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Educational Interventions for Children with Autism Spectrum Disorders:

Perceptions of Parents and Teachers in a Northeast Tennessee School System

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Doctor of Education

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by

Paula Anderson Nickels

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ABSTRACT

Educational Interventions for Children with Autism Spectrum Disorders:

Perceptions of Parents and Teachers in a Northeast Tennessee School System

by

Paula Anderson Nickels

This qualitative case study investigated the perceptions of parents of children with autism spectrum disorders (ASD), special education teachers, and general education teachers in a Northeast Tennessee public school system regarding educational interventions for children with ASD including what interventions they have found effective, the barriers and challenges they have faced, and how they view their relationships with one another.

Data were collected through interviews with a purposeful sample of 7 parents of 6 children with autism spectrum disorders, 8 special education teachers, and 6 general education teachers and a review of documents. Parent and teacher participants represented children at all levels on the autism spectrum, a variety of grade levels (PreK-12), and a wide range of educational placements. Data were analyzed using the constant comparison analysis method.

Nine themes emerged describing parent and teacher perceptions of educational interventions they found effective for children with ASD. These themes were intensive early intervention using multiple methods; a structured learning environment; adult-mediated and peer-mediated interventions for social and communication skills; inclusion with a balance of direct services; support staff to facilitate inclusion; a functional approach to problem behaviors; alternative and augmentative communication interventions; and sensory-motor interventions. Barriers faced by

parents and teachers included lack of training and knowledge; lack of time; challenges caused by characteristics of ASD; problematic teacher attitudes; problematic parent attitudes; transition issues; and need for additional services. Parents and teachers described factors that facilitate positive parent-teacher relationships including collaboration, teamwork, and support; on-going communication; IEP Team processes; and positive teacher relationships with autistic children.

The current study helps to fill a gap in the existing research literature by adding to knowledge about parent and teacher perceptions of educational interventions for children with ASD. Recommendations are made based on study findings to provide parents and teachers with insights from other points of view that can facilitate mutual collaboration in meeting the educational needs of children with ASD.

DEDICATION

This study is dedicated with deep love and affection to my family. The race could not have been run nor the finish line crossed without your faithful love and support.

First and foremost, to my precious husband Mark. Thank you for believing in me, supporting me, and cheering me on throughout this journey. You are my best friend and soul-mate, the love of my life. Thank you for sharing my hopes and dreams and undergirding me with endless patience and encouragement. I cannot tell you how much I appreciate everything you have done for me and all that you have sacrificed to help me achieve my goal. I thank God every day for the gift of your unconditional love that sustains me, nourishes me, and gives me more joy than you will ever know.

To my beloved father and the memory of my mother. Dad, I am so very thankful that you are there to see me reach this goal. You and Mother instilled in me a love of learning and a passion for excellence that is part of the fabric and fiber of my being and a major reason I undertook this endeavor. During phone conversations and our times together you have always asked about my studies and expressed your interest and belief in me. Your encouragement has meant the world to me. Thank you, Dad, for blessing me with the most valuable gift a daughter could ever receive, that of knowing my father loves me and is proud of me.

To my son John Mark. I cannot thank you enough for all that you have done to make my dream come true. When it was my turn to pursue a lifelong ambition, you were there for me with your generous love and support. As I cross the finish line and reach for the prize, I look to the sidelines knowing you are there as one of my biggest fans. Without you my dearest son none of this would have been possible. Thank you from the depths of my heart.

To my sisters and all the rest of my family. Thank you for all your kind words of encouragement and for spurring me on by being such outstanding role models yourselves in numerous, multi-facetted ways. I thank God for each and every one of you and the countless ways He has blessed my life through such an amazing family.

ACKNOWLEDGMENTS

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CHAPTER 1

INTRODUCTION

Over half a century has passed since Kanner (1943) first observed young children with a behavioral syndrome he labeled "autistic disturbances of affective contact" (p. 250), characterized by delayed language development, impaired social interaction, aloofness, poor eye contact, repetitive behavior, and an intense desire for routine. Based on Kanner's work, the medical community began to treat some children with what became known as early infantile autism, but educators remained largely unaware of the condition. By mid-twentieth century the condition was thought to be quite rare, with the prevalence of autism estimated to be only 4 to 5 in 10,000 children (American Academy of Pediatrics, 2001).

