand the social

customs associated with dating and other age-expected interactions. This confusion regarding social customs continues through adulthood” (p. 88). Church, Alisanski and Amanullah (2000) found that adolescence marks a time of “increasing anxiety, obsessive-compulsive tendencies, behavioral challenges and ever-changing social skill deficiencies” (p. 19). Anxiety is already something widely experienced by people with ASD, the constantly changing social conventions of middle school can only work to compound the problem. Kelly, Garnett, Attwood and Peterson (2008) based their study on this accepted fact.

Meaden, Halle, Ostrosky and DeStefano (2008), Ohtake et al. (2005) and Saulnier and Klin (2006) all found that prelinguistic children with ASD can be encouraged to develop their language skills better and more rapidly if communication breakdowns are introduced frequently by the adults they often interact with. Requiring communication repair leads to better and more independent language use, both gestural and spoken, and more frequent social initiations. Older children with AS were found by Losh and Capps (2003) to have as good a grasp as typically developing children on using the idiom of storytelling to describe the events in a picture book. When asked to provide a personal narrative, however, it was very clear that personal forms of communication, even when one-sided, are idioms that are far more challenging for a child with AS. It is possible that a program to teach children with ASD to treat certain types of personal narrative as a story about themselves will increase their ability to build communicative ability.

*Interventions in School or in the Home Without Peer Models**Social Skills Treatments Within the Classroom*

Philip Strain (1983) responded to a debate that was current when he conducted his research: whether or not to include children with disabilities in mainstream public school classrooms, and whether inclusion meant separate or integrated classrooms. Strain (1983) asserted that children with autism and children who are typically developing experience benefits when they are given the opportunity to learn how to interact together (p. 23-24). Strain (1983) and his assistants found interesting results with the two aspects of peer behaviors they assessed in the generalization sessions, “(a) the number of social initiations that peers directed toward the target children; and (b) the percent of social initiations by target children that were responded to positively by peers” (p. 29). Each target child showed consistently more social bids to play and more responsiveness to the social initiations made by the boys in the clinical group given no systematic training or setting modifications in a developmentally integrated setting (Strain, 1983, p. 29-30). Strain (1983) found that increased access to peers immediately improved the positive social behaviors of all of his subjects. Though the peers were accessible, they had received no prior training. Strain (1983) stated that “the peer social initiation intervention does not qualify as a skill-building procedure. Rather, the provision of an increased number of social initiations sets the occasion for target subjects to display *existing* social skills” (p. 33). Strain (1983) further noted that measuring disabled children's social abilities when they are enrolled in a separate classroom is not an accurate way to determine their potential for social performance (p. 33).

Chan and O'Reilly (2008) examined “the use of a Social Stories intervention package on the social communication behaviors of 2 students with autism enrolled in full-inclusion kindergarten classrooms” (p. 405). The researchers hoped to help their 2 subjects to reach certain target behaviors with the continued goal of those behaviors becoming self-perpetuating. Chan and O'Reilly (2008) found that both boys benefited from the implementation of the Social Stories program. One boy showed an immediate decrease in his target inappropriate behaviors, and the other decreased his inappropriate vocalizations independently. In both cases the use of Social Stories improved the boys' positive prosocial interactions such that the positive behaviors were reliably maintained over time and into the next school year.

Taylor and Hoch (2008) conducted a case study to determine whether children with autism could be taught to respond and initiate bids for joint attention through the use of novel visual stimuli. This study was conducted to see if “social contingencies alone...can function as reinforcement for joint attention responses in children with autism” (Taylor & Hoch, 2008, p. 378). Using the presence of unusual or unusually placed objects in the room, the researchers recorded numbers of times their subjects made a bid for joint attention. If they did not make a bid for joint attention directed at the target object, the researchers would model the kind of behavior they wanted from their subjects. The researchers found that the children could be trained to initiate a bid for joint attention within 2-13 seconds of being exposed to an unusual item in the presence of an adult.

Family and Extracurricular Programs

Programs that are conducted in the home can have more lasting effects than those

conducted in schools only because of the close relationships held between parental figures and their children. It is in the home that most early language and communication skills are formed, and most typically developing children have formed those skills by the time they have reached the age that they are enrolled in public schools. For children with ASD however, language acquisition may still be in process by the time they begin school. What happens in the home for a child at that stage of language development is very important; the home is still the most influential factor in that child's communicative development.

Kay-Raining Bird, Cleave, Curia and Dunleavy (2008) conducted a case study to determine the effect that parental use of internal state language had for one 3 year old girl with ASD. They found that, for nearly all instances of internal state (IS) speech, the case study child was the subject of that speech. The IS terms used most frequently were those in the sensory category, followed by the desire category. Kay-Raining Bird, Cleave, Curia & Dunleavy (2008) found that “[j]udgment and emotion categories were used with comparable frequency...positive judgments such as 'good girl' constituted almost all of the uses” (p. 170). Parents in families at the higher end of the socioeconomic scale tend to use more instances of IS speech with their children. Given that the parents who participated in this study both “were professionals with high levels of education”, the researchers expected to find that use of IS speech would be high, but that the child would not be as receptive (Kay-Raining Bird, Cleave, Curia & Dunleavy, 2008, p. 171). Indeed, the parents showed frequency of IS speech within the normal range for their socioeconomic status, but the use was at the low end of the scale. Kay-Raining Bird,

Cleave, Curia and Dunleavy suggested that the girl's disability may have affected this lower rate, but also that if her parents had used a higher rate that her language development may have been more rapid.

Kelly, Garnett, Attwood and Peterson (2008) wrote about the potential impact of family and/or peer conflict and cohesion on the ability of children with ASD to form peer relationships and to interact with others in an appropriate manner. The specific hypotheses used by the authors were as follows:

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|------------------|---|
| Hypothesis 1 | There will be a significant positive relationship between the child's anxiety/depression and ASD symptomatology. |
| Hypothesis 2a/2b | Family conflict/peer victimization will indirectly predict ASD symptomatology via anxiety/depression. |
| Hypothesis 3a/3b | Family cohesion/positive friendships will indirectly negatively predict ASD symptomatology via anxiety/depression. |
| Hypothesis 4 | Given that children with ASD are likely to find family conflict particularly distressing and may have limited capacity to understand and utilize the benefits of friendship, negative peer and family relationships will have a greater effect on anxiety/depression than positive relationships. (Kelly, Garnett, Attwood and Peterson, 2008, p. 1071) |

Through their comprehensive model of data acquisition, Kelly, Garnett, Attwood and Peterson (2008) found that family conflict strongly predicted heightened anxiety and bullying levels in the children who participated in this study. There was also a positive correlation found between having more than one child with ASD in the family and heightened family conflict. The authors suggested this correlation was likely due to the heightened stresses that occur in a family juggling responsibilities and concerns related to having more than one child on the autism spectrum. Their findings likewise suggested

that children who have “less traumatic interactions with peers” may also experience greater cohesion in their home lives.

Thomeer, Volker and Nida (2006) worked to develop a summertime cognitive-behavioral program to help children with Asperger's Syndrome to modify certain social behaviors. All activities at this summer program were engineered to guide the participants to learn how to interact socially with their peers in a reciprocal manner. Therapeutic activities included cooperative games designed to require at least two children to complete the task, facial expression recognition activities, and interest expansion activities.

Though Thomeer, Volker and Nida (2006) hypothesized that there would be general improvement across all participants, the posttest results did not fully support this hypothesis. As in other studies, parent and educator reports varied: parents found almost unanimously that their children's behaviors had improved, and that they showed fewer atypical or unusual behaviors at home after they completed the program. However, the staff of the program found that there was a general *increase* of atypical and undesirable behaviors.

Though there were no definite reasons for this discrepancy of reporting, the researchers gave some hypotheses about why the reports were so different: the staff were unfamiliar with the children and their “more subtle idiosyncratic and unusual behaviors...before making their initial ratings” (Thomeer, Volker & Nida, 2006, p. 243). The children and staff could have experienced a “honeymoon period” where the children were on their best behavior because they were in a new situation. It was also found

possible that the observed discrepancies of behavior had to do with changes in environment.

In Bock's (2007) study, he attempted to answer three research questions using a Social-Behavioral intervention program previously developed by the author (Bock, 2000, as cited in Bock, 2007). These questions were: "First, can children with AS learn thinking strategies that will effectively guide their information processing during social interactions? Second, if so, will children with AS use these thinking strategies to guide their information processing during social interactions? And third, if used, will these strategies facilitate effective problem solving by children with AS when they participate in social interactions?" (Bock, 2007, p. 88). Bock's intervention program was called SODA, which stands for Stop, Observe, Deliberate, Act, and was a mnemonic created to help the participating child to remember what to do, and in what order. Following this program, all participants showed drastic improvement in cooperative learning and social interaction skills as compared with their own baseline behaviors. The children in the control group showed consistently high percentages of cooperative behavior most of the time; by the end of the program the participating children in the clinical group began to show cooperative behaviors nearing the same frequency as those in the control group.

SODA allowed the children in the clinical group to begin to self-monitor their behaviors by giving them structured tools to use. Even after the official program had run its course, all children indicated that they continued to use SODA as they had been taught "because it helped them make sense of what their peers did during social studies group, at noon recess, and at lunch" (Bock, 2007, p. 94). One of the students reported that he used

SODA in his other classes in order to help him make sense of what was expected of him by his teachers and peers in those situations. The special educators who were involved with helping to implement this intervention reported that SODA was a “highly effective intervention for their student with AS” and that they were highly interested in continuing to use the program with the program's participants and also with other students (Bock, 2007, p. 94). The results of the SODA program can be considered to have been cumulative, as the program was conducted with children who had previously participated in a year-long intervention that taught them to use a Theory of Mind model of mind-reading. Bock (2007) surmised that the SODA program was made more effective when used in conjunction with the Theory of Mind program, and suggested the two programs would each be more effective when conducted together.

Comparison of Studies

Philip Strain (1983) was one of the first autism researchers to insist that inclusive classrooms would be of benefit to children with Autism Spectrum Disorders and their typically developing peers. Strain (1983) used simple proximity of children with ASD and children who are typically developing to prove that inclusive classrooms provide “an increased number of social initiations [which] sets the occasion for target subjects to display existing social skills” (p. 33, emphasis removed).

It is now known that simple proximity in general education classes is sometimes not enough to provide children with ASD and typically developing children with the skills to successfully interact in such a way as to make group work possible. Both typically developing children and children with ASD require skill building programs and

adult support to reach a classroom state of *full* inclusion.

Chan and O'Reilly (2008) used a Social Stories intervention to teach two young boys how to have positive prosocial interactions with their kindergarten peers. As with many other Social-Stories-type interventions, this program was found by the teachers to be both helpful for the students and easy for students and adults to use. Bock (2007) likewise examined the effects of the use of a Social-Stories-like program: "Stop, Observe, Deliberate, Act" or SODA. Like Chan and O'Reilly's (2008) program, this program was conducted with children within a school setting. Both programs were very successful for the students who participated, and the participants continued to use their respective programs past the time that the official interventions had ended, with continued success. Additionally, Bock (2007) noted that his subjects previously had a year-long Theory of Mind training, and that it was likely that the two programs in conjunction were responsible for those students' success. It is clear from these studies, and others not discussed here, that children with Autism Spectrum Disorders benefit from being told specifically what to expect from social situations, and why that social expectation exists.

The home of a child with ASD is the place where most of the building blocks of communicative language are developed. Kay-Raining Bird, Cleave, Curia and Dunleavy (2008) and Kelly, Garnett, Attwood and Peterson (2008) conducted studies that monitored familial effect on language, and on whether anxieties centered in the home would adversely affect the ability to interact with peers. Communicative language will be inhibited in circumstances where the child is too anxious or too stressed to be able to think clearly.