Since Kanner's (1943) early work the definition of autism has been revised and expanded by the American Psychiatric Association (2000) in the *Diagnostic and Statistical Manual of Mental Disorders* (4ᵗʰ ed., text revision, *DSM-IV-TR*) to include a broad range of autism spectrum disorders including Autistic Disorder, Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS), Asperger's Disorder, Rett's Disorder, and Childhood Disintegrative Disorder. Although symptoms vary in severity, children with autism spectrum disorders exhibit significant impairment in social interaction and communication skills along with restricted interests and repetitive, stereotyped patterns of behavior (*DSM-IV-TR,* 2000). Such characteristics make implementing effective educational programs for children with autism spectrum disorders an extremely challenging task for parents and educational professionals.

Children with autism were largely unrecognized by the educational community until 1975 when the Education for all Handicapped Children Act (EHA) established the right of children with disabilities to receive a free and appropriate public education (FAPE). However, this law did not list autism as a specific disability category. The limited number of children with autism who received special education services beginning in 1975 were often served under another disability such as mental retardation. In 1990 a seismic shift occurred when "autism"

was specifically listed as a disability category in the Individuals with Disabilities Education Act (IDEA, 1990), a federal law that reauthorized and expanded EHA, ensuring the right to a public education including special education and related services for children with disabilities.

Partly due to the broadening definition of autism (*DSM-IV-TR,* 2000), partly due to the inclusion of "autism" as a disability category in IDEA (1990), partly due to improved diagnostic methods, and in large part due to unknown factors, there has been a dramatic increase in the prevalence of autism throughout the United States (Centers for Disease Control and Prevention, 2010). The Centers for Disease Control and Prevention (2010) currently estimates that an average of 1 in 110 children in the United States has an autism spectrum disorder, with boys 4 to 5 times more likely to be affected than girls. An estimated 1.5 million people in the United States are affected by autism at a cost to the nation of $35 billion annually, and more children are diagnosed with autism each year than with diabetes, AIDS, and cancer combined (Autism Speaks, 2010).

Amid controversies over "best practices" for intervention, threats of litigation, and lack of adequate training for school personnel, America's public schools are confronted with this explosive increase in the number of students with autism spectrum disorders. Between 1992 and 2007 the number of children (ages 3-21) with autism receiving public special education services in the United States increased from 19,000 (U.S. Department of Education, 1996) to 297,739 (Individuals with Disabilities Education Act [IDEA] Data, 2007).

I have witnessed this explosion first-hand in my work as a school psychologist. When I first began my career in 1975, the school district where I work provided special education services to only two children with autism. By contrast this school district is now quickly approaching the Center's for Disease Control (2010) prevalence rate of 1 in 110. Five years ago the district had to add a third preschool special education class to provide services for the increasing number of preschoolers with autism entering the system. As these young children progress through higher grade levels, many teachers are encountering their first experience of working with an autistic child. My school system is not alone in facing this seismic shift.

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Between 1997 and 2006 the state of Tennessee witnessed a 370% increase in the number of children with "autism" (ages 3-21) receiving special education services (Tennessee Department of Education, 1997, 2006).

The impact of the increasing prevalence of autism on families and educators who provide services to children with autism spectrum disorders (ASD) cannot be underestimated. "An ASD diagnosis forges a relationship between education professionals and families that is necessary, interdependent, and similar to an arranged marriage with no possibility of divorce. This relationship can be tenuous and fraught with conflict or it can be supportive, mutually beneficial, and extremely rewarding" (Stoner & Angell, 2006, p. 177). The No Child Left Behind Act of 2001 (2002) and the 2004 reauthorization of IDEA, the Individuals with Disabilities Education Improvement Act (still commonly referred to as IDEA) require educators to adopt research-based practices when working with students with disabilities. IDEA (2004) also mandates parental involvement in all aspects of a child's education. Literally hundreds of quantitative research studies have been conducted documenting research-based interventions and practices for teaching children with ASD, yet educators and parents often find the research literature too vast and time-consuming to master, not to mention contradictory and confusing.

Furthermore, in my own review of the literature I was surprised to find only a handful of qualitative research studies on the perceptions of parents of children with autism spectrum disorders and teachers regarding various educational interventions for children with ASD. I found even fewer studies that included both parents and teachers as participants for the purpose of comparing and contrasting the views of multiple stakeholders. For example Matson, Benavidez, Compton, Paclawskjy, and Baglio (1996) reviewed over 500 quantitative research studies and reported that applied behavior analysis (ABA) consistently offers positive outcomes for children with ASD in terms of enhancing communication, social, and adaptive skills. Yet as of 2004, Dillenburger, Keenan, Gallagher, and McElhinney reported finding only one study in the literature addressing the question of how parents perceive and evaluate ABA programs, although this is one of the most widely used educational interventions for children with autism

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spectrum disorders. Studies regarding teacher perceptions of educational interventions for children with ASD are also quite limited. The few studies that exist have focused primarily on teacher perceptions about inclusion of children with ASD in general education classrooms.

The current study grew out of my own curiosity as a school psychologist about the thoughts and perceptions of educators and parents regarding educational interventions for children with autism spectrum disorders in the school system where I work. I was also motivated by my perception of a clear gap in the existing research on this topic. In my opinion it is not enough for educators to focus on quantitative research findings about the efficacy of various educational interventions for children with ASD. They must also take into consideration the impact of those interventions on the "real life" experiences of parents and teachers. In order to build strong collaborative relationships with parents of children with autism disorders and fully all stakeholders as equal partners in planning and implementing educational interventions, as mandated by IDEA (2004), it is imperative that educators and parents seek to understand one another's views, feelings, and experiences. Everyone involved in planning educational programs for children with ASD must seek a deeper understanding of parent and teacher perceptions about their experiences with various educational interventions for these children. What educational interventions and practices do they find helpful and why? What are the barriers and challenges they face in providing services for these children? How do they view their experiences in collaborating with one another as they strive to meet the educational needs of children with autism? Unfortunately, few studies have been conducted on the perceptions of parents of children with ASD or their teachers regarding these children's educational programs. Until more research is done examining the experiences and views of both educators and parents of children with ASD, these vital stakeholder groups cannot truly share equal roles as partners in planning educational programs for children with autism spectrum disorders.

In summary the current qualitative case study arose from my discernment of the need for qualitative research regarding parent and teacher perceptions to provide a richer understanding of their personal experiences with educational services and interventions for children with ASD. I

was particularly interested in exploring the successes and challenges experienced by parents and teachers in one school system that, not unlike others throughout the United States, has been faced with an explosive increase in the number of children with autism disorders entering classrooms throughout the district.

Purpose of the Study

The purpose of this qualitative case study was to investigate the perceptions of parents of children with autism spectrum disorders (ASD), special education teachers, and general education teachers regarding educational interventions for children with ASD in a Northeast Tennessee public school system. I explored the attitudes, opinions, and experiences of three key stakeholder groups regarding the successes and barriers they have experienced in meeting the educational needs of these children, what interventions and teaching strategies they have found most helpful and effective, and how they view their relationships with one another. My hope was that the views of these stakeholders with comparison of points of agreement and divergence could be used to increase understanding and collaboration among parents and educators and to positively impact educational programs for children with ASD in the school system that was the site of study and among others who may learn from their experience.

Research Questions

Four research questions provided a framework for the study:

1. What educational interventions have parents of children with autism spectrum disorders (ASD), special education teachers, and general education teachers used to address the educational needs of children with ASD, and what have been their experiences with those specific interventions?

2. What educational methods, practices, and interventions do parents of children with ASD, special education teachers, and general education teachers perceive to be helpful and effective in meeting the educational needs of children with ASD?

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3. What are the barriers and challenges that parents of children with ASD, special education teachers, and general education teachers have experienced in meeting the educational needs of children with ASD?

4. What are the perceptions of parents of children with ASD, special education teachers, and general education teachers regarding their experiences and relationships with one another in meeting the educational needs of children with ASD?

Significance of the Study

Although hundreds of quantitative studies have been conducted on the effectiveness of numerous educational and behavioral interventions for children with autism spectrum disorders (ASD), only a handful of qualitative studies have been conducted examining parent and teacher perceptions regarding those interventions. The current study was designed to add to knowledge about parent and teacher perceptions of educational interventions for children with autism disorders. Study results may help to fill a major gap in the existing literature on the topic that was the focus of study. Furthermore, my purpose in examining the experiences and views of *both* parents and educators was to provide a richer understanding of multiple perspectives regarding the efficacy of various educational interventions, the barriers and problems faced with implementation, and the impact of specific interventions on the lives of children, their families, and their teachers.