Thomeer, Volker and Nida (2006) hypothesized that a supplemental program in the summer to modify certain social behaviors would be beneficial for children with Asperger's Syndrome during a time that they would normally be at home. The idea behind the program was to provide a structured environment with peers when they would normally only have access to the social structures of family. Cooperative activities with peers, combined with reinforcements of desired behaviors provided mixed results. Less desirable behaviors were observed by the adults at the camp more frequently, and those adults reported unfavorably about the results of the program. However, the parents of the children who attended the program found an increase of desired behaviors in their children. It is possible that this was due to superfamiliarity of those children on the part of the parents who would be able to detect any perceptible change. It is also possible that the adults at the camp experienced a "honeymoon phase" with the children, and that once that phase was over, the children's actual baseline behaviors looked much worse than the pseudo-baseline behaviors (Thomeer, Volker & Nida, 2006).

Interventions that Involve Peers

Studies of Social Integration

Reaven, Blakeley-Smith, Nichols, Dasari, Flanigan, and Hepburn (2009) reported the success of a pilot program in Cognitive-Behavioral Group Treatment in which children with ASD were given the opportunity to learn social skills within a group of similarly aged, similarly functioning peers. These peers were intended to be a supportive group of people experiencing similar difficulties. In addition to the support group, families were provided with manuals to use to reinforce skills that were being developed

in the groups while at home. Decreasing felt anxiety was a major goal for this program, as anxiety can prevent individuals from voluntarily entering into social interactions. In this study, “parents reported significant decreases in anxiety symptoms in their children following participation in the manualized cognitive-behavior group therapy intervention” (Reaven, et al., 2009, p. 33). However, the children self-reported either no significant effect on decreased anxiety symptoms, or even an increase in anxiety symptoms. Reaven et al. (2009) presumed that the children “underreported their symptoms of anxiety at pretreatment” (p. 32-33) but it is equally possible that children were accurately reporting their anxiety symptoms before and after treatment.

Gun Han and Chadsey (2004) conducted their study to find how gender and grade level are implicated in the friendship expectations of middle school students regarding their peers with severe disabilities. The authors' assumptions were that: “For students with disabilities, it is now widely affirmed that friendships are considered important for a high quality of life” and “[a]s children become young adolescents, friendships with peers become increasingly important because peer offer necessary models and back-up supports formerly provided by family members” (Gun Han & Chadsey, 2004, p. 205). As family is no longer the only source of behavior modeling and emotional/social support, it falls to schools and often peers to provide those models and support.

In Gun Han and Chadsey's (2004) study, it was found that the activities done by students with peers who did not have disabilities versus activities done by students with peers who did have severe disabilities were very different. Quality and quantity of interactions differed across gender, but even more so across grade. When asked about

what kinds of activities were done with peers without disabilities, “[m]ore than 70% of the boys across all grade levels indicated that they participated in sports at school...Girls also mentioned [different] sports as their number-one in-school activity...Talking with others at school and playing games were also mentioned as frequently occurring activities by boys and girls” (Gun Han & Chadsey, 2004, p. 208). Activities after school revolved around social activities the adolescents could do without adult supervision.

When asked about their peers with severe disabilities, only 14% of the respondents said they did have friends with severe disabilities, most of these respondents were in 8th grade, none in 7th, and a few in 6th. Most of these respondents reported meeting these friends in classes, at church, or rarely, through other non-disabled friends. Most students, regardless of gender, said they would be willing to have severely disabled friends. The few who said they would be unwilling gave reasons that indicate a need for peer training about how to interact with children who have disabilities, and that all classes need to be more inclusive than they are currently.

Chamberlain, Kasari and Rotheram-Fuller (2006) tried to understand how children with Asperger's Syndrome and with High Functioning Autism experience loneliness in classroom settings. Their research sought to answer questions such as “[w]hat is the nature of the social structure into which the child is being included? What peer relationships are available, and how will participation influence the child's status in the classroom?” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 230). The authors found some interesting things about the social networks in place among the children in this inclusive classroom. As children got older, their “Top 3” and “Best Friend”

reciprocity became less reliable, but their social network groups were more reliable among “same-matched peers”. Reciprocity among social networks was very unreliable among all children with ASD: “Children with autism nominated significantly more peers as buddies they 'like to hang out with'...than nominated them” whereas with matched peers “this comparison was not significant” (Chamberlain, Kasari & Rotheram-Fuller, 2006, p. 230).

In nearly all cases the children with ASD were socially non-central, with one exception. Chamberlain, Kasari and Rotheram-Fuller (2006) reported about one girl with ASD in this classroom who did have social centrality. Her parents were very proactive in their involvement with the school, the girl's teacher, therapist, and other parents. They also developed social scripts at home which they reviewed with their child. Her social ability far exceeded that of the rest of the children with ASD who participated in this study due to the numerous interventions she had experienced from a young age.

The social isolate children interviewed in this study surprised the authors by their seeming satisfaction with their social arrangements. Despite not having social centrality and experiencing few reciprocal friendships, these children reported that they did not feel lonely or isolated. It is likely that these children would not falsify feelings of loneliness, and that therefore they did not feel lonely or isolated, but given the reports of how the other children treated those individuals, it seems just as likely that the children had a skewed perception of how well they fit into the social schemata of the classroom. It is also somewhat likely that the children with ASD were utilizing masquerading to some extent to appear to *not* be socially isolated, and the authors did take this into account.

Pearl, Farmer, Van Acker, Rodkin, Bost, Coe, and Henley (1998) wrote about perceptions between children with mild disabilities and their peers while in an elementary school setting. Pearl et al. (1998) tried to answer these questions: “(1) Do classmates perceive students with mild disabilities as being members of peer groups? (2) How do peers perceive the behavior of students with mild disabilities? (3) Is the peer-assessed social behavior of students with mild disabilities who are isolated different from the peer-assessed behavior of students with mild disabilities who are in peer groups? (4) What are the characteristics of the peer groups of students with disabilities who are not isolated?” (p. 170). These authors surmised that students with mild disabilities will not always be welcomed into peer groups, or that they may form separate peer groups of their own.

The authors found that not all children with mild disabilities were social isolates, but that the children who had mild disabilities “were overrepresented as isolated and as members of antisocial groups, and they were underrepresented as members of prosocial groups” (Pearl et al., 1998, p. 180). Due to this, children with mild disabilities are more vulnerable to “associating with deviant peers” and are also vulnerable to such things as gang activity, drug usage, and exposure and possible participation in petty crimes (Pearl et al., 1998 p. 181).

Cooper, Griffith, and Filer, 1999 wrote their article informed by their understanding that children with ASD have a “tremendous need in the area of socialization” (p. 110). The researchers wanted to discover how effective their intervention strategy was for improving the inclusion and social interaction rates of two upper-elementary school-aged children with ASD. This program involved the entire

middle school, with training and reinforcement for all of the typically developing children at the school, with specific focus within that program on two children at the school with ASD who were lacking in social networks.

Following the program, those two students became an integral part of their school, and other students with special needs at the same school also became more integrated. The program seemed to have a positive effect on student to student interactions overall, and was in keeping with the authors' assumption that “[a] model for inclusion of students with disabilities in the general education classroom should be deliberate and comprehensive” (Cooper, Griffith & Filer, 1999, p. 114). Moreover, the success of this program was dependent on the cooperation of the entire student body and teaching staff of a school. Its success is telling.

Measures of Social Integration

In order to show how well children with ASD are integrating into their classroom and school environments, it is important to have reliable measures of social integration at one's disposal. Murdock, Cost and Tieso (2007) created and tested the Social-Communication Assessment Tool (S-CAT) to measure how well children with HFA are able to communicate and interpret communication in social situations. This measurement tool was initially developed as a means to prove to school districts that children with ASD have clinical social impairments and therefore should qualify for additional services to address that aspect of the disorder. S-CAT was developed with the problem of subjective parent and teacher reporting in mind.

The S-CAT used communication behavior ratings in the following categories:

verbal initiations, verbal responses, joint attention, and nonverbal communication attempts (Murdock, Cost & Tieso, 2007, p. 165). The S-CAT showed that children with ASD used social interactions and communication about half as often as their peers. “The students with ASD exhibited 40% to 57% less of each communicative behavior than their classroom peers” (Murdock, Cost & Tieso, 2007, p. 168). As has been seen in other studies, children with Asperger's Syndrome made more verbal bids for communication and more instances of joint attention than did the children in the other clinical groups. Interestingly, children with autism showed more *nonverbal* attempts at communication than the children with AS or PDD-NOS (Murdock, Cost & Tieso, 2007, p. 168). The social initiations directed at the children with ASD were limited, which may have in turn limited the number of times the children with ASD were able to participate in communication.

Carothers and Taylor (2004) looked to understand how effectively children with Asperger's Syndrome and typically developing children “are able to interpret the social intentions of their peers in situations in which there are conflicting cues between the intention and the outcome of an action” (p. 178). They also wanted to determine whether “with a given interpretation of social intention, there is a difference in the social interaction strategy chosen by students with Asperger syndrome and typically developing students” (Carothers & Taylor, 2004, p. 178). The researchers found that children with Asperger's Syndrome have less accuracy when they attempt to encode social information. Specifically, “students with Asperger syndrome first encod[ed] fewer benign intention cues than they typically developing group, and then reject[ed] a higher percentage of

those cues that they did encode” (Carothers & Taylor, 2004, p. 182). This means that the children with Asperger's Syndrome were not correctly identifying interactions that were meant to be benign, and were in fact interpreting those interactions as “mean”. In contrast, children from the typically developing group were more likely to identify “mean” interactions as benign if there were benign cues present, and were more likely to identify ambiguous cues as “not mean”. Carothers and Taylor (2004) noted that “ both groups were equally likely to consider a peer ‘mean’ when presented with conflict situations containing a variety of conflict cues” (p. 182). Overall, the researchers found that it was possible to determine whether a child was in the AS group or the TD group simply by looking at their program responses.

Carothers and Taylor also found that children from the AS group were more likely to give aggressive responses to “mean” cues than children from the TD group. The responses most-to-least likely to be given by children from the TD group were: avoidant, assertive, appeal to authority, accommodating, other, and aggressive. The responses most-to-least likely to be given by children from the AS group were: avoidant, assertive aggressive, appeal to authority, accommodating, and other. Some of the “other” responses from the AS group seemed irrelevant to researchers, and some of the “aggressive” responses seemed excessively so. There was no determination of why the children gave those responses, and it is possible that the “other” responses came from some informal social script gained from a relative or T.V. show, and that the “aggressive” responses stemmed from underlying frustration about similar situations in the past.

Training Peers to Provide a Supportive Environment

It has become clear from the cumulative research reviewed here that “it is necessary for students with autism to have some exposure to typical peers in order to foster the learning of appropriate social skills” (Laushey & Heflin, 2000, p. 183). Simple proximity exposure will not be sufficient for full integration; it will only ensure that age-group peers will see each other, not that typically developing children will interact with their peers with ASD in a mutually beneficial manner. Garfinkle and Schwartz (2002) sought to understand what kinds of observational learning strategies were used by preschool-aged children with ASD and other disabilities while in their preschool class. They also wanted to find whether the intervention program they had developed would be effective in improving the observational learning strategies employed by those children.

Before beginning Garfinkle and Schwartz' (2002) program, none of the participating children exhibited any peer-imitative behavior. Following the training, all participating children showed at least a small increase in the number of peer imitations, though some participants needed more prompting than others. One child showed ability to sustain the ability to imitate peer behaviors following removal of the program to baseline (Garfinkle & Schwartz, 2002, p. 33). The children also showed small increase in their total number of social interactions during both group work and free play time during the implementation of the program. The teachers noted that the typically developing children in the classroom seemed more sensitive to the social needs of the children with social delays, they “were better at waiting and taking turns” (Garfinkle & Schwartz, 2002, p. 35). The program was rated as easy to use, and readily repeatable, by the adults who helped institute the program with their students.