Themes that emerged from the current study regarding parent and teacher perceptions of facilitators and barriers to effective intervention could be used to strengthen existing educational programs and services for children with ASD in the school system that was the site of study. Study results could provide guidance for school district staff and policy makers regarding ways to strengthen and improve Individual Educational Programs (IEPs) and IEP Team processes. Information gained might also assist school staff in planning professional development training for school personnel in specific interventions found most effective.

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Parent and teachers need to build strong collaborative relationships that truly include parents as equal partners in planning and implementing Individual Education Programs (IEPs) for children with autism disorders as mandated by IDEA (2004). As a foundation for teamwork parents and educators must seek to understand one another's attitudes, perceptions, and experiences. This in-depth qualitative case study focused on the perceptions of parents and teachers regarding educational interventions for children with ASD to facilitate mutual understanding of the challenges parents and educators face and how both groups view parent-teacher partnerships in working together to meet these children's needs. The themes and understandings that emerged from a comparison and contrast of parent and teacher perceptions could provide parents, special education teachers, and general education teachers with new insights from other points of view. Enhanced understanding of the perspectives of all stakeholders could facilitate more effective dialogue, communication, and team-work as they collaborate to develop IEPs and meet the needs of children with autism spectrum disorders.

Although this research was a qualitative case study with study results limited to a particular school system, parents and educators in other school systems might gain insights from study findings that enhance or challenge their own views regarding various educational interventions and instructional methods for children with ASD. Insights gained from this study might assist other educators and parents in meeting challenges, reducing barriers, and strengthening their own collaboration in implementing effective educational interventions for children with ASD.

Scope of the Study

This study was a qualitative case study (Merriam, 1998) bounded by the parameters of one school district and purposeful sampling of seven parents, eight special education teachers, and six general education teachers from a Northeast Tennessee public school system. The study was delimited to a purposeful sample of seven parents of students in grades PreK-12 who were receiving special education services in accordance with IDEA (2004) under the disability

category of "Autism," which in Tennessee includes students who have been diagnosed with any autism spectrum disorder including Autism, Pervasive Developmental Disorder-Not Otherwise Specified, Asperger's Syndrome, Rett's Disorder, or Childhood Disintegrative Disorder (Tennessee Department of Education, 2010a). The study was delimited to a purposeful sample of eight special education teachers employed in the school system at the time of the study who had experience during the 2009-10 school year or prior 2 school years in providing educational services to students with autism spectrum disorders (ASD) in grades PreK-12 in a general education inclusion setting, a resource room setting, or a self-contained special education classroom. The study was further delimited to a purposeful sample of six general education teachers employed in the school system at the time of the study who had experience during the 2009-10 or prior 2 school years in providing educational services to students with autism spectrum disorders (ASD) in an inclusive general education setting at the preschool, elementary, or secondary level. Data were collected by individual interviews and document reviews.

The research study was further limited by the nature of qualitative research in which data collected represent the perceptions and experiences of the participants in the study and cannot be generalized beyond the scope of the study. Themes and categories that emerged from the data are not intended to represent the perceptions and experiences of all parents of children with autism spectrum disorders, all special education teachers, or all general education teachers. Although purposeful sampling was conducted for maximum variation, it is also possible that experiences and views of the participants sampled do not fully represent those of other parents and educators within the school system that was the site of study.

Researcher's Bias

In my role as a school psychologist I have been trained in the diagnosis and assessment of children with autism spectrum disorders for special education purposes. I regularly participate with other IEP Team members in assessing children with ASD and designing their individual educational programs (IEPs). I have occasionally collaborated with other school staff in

providing in-service workshops for teachers and paraprofessionals on teaching methods for children with autism spectrum disorders. My experiences as a school psychologist, while unique to me, have helped to build empathy and understanding with parents of children with ASD and their teachers.

As an employee of the school system that was the site of study, my role in the current study was that of participant observer and researcher. My presence in the school system allowed immersion in the field of study over an extended period of time, thereby strengthening my ability to understand the experiences of participants in that setting from the perspective of the *emic,* or insider's perspective, as required in qualitative research (Merriam, 1998). I have developed close, collaborative relationships with many special education teachers and general education teachers in the district, and I have deep empathy for the challenges faced by parents and teachers of children with ASD. The relationships of mutual trust and support that I have built with colleagues provided a foundation for establishing empathy, openness, and trust with participants in interview situations.

However, some participants may have felt reluctant to express their true feelings or negative perceptions to someone whom they knew in the work setting. To help control for this I assured all participants of full confidentiality and anonymity, that only pseudonyms would be used in interviews, and that no names or personally identifying information would be included in interview transcripts, copies of documents gathered, or the final research report. I also assured participants that the purpose of the study was not to criticize or evaluate their school system but rather to provide a voice for parents and educators that may lead to deeper understandings of how to provide effective interventions for children with autism disorders.

Stringent methods to control for researcher bias were used to ensure that the participants' own perceptions, experiences, and views emerged in interview data and the analysis of study findings, not the researcher's perceptions. As a qualitative researcher I understood that I could not be totally neutral, objective, or detached. Rather than denying human subjectivity, I took it into account through strategies designed to monitor and evaluate my own subjectivity and

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enhance reflexivity (McMillan & Schumacher, 2006). Reflexivity involves "rigorous examination of one's personal and theoretical commitments to see how they serve as resources for selecting a qualitative approach, framing the research problem, generating particular data, relating to participants, and developing specific interpretations" (McMillan & Schumacher, 2006, p. 327). Pillow (2003) stated that reflexivity in qualitative research requires personal self-awareness, respect for others with an insistence on letting them speak for themselves, being accurate in gathering the truth about their stories and experiences, and transcending one's own subjectivity to maintain accuracy in reporting.

In order to enhance reflexivity and monitor the impact of my own subjectivity, I used a journal to record decisions made in the field and my thoughts and personal reactions throughout the field work (McMillan & Schumacher, 2006). I also kept a field log to maintain a chronological record by date, time, and place spent in the field including activities used to gain access to sites, participants, and documents. I diligently tried not to reveal to participants any of my own preconceptions or personal biases regarding educational interventions, programs, or services for children with ASD. Finally, in order to make sure that my own bias did not interfere with the interpretation of the findings, I maintained an audit trail for inspection and confirmation by an independent auditor (Lincoln & Guba, 1985; McMillan & Schumacher, 2006).

Definition of Terms

The following terms are defined as follows for the purpose of this study:

Autism: A developmental disability generally evident before age 3 that is characterized by qualitative impairment in communication and reciprocal social interaction, repetitive activities and stereotyped movements, and restricted patterns of interest (American Psychiatric Association, *DSM-IV-TR,* 2000). The term can refer exclusively to Autistic Disorder (*DSM-IV-TR,* 2000) but is often used in the research literature to refer to a broad range of Autism Spectrum Disorders.

Autism Spectrum Disorders (ASDs): A broad range of autistic disorders that vary in severity of symptoms, age of onset, and association with other disorders such as mental retardation (National Research Council, 2001). In the research literature the term is often used interchangeably with the term *autism.* Therefore, for the purpose of this study the terms *autism* and *autism spectrum disorder (ASD)* have been used to mean the same thing unless otherwise noted. Autism spectrum disorders include five *Pervasive Developmental Disorders* that involve significant impairment in reciprocal social interaction skills and communication skills and the presence of stereotyped behaviors and restricted interests (*DSM-IV-TR*, 2000).

Pervasive Developmental Disorder (PDD): The term used by the American Psychiatric Association (*DSM-IV-TR*, 2000) for the broad range of autism spectrum disorders including the following:

1. *Autistic Disorder:* Essential features for diagnosis include significant impairment in reciprocal social interaction and communication, repetitive and stereotyped behaviors, interests, and activities, and age of onset prior to 3 years (*DSM-IV-TR*, 2000).

2. *Asperger's Disorder:* Essential features for diagnosis include qualitative impairment in social interaction and restricted, stereotyped behaviors, interests, and activities. Persons with Asperger's Disorder function at the higher end of the autism spectrum because they do not have any significant delay in language development, cognitive development, or adaptive behavior skills. They may have difficulty understanding the intricacies of social communication and reading social cues such as facial expressions, body language, and gestures, resulting in a lack of social or emotional reciprocity (*DSM-IV-TR*, 2000).