Laushey and Heflin (2000) also conducted a study with young children, to determine how a classwide peer tutoring program affects the social behaviors of kindergarten children with autism. Laushey and Heflin conducted this study in order to:

determine if a peer-initiated procedure that is taught to all peers in a kindergarten class will yield more or less effective results than a proximity approach to peer involvement. It is expected that the training of an entire class, including those students with autism, will increase the generalization of social skills across tutors. (p. 185)

The creation of a buddy program in this classroom pairing typically developing children with their peers with ASD “elicited more appropriate social skills in the students with autism than the passive proximity approach” (Laushey & Heflin, 2000, p. 189). As with Garfinkle and Schwartz' (2002) study, this program also had the side effect of making the typically developing children more willing to reach out to their peers who were different, whether they were the children with autism or just other TD children in the classroom they had not previously interacted with in the classroom. This program was found to be easy to implement and use by the adult professionals in the classroom, and provided marked improvement in social behaviors for all participating children.

Nelson, McDonnell, Johnston, Crompton and Nelson (2007) also conducted a study with very young children, understanding that while children with autism almost unilaterally experience difficulty in learning how to insert themselves into social situations, it is easier to teach those skills to children who are very young. This is a common theme for peer intervention programs; the younger the peer group, the easier it is to teach skills that will last beyond the program. The authors also had the understanding at the beginning of their study that children with ASD tend to respond

more readily to visual stimuli rather than spoken. They hoped to show that “peer-mediated instruction that was embedded within ongoing preschool activities [could] teach the use of a visual strategy for initiation” (Nelson, et al., 2007, p. 166).

The children in the study conducted by Nelson et al. (2007) showed that the program increased the successful social initiations and subsequent interactions, but not as originally intended. The children who had previously been non-verbal learned to make verbal initiations, and the children who had previously referred to themselves in third person began using the word “I” self-referentially after being given the phrase “I want to play” to use to initiate interactions. None of the children preferred using the “Key to Play” to initiate social interactions. This told the authors that the children needed specific instruction about how they could initiate social play, not that they did not want to, and not that they needed a visual piece of stimuli to successfully make a bid for social interaction.

As most of the studies exploring means to teach children with ASD and their typically developing peers how to interact with each other in public school settings are conducted with very young children, McDonnell, Mathot-Buckner, Thorson and Fister's (2001) study is important because it explores social development and peer groups among typically developing children and children with disabilities in middle school. The peer tutoring program developed the cooperative skills of all participating children through triads in which each student “played one of three instructional roles during the peer tutoring sessions including tutor, tutee, and observer” (McDonnell, Mathot-Buckner, Thorson & Fister, 2001, p. 149). For all participating students in both groups, there was a marked increase in the academic/ability responses, as well as a marked decrease in

“competing behaviors” for negative attention from peers or the teacher (McDonnell, Mathot-Buckner, Thorson & Fister, 2001, p. 155). The researchers found that “a classwide peer tutoring program, combined with multi-element curriculum and accommodations, improved levels of academic responding and decreased levels of competing behaviors by students with moderate and severe disabilities enrolled in junior high school general education classes” (McDonnell, Mathot-Buckner, Thorson & Fister, 2001, p. 157).

Comparison of Studies

Peer intervention is a tool that can and should be used by public school teachers to ensure that children with Autism Spectrum Disorders can be successfully integrated. Without peer involvement on a very basic level, some children will forever be pushed to the margin of a classroom community. In order to strike a balance between the margin, inclusion, and many children's need for well-defined personal space, typically developing peers must know how to be supportive, inclusive and respectful of what is needed by a person with a sometimes-challenging disorder. Reaven, Blakely-Smith, Nichols, Dasari, Flanigan and Hepburn (2009) tried to develop a program that would give children an opportunity to learn how to act and react in social situations with peers who were similarly aged and who performed at similar developmental levels. Group and family interventions with Social-Stories-like social scripts were used. Again, there was a marked difference between parent and child reports; where parents saw a decrease of anxiety symptoms, children reported an increase. Strain (1983) would have disagreed with this program's use of similarly developmentally delayed peer models, it would be of

greater benefit to attempt a similar program with typically developing peer models also attending the therapy sessions, and for those sessions to be structured in a way that resembled more natural human interactions.

Gun Han and Chadsey's (2004) study outlined how important it is to provide training to typically developing children about their peers with disabilities. Middle school is a rough time, and researchers like Church, Alisanski and Amanullah (2000) and Kelly, Garnett, Attwood and Peterson (2008) have also recognized this and based their research accordingly. Social mores are constantly in flux during this time of life, and children with ASD are not alone in their experience of social anxiety and uncertainty. Gun Han and Chadsey (2004) found that very few typically developing adolescents in their study did have friends with severe disabilities, though most adolescents in the study who did not said they would be willing to try having friends with disabilities. The small percentage of children who said they did *not* want a friend with disabilities had the most telling reasons for developing structured, educated inclusion: These reasons were fairly consistent across gender, and were most frequently "They are not in my classes...They are always with teaching assistants...I don't know any...I feel uncomfortable around them...I would not know what to say." Three reasons that were more frequently given by boys than girls were "They could not do things I like to do" "My friends might tease me" and "I am a little afraid of them" (Gun Han & Chadsey, 2004, p. 210). These reasons indicate that nowhere near enough education about how to interact with these children, and why one would want to, has taken place. A program like the one undertaken by McDonnell, Mathot-Buckner, Thorson and Fister (2001) might help alleviate some of the distance felt

between the children with ASD and typically developing children. The structure of the triad program that they used created a safe and predictable way for children with ASD and their peers to interact in such a way that each person had a chance to be the 'expert' and to help their peers in a functional and useful way. The increase of academic and ability responses for both the typically developing children and those with disabilities who participated in the program was drastic enough to show that such a program can be beneficial to all children in a school classroom.