3. *Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS):* This diagnosis includes "atypical autism" and is made when some but not all of the criteria for Autistic Disorder or another Pervasive Developmental Disorder are met (*DSM-IV-TR*, 2000).

4. *Rett's Disorder:* This relatively rare autism spectrum disorder has an age of onset sometime between 6 and 18 months. After a brief period of apparently normal development, regression and loss of ability occur in gross motor skills along with loss of previously acquired purposeful hand skills, resulting in stereotyped hand movements such as hand wringing or hand washing. This disorder is found almost exclusively in females and is associated with severe language impairment and severe to profound mental retardation (*DSM-IV-TR*, 2000).

5. *Childhood Disintegrative Disorder:* Following a period of at least 2 years of apparently normal development, there is a rapid loss of previously acquired skills such as bowel or bladder control, play or social skills, and language skills. The regression typically occurs between ages 3 and 4 years and prior to age 10 and is usually associated with severe mental retardation (*DSM-IV-TR*, 2000).

Individuals with Disabilities Education Act (IDEA) (1990; amended 1997, 2004): A federal law ensuring special education and other services for children with disabilities throughout the United States. Commonly referred to as IDEA, the law regulates how states and public schools provide early intervention, special education, and related services to eligible children and youth with disabilities. From birth through age 2, infants and toddlers with disabilities and their families receive early intervention services under IDEA Part C. Children and adolescents ages 3-21 receive special education and related services under IDEA Part B, which requires that states and local educational agencies (LEAs) provide a free appropriate public education (FAPE) to children in 13 disability categories in the least restrictive environment (LRE) appropriate to meet a child's individual needs in accordance with an Individual Education Plan (IEP).

Individualized Education Program (IEP): A written plan for each child with a disability that is developed, reviewed, and revised in an IEP Team meeting in accordance with the provisions of IDEA. The IEP must include information about the child's current levels of academic and functional performance; measurable annual goals and how progress toward goals will be measured; information about special education services and supplementary aids and

services to be provided; a list of any classroom modifications and any individual appropriate accommodations to be provided on State assessments; justification for the decision if the IEP Team determines that a child must take an alternate assessment instead of a regular State assessment of student achievement; and an explanation of the extent (if any) to which the child will not participate with nondisabled children in the general education program (Individuals with Disabilities Education Improvement Act, 2004, 20 U.S.C. §1414 (d)(1)[A]).

Individualized Education Program Team (IEP Team): A group of individuals responsible for determining eligibility for special education services under the provisions of IDEA, and for developing or revising an Individualized Education Program (IEP) for a student eligible for special education. IDEA (2004) specifies the following IEP Team members:

(i)   the parents of a child with a disability;

(ii) not less than 1 regular education teacher of such child (if the child is, or may be, participating in the regular education environment);

(iii) not less than 1 special education teacher, or where appropriate, not less than 1 special education provider of such child;

(iv) a representative of the local educational agency…

(v) an individual who can interpret the instructional implications of evaluation results…

(vi) at the discretion of the parent or the agency, other individuals who have knowledge or special expertise regarding the child, including related services personnel as appropriate; and

(vii) whenever appropriate, the child with a disability. (20 U.S.C. §1414(d)(1)[B])

Least Restrictive Environment (LRE): Refers to the requirement of IDEA (1990, 1997, 2004) that children with disabilities have the opportunity to be educated with nondisabled peers to the maximum extent appropriate. Supplementary aids and services must be provided as needed to enable students with disabilities to achieve educational goals in the general education setting to the greatest extent possible. IDEA requires the IEP Team to consider placement in the regular education classroom as the starting point for their determination of the least restrictive environment, followed by a continuum of available placements extending from the regular education classroom to part-time resource room services, self-contained special education classrooms, and finally residential settings. The degree to which a child is removed from the

general education environment to a more restrictive setting depends upon a child's individual needs as determined by the IEP Team.

Special Education: Refers to a range of individualized educational and social services provided by public school systems to students with disabilities ages 3-21 in accordance with the provisions of Part B of the Individuals with Disabilities Education Act (1990, 1997, 2004). Special education may include individual or small group instruction, specialized curriculums or instructional interventions, teaching modifications, counseling services, assistive technology, transition services, and services such as physical, occupational, and speech therapy.

Special Education Teacher: A teacher who provides individualized education services to children and youth who have a variety of disabilities. All 50 states requires licensure, with type of license varying by state. In Tennessee special education teachers must hold licensure in one of the following endorsements: special education, modified program (K-12); special education, comprehensive program (K-12); special education, vision (PreK-12); special education, hearing (PreK-12); special education, speech-language (PreK-12); and special education, preschool, early childhood (PreK-4) (Tennessee Department of Education, 2009). Special education teachers work with students with disabilities in a variety of settings including self-contained special education classrooms, resource rooms where students receive part-time specialized instruction, and general education inclusion classrooms where they assist general education teachers in adapting instructional methods to meet the unique needs of students with disabilities.

Inclusion: A term that has been used in a variety of ways in the literature. For purposes of this study inclusion refers to a commitment to educate children with disabilities to the maximum extent appropriate in the regular education classrooms and schools they normally would attend, with modifications as defined by the IEP (Villa & Thousand, 2003). Inclusion often involves bringing special education and support services to the child as opposed to moving the child to the services. According to this view of inclusion these child only has to benefit in some way from being in the general education classroom (e.g., opportunities to model age-appropriate language

and social skills) as opposed to being required to keep up with peers academically (Simpson, de Boer-Ott, & Smith-Myles, 2003).

Overview of the Study

This qualitative case study is presented in five chapters. Chapter 1 provided an introduction, the purpose of the study, research questions, the significance of the study, limitations and delimitations of the study, definitions of terms used, and an overview. Chapter 2 contains a review of the literature including information about the characteristics, diagnostic criteria, etiology, and prevalence of children with autism spectrum disorders (ASD); a review of research relevant to specific educational interventions, programs, and characteristics of effective instructional practices; and a review of qualitative studies of parent and teacher perceptions of educational interventions and practices for children with ASD. Chapter 3 describes the methodology and procedures used in the study. Chapter 4 presents the study findings and analysis of data gathered through individual interviews and a review of documents. Chapter 5 contains a summary of the findings, conclusions, and recommendations for practice and future research.

CHAPTER 2

REVIEW OF RELATED LITERATURE

Introduction

As a foundation for understanding the nature of autism spectrum disorders (ASD) and the legal requirements and challenges educators currently face in providing effective educational programs and services for children with ASD, this review of the literature begins with a description of the general characteristics of children with autism spectrum disorders (ASD), medical, federal, and state diagnostic criteria and definitions, information about etiology and prevalence, and a summary of how federal and state legislation impacts educational programming and planning for children with ASD.

The next section of this literature review addresses educational interventions for children with autism that have empirical support for their efficacy based on peer reviewed research. Such interventions include various forms of applied behavior analysis ranging from more traditional discrete trial training to naturalistic teaching methods such as incidental teaching, pivotal response training, and milieu teaching. Other approaches such as structured teaching are also reviewed. Specific social skills interventions such as adult and peer modeling, priming, and the use of social stories are discussed. Augmentative and alternative communication strategies such as the use of picture exchange systems and manual signs and gestures are described followed by interventions targeting sensory and motor issues. This section concludes with a summary of essential characteristics of effective educational interventions for children with autism that are common to a broad range of empirically supported methods and treatment programs.

Because this is a qualitative research study investigating the perceptions of parents of children with autism spectrum disorders and teachers regarding educational interventions for children with ASD, it is also important to review the research literature on this subject. Unfortunately, there are very few studies in the literature addressing perceptions, experiences,

opinions, and attitudes of parents of children with ASD and their teachers regarding various educational interventions or their interaction with one another in implementing those interventions. However, the few studies that exist are highly relevant to the research question that is the focus of the current study. Therefore, this review of the literature concludes with a review of several excellent studies on the perceptions of parents of children with ASD followed by studies of teacher perceptions and those comparing parent and teacher perceptions.