Chamberlain, Kasari and Rotheram-Fuller (2006) studied friendship relationship reciprocity and loneliness among multi-aged children in a public school setting. Though children with ASD were not, with one exception, socially central to the friendship groups in the classroom, none reported feelings of loneliness or isolation. The children's perception of how they fit into the social networks of the classroom may have been skewed, as parent and teacher reports of peer treatment occasionally inconsiderate or outright cruel treatment of the children with ASD. However, even with the possibility of very successful masquerading in mind, it is *very* unlikely that all of the children with ASD in this study would falsify reports stating that they did not feel socially isolated and lonely. This may mean that children with Autism Spectrum Disorders do not need the same quantity or even quality of relationships enjoyed by their typically developing peers to feel satisfied and happy. This does not mean that they do not need any relationships, and it may mean that teachers should be extra vigilant to make sure that their vulnerable students do not come to harm at the hands of other students who may take advantage of their sometimes *laissez-faire* attitude toward interpersonal relationships.

Pearl, Farmer, Van Acker, Rodkin, Bost, Coe and Henley (1998) expressed concern that this attitude combined with peer marginalization would cause children with ASD to be much more vulnerable to “associating with deviant peers” and also to such things as gang activity, drug usage, and exposure to and possible participation in petty crimes (Pearl, et al., 1998, p. 181). Pearl et al. (1998) found that children with mild disabilities such as autism “were overrepresented as isolated and as members of antisocial groups, and they were underrepresented as members of prosocial groups” (p. 180). As children and adolescents with ASD grow older, they will take social interactions where they can; as we have seen, children with AS particularly do seem to crave a lot more in the realm of interpersonal relationships than others. Lack of social competence creates a marginalized group, which means that it is most likely that children and adolescents from other marginalized groups will be the only other peers willing to associate with socially awkward youth with ASD.

Cooper, Griffith and Filer (1999) also found that children with ASD have a “tremendous need in the area of socialization” (p. 110). Their study showed that a school-wide program can greatly change the way that middle school children view their peers with disabilities, thereby creating immense possibilities for more functional social interactions between TD children and their peers with ASD. This kind of program is completely dependent on consistent cooperation from school staff and teachers, and is also dependent upon all of the children in the school 'buying in' to the program.

Murdock, Cost and Tieso (2007) created the assessment tool S-CAT to measure communication behaviors in the following categories: verbal initiations, verbal

responses, joint attention, and nonverbal communication attempts (p. 165). The researchers found that children with ASD used social interactions about half as often as their peers. Children with Asperger's Syndrome made more verbal bids for communication and joint attention than did the children in the other clinical groups, but the children with classic and High Functioning Autism made more nonverbal attempts at communication than the children with AS or PDD-NOS. There were very limited communication attempts directed *at* the children in the clinical groups, which limited the number of opportunities those children had to practice participating and responding to communication. Those limited opportunities may affect the ways in which children with AS identify and encode social information. Carothers and Taylor (2004) found that children with Asperger's Syndrome were not correctly identifying intent behind interactions they viewed on videos shown during Carothers and Taylor's research.

Carothers and Taylor (2004) found that the children with Asperger's Syndrome in their study were more likely to give very aggressive responses to “mean” cues than children from the TD group. It seems likely that these children were lacking in social skills training; this is another case where increased Social Stories scripting and instruction may have made a difference in children's responses.

Garfinkle and Schwartz (2002), Laushey and Heflin (2000), and Nelson, et al. (2007) all found that peer training was a far more effective means for increasing communication than simple proximity. All three sets of researchers also found that it was most effective to build lasting social skills with younger children. Garfinkle and Schwartz (2002) worked with young children to increase their peer-imitative behavior.

Their program created an increase of interpersonal skills in all children both typically developing and affected by autism. The typically developing children showed greater sensitivity to the needs of the children with ASD, and the children with ASD showed sustained increase in their total number of social interactions.

Laushey and Heflin (2000) showed that, like Garfinkle and Schwartz' study, their classwide peer tutoring program was also effective for all children in an inclusive classroom. Children within this group showed greater likelihood to reach out to and cause a supportive environment for their peers. Nelson, et al. (2007) also showed marked increase of functional social interactions due to the implementation of their program. In addition, the children who had previously had little to no verbal skills began to use verbal initiations due to the structure of this program.

Classroom Implications

The classroom implications of this reviewed research indicate that there is a great need to include peer tutoring and inclusion programs into standard curriculum if inclusive public schools are to become the norm. There are two main areas in which improvement can be made in order to create a school environment that supports children with ASD enough socially to make group work in classrooms possible. The first is in specific individualized instruction of the children and adolescents with ASD themselves. Theory of Mind (Baron-Cohen, 1995) and Social-Stories-like programs (Carothers & Taylor, 2004; Chan & O'Reilly, 2008) used in conjunction are likely the best means to teach children and adolescents with ASD how to effectively understand how to act and react

within social situations (Bock, 2007). These programs together would make “mind-reading” (Baron-Cohen, 1995) to determine intent for purposes of communication with peers an easier matter for children who struggle to understand social cues given during matter-of-course interpersonal interactions. Social Stories can be used by children and adolescents in a wide range of ages and generally require little initial effort from the adults who work with the children using them. The sustained effort of maintaining a Social Stories program is also minimal, and as the program progresses and the child using the Social Stories becomes more competent, much of the sustained effort shifts from adult to child to become self-maintaining.

The second main area in which improvement can be made in order to create a supportive, inclusive school environment is in peer training. Several different means to provide peer training exist, and all can be considered to be useful depending on the school environment and policies. A whole-school program such as the one undertaken by Cooper, Griffith and Filer (1999) can be done with a school where every person in the school is willing to participate, and where the school itself has sufficient resources to support a school-wide program. More realistically for elementary school, classroom-by-classroom programs that are supported by the school could be easily implemented.

Several different iterations of in-classroom programs exist, and so long as the teacher and support staff are dedicated to making sure that the programs are properly implemented. Peer-support programs for younger children exist in greater quantity than those for older children, but can possibly be modified to work in classrooms of older children. Programs such as those executed by Garfinkle and Schwartz (2002), Laushey

and Heflin (2000) and Nelson, et al. (2007) are designed to create the building blocks for interpersonal communication that most children generally pick up as a matter of course when they are very young. Programs for very young children take advantage of their natural tendency to learn things at a rapid pace. Both typically developing children and children with ASD are in the process of learning how to interact with other people at this developmental stage, and it will be easier to get young children who are TD involved in helping their peers to learn something they are themselves in the process of learning. Getting younger children involved in helping their peers with ASD will give them a sense of ownership and responsibility within the classroom. This will also help to ensure that the children with ASD have both a better chance at developing interpersonal skills at a similar rate to their peers, and to have a wider more understanding peer support system as they grow older. These programs of peer support such as the “Buddy System” done by Laushey and Heflin (2000) can probably be used in classrooms with very young children, from preschool to first or second grade, when children still have time in the classroom where they are allowed to have educational play-time where they are also expected to build social skills. The “Buddy System” would require a bit of organization on the part of the teachers in the classrooms in which it was used, but once implemented, it would use fairly minimal time and resources to continue to use.

Nelson et al. (2007) provided the subjects of their study with simple social scripts to access play groups. Though Nelson et al. (2007) provided their subjects with a tangible object to use in conjunction with the social script, but none of the subjects used the object. Because the object does not appear to be required, this would be a simple

enough program for teachers to do and to maintain. Within the classroom, with younger children, teachers can monitor proper use of the social scripts, and can work with playground attendants to continue use in unstructured play settings.

McDonnell, Mathot-Buckner, Thorson and Fister's (2001) program would be a good one to implement following several years of social training through structured and unstructured play. Structured study groups that utilize one or more peer models are ideal ways to introduce children with ASD to group work in a functional manner. The “tutor, tutee, and observer” model of rotating responsibility allows all children in the class to have a role to fill. The roles themselves are very important, and it is important to the success of this type of classroom program that each child have the opportunity to fill each role frequently. The role of the tutor means that child is, for the moment, the 'expert' in whatever the subject is at hand, and has plenty of reinforcement in their knowledge of that subject. The role of tutee means that, even if the child already knows about the subject, there is reinforcement given, and if they do not know about the subject, they are accessing knowledge from a peer rather than from the teacher. The role of observer might better be called the role of observer-coach, where the goal of the job is to watch to ensure that the tutor and tutee are correctly fulfilling their roles, and to coach the tutor if he or she is stuck or unsure about how to tutor in that subject. The observer also incidentally learns more or is reinforced in his or her learning in this manner.

A similar program not previously discussed in this paper is that of dyad pairing. Most frequently used with reading, this is a program that can be used as a stepping stone to larger groupings. Dyad reading can be done in a couple of different ways. The way

that is recommended by Heather Rader, a teaching coach with the North Thurston School District (2009) is to use “partner paragraph reading” where one child reads a paragraph or development-appropriate-length passage, and then the other child paraphrases what has been read, then reads the next piece. This creates the need for both active listening and reading clarity, gives both children in the group a job, and can be done from as little time as 5 minutes to a full hour. The second way to do partner paragraph reading was used by the author of this thesis during student teaching, and is done synchronously, then both partners discuss what has been read. Children who are slow readers or who are still developing their language skills get pulled up into the ZPD, and children who read very fast are required to slow down enough that their story retention and comprehension is improved. Using smaller groups to begin with, then working up to groups of 4 as outlined in Elizabeth Cohen's (1994) work, may be one way to build the ability to tolerate and benefit from group work for the child with ASD.

As Cooper, Griffith and Filer (1999) stated, “[a] model for inclusion of students with disabilities in the general education classroom should be deliberate and comprehensive” (p. 114). Nothing done with the goal of classroom inclusion should be done in a slapdash manner, the same should be said about designing functional group work. Children with Autism Spectrum Disorders must be supported to develop the relevant interpersonal skills within an inclusive classroom setting in order to be successful when asked to work in groups.

Suggestions for Further Research

Many of the studies reviewed shared the weakness of having had fewer subjects than could have been considered to be sufficiently sized samples to prove the validity of those studies. Many studies were only case studies, and cannot truly be generalized to the greater population of children with ASD until further research has been conducted with larger samples for the clinical groups.

Another notable weakness of many studies was the lack of control groups. Some studies had well matched control and clinical groups, some had poorly matched groups, and some had no control group at all, which threatens the ultimate validity of those studies. Future studies must take this into account and attempt to repeat some of the studies that seemed like they presented meaningful and useful information with larger samples of the clinical group, and with viable control groups.

Familiarity with the types of reactions that are likely to come from a certain group of people would also greatly improve studies like the one conducted by Taylor and Hoch (2008). Taylor and Hoch (2008) made a research mistake in not taking into account the tendency held by many children with ASD to notice things that seem odd or out of place to them that may not appear to be so to a typically developed adult. The hypersensitivity to change experienced by many people with ASD could easily account for the child in their study noting that a book seemed out of place on the shelf. That the researchers discarded that as a bid for joint attention seemed like sloppy research. This study should be restructured in such a way as to account for autistic children's tendencies to notice things that are out of place whether they are the target object or not. This study was also

one that needed a control group and a larger sample of children for the clinical group.

Additionally, it was unclear from the authors' description how the training for using bids for joint attention would ultimately benefit the few children who did participate in their study.

Dyad pairing is a kind of group work that has not been explored specifically in the realm of autism research. Much like McDonnell, Mathot-Buckner, Thorson and Fister's (2001) program for triad learning, dyad pairing is a very flexible method of utilizing groups, with built in structure for each type of dyad configuration. Classrooms that already use dyad configurations and classrooms that do not could be examined against classrooms that have not used dyad configurations in the past, but that introduce them for the purpose of a study. It would also be interesting to note what types of group work work best with children who have ASD. Do they function better in a group if there are only one or two other people, or if there are three or more other people? Do their academic performances really improve within a group setting as proposed in this paper? Does the Zone of Proximal Development work the same way for children with ASD as it does for typically developing children? Is it possible that children with ASD do not benefit from working in groups? No one to date has attempted to answer these questions using viable research. As group work is used more frequently in schools, and as the percentage of individuals affected by autism continues to rise, finding the answers to these questions will become more pressing and vital than ever.

Conclusion

Children with Autism Spectrum Disorders tend to experience difficulties in understanding what to do and how to react in many social situations. In the public school setting, this can become a problem, especially as more and more classroom teachers move to using group work as the main model of instruction. In order to make it possible for children with ASD to fully participate in public school education, it is necessary for teachers and other adults who work with children with ASD to learn how to make it easier for those children to tolerate and benefit from those learning and teaching models. This paper sought to answer the questions: What techniques and strategies exist to help to support children who have an autism spectrum disorder to succeed academically and socially within inclusive public school classrooms? And how can an average teacher incorporate these techniques and strategies into a regular education classroom?

The histories of Autism Spectrum Disorders and of group work and cooperative learning have not until recently begun to intersect. In the early days of public school, children with severe autism would not have been allowed to attend, these days they are required. In the past few decades most schools have moved from models that separated children with disabilities from their typically developing peers toward models that advocate for full inclusion of all children in general education classrooms. Though there are laws in place to support this requirement, there are few resources in place that allow the teachers of ability-integrated classrooms to understand how to teach their students with ASD.

Through a review of the literature it can be seen that children with ASD are slower to develop the skills needed to interact with their peers at school, and some may not develop those skills without help. Teachers and other school professionals can help those children by providing explanations for others' actions, and social scripts to use in situations that the children find confusing or difficult to handle. Peers can be involved in providing support for the children with ASD so long as the support is mutual; use of Elizabeth Cohen's (1994) models of cooperative learning may also be helpful in this regard.

There are many questions that remain unanswered in autism and cooperative learning research. As an area of study this kind of research remains largely unexplored. The best things that can be done in inclusive classrooms to support the children who have trouble working in groups of their peers is to provide them with a variety of means for coping with that situation. It is important to remember that not enough viable research has been conducted concerning whether cooperative learning is or is not actually of benefit to children who have Autism Spectrum Disorders.

In closing, what is left to learn surpasses what has been learned, but that is not necessarily a bad thing. Different children in different case studies conducted and reviewed within this paper yielded different results, because those children were individual people. Some children with Autism Spectrum Disorders want to be part of the group, some desperately want to avoid being part of the group. Learning within a group of peers has proven benefits even for those who desire to avoid group work. It may even be possible to make cooperative learning easier on children who find it difficult, but

ultimately, individual children call for individual solutions. With the rapid rise of incidences of autism, these individual solutions will be a fact of life for all teachers within the public schools. What can we do about it? We can remain informed, flexible, and willing to spend a little extra time helping our neediest students.

APPENDIX

Current Definitions of Autism Spectrum Disorders

The different diagnostic categories of autism as they appear in the Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition, (DSM-IV) are as follows:

Autistic Disorder, Rett's Disorder, Childhood Disintegrative Disorder, Asperger's Disorder, and Pervasive Developmental Disorder Not Otherwise Specified (American Psychiatric Association [APA], 1994, p. 38). Autistic Disorder, sometimes called Kanner's syndrome or Kanner's disorder is noticeably present in children before the age of three; there is either a delay or lack of language acquisition, accompanied by repetitive behaviors and unusual reaction to touch (APA, 2004, p. 69).

Rett's Disorder is a regressive disorder; the child will develop normally until the age of three or four followed by a loss of skills accompanied by autistic-like behaviors and hand-wringing or hand-washing movements. Rett's Disorder occurs in girls only (APA, 2004, p. 72).

Childhood Disintegrative Disorder is also a regressive disorder; normal development is observed in the child until the age of about 2, at which point the child begins to lose skills progressively until the age of about 3 or 4. Childhood Disintegrative Disorder is most common in boys (APA, 2004, p. 74).

Adults with Autistic Disorder, Rett's Disorder, and Childhood Disintegrative Disorder often have limited self-care and social skills, and often exhibit repetitive idiosyncratic movements. As adults, they may still be nonverbal or have limited language skills. These autism disorders, as well as PDD-NOS, are more likely than Asperger's Syndrome to be accompanied by severe or mild mental impairment.

Individuals with Asperger's Syndrome (AS) often go undetected because they are able to do many things without assistance; they also usually test as having high IQs while children with other ASD generally do not. Asperger's Syndrome is also sometimes called Asperger's Disorder, and is occasionally used as a synonymous term for High-Functioning Autism (HFA), though whether Asperger's Syndrome is or is not the same as HFA is widely disputed. Unlike with "classic" Autistic Disorder, children with AS exhibit no significant delay in language acquisition. Asperger's Syndrome is usually recognized later than the other Autism Spectrum Disorders, and may be noticed in children who have "motor clumsiness" and "idiosyncratic or circumscribed interests" accompanied by pronounced awkwardness in social situations (APA, 2004, p. 76).

Pervasive Developmental Disorder—Not Otherwise Specified (PDD-NOS) is the category that all other autism-like disorders fall under if they do not fit into any of the previous diagnostic criteria. PDD-NOS includes "atypical autism" and is a term that is "used when there is a severe and pervasive impairment in the development of reciprocal social interaction or verbal and nonverbal communication skills, or when stereotyped behavior, interests, and activities are present, but the criteria are not met for a specific Pervasive Developmental Disorder, Schizophrenic Personality Disorder, or Avoidant Personality Disorder" (APA, 2004, p. 77-78).

Atypical autism is a diagnosis that is used when an individual exhibits characteristic behaviors and actions that are associated with autism, but has an onset of those behaviors at a late age (APA, 2004, p. 78). "Pervasive Developmental Disorder" is used as a blanket term to include all Autism Spectrum Disorders (ASD). The DSM-IV states that "[t]hese disorders are characterized by several deficits and pervasive

impairment in multiple areas of development. These include impairment in reciprocal social interaction, impairment in communication, and the presence of stereotyped behavior, interests, and activities” (APA, 2004, p. 38).

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