General Characteristics

Autism is a neurobiological disorder that is present from birth or very early in a child's development (National Research Council, 2001). The disorder is usually diagnosed before age 3, persists through adulthood, and has no definite etiology or cure (American Academy of Pediatrics, 2001; National Research Council, 2001). Autism is typically described as a spectrum of disorders that vary in severity of impairment and association with other disorders (e.g., mental retardation, seizures). Although symptoms differ from one child to the next, all autism spectrum disorders are marked by significant impairment in reciprocal social interaction and communication skills and the presence of repetitive and stereotyped behaviors and interests (*DSM-IV-TR,* 2000).

One of the core features of autism spectrum disorders (ASD) is significant impairment in the ability to initiate and maintain reciprocal social interaction (Machalicek et al., 2008; National Research Council, 2001). Children with ASD often avoid eye contact and appear disengaged and uninterested in interaction with people. Their imitation skills and ability to engage in shared activities are often lacking or impaired. Children with ASD have difficulty learning to interpret social cues (e.g., facial expressions, nonverbal gestures) and the feelings of others. Therefore, they have difficulty seeing things from another person's perspective and engaging in reciprocal social conversation. Children with ASD display significant deficits in functional and symbolic play skills. Many have difficulty regulating their own emotions. They may become disruptive or physically aggressive or engage in self-injurious behavior. It can be difficult for them to

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comply with instructions and engage in cooperative social behavior either because they do not fully comprehend the directions, rules, or social expectations or because they have obsessive interests not shared by other children (Machalicek et al., 2008; National Research Council, 2001).

Children with autism spectrum disorders also exhibit a core deficit in verbal and nonverbal communication skills (*DSM-IV-TR,* 2000; National Research Council, 2001). Many display significantly delayed language development, and some remain nonverbal throughout their lives. Some learn to use alternative communication systems such as pictures or sign language (Schlosser & Wendt, 2008a). Those who do acquire functional speech often combine normal language with idiosyncratic speech, echolalia (repeating the same words or phrase over and over), and stereotyped language. They may speak in a flat, robotic-like voice or display atypical pitch, tone, and rhythm (National Research Council, 2001). Children with ASD have significant difficulty engaging in reciprocal conversation. Even children with mild ASD may have broad vocabularies and yet be unable to follow social rules for speaking and listening in a two-way conversation (National Research Council, 2001). Children with ASD also have significant problems developing nonverbal communication skills such as the use of conventional and descriptive gestures. They often have difficulty coordinating the use of gestures with eye contact and words when communicating with others (National Research Council, 2001; Wetherby, Prizant, & Hutchinson, 1998).

A third major feature of children with ASD is a restricted or stereotyped pattern of behavior and interests (*DSM-IV-TR,* 2000). Extreme behaviors such as hand-flapping, arm-waving, body-rocking, or walking on toes may occur. Some children exhibit more subtle behaviors such as lining up toys in a certain way or engaging in rituals and demanding sameness in daily routines. Children with ASD may exhibit persistent, intensive preoccupations or obsessive interests in one topic such as dinosaurs or maps. They may become preoccupied with parts of objects (e.g., repeatedly spinning the wheels of a toy car) rather than engaging in functional or creative play. Many children with ASD display atypical sensory-motor behaviors

such as decreased responsiveness to certain sounds (e.g., name being called), hypersensitivity to other sounds (e.g., loud noises), and hypersensitivity to certain tastes, textures, and smells. Some may scream or cover their ears in the presence of sounds such as a fire alarm or noise in a school cafeteria (*DSM-IV-TR,* 2000; National Research Council, 2001).

Clearly the characteristics of children with autism spectrum disorders make it quite challenging for parents and educators to provide appropriate and effective educational programs for these children. Yet autism was not recognized by the medical community as a disorder until the latter half of the 20th century, and the education of children with autism was not accepted as a responsibility of public schools until the past few decades. To facilitate a fuller understanding of the challenges currently faced by educators, it is helpful to review how "autism" has been defined in the medical community and in federal legislation, what is known about the etiology and prevalence of autism spectrum disorders, and how federal and state legislation impacts educational programming and planning for children with ASD.

Definition and Diagnostic Criteria

In 1943 Kanner first described a small group of children who exhibited a condition that differed "markedly and uniquely from anything reported so far" (p. 217). These children displayed extreme aloofness and total indifference to other people along with severe language deficits, poor eye contact, lack of reciprocal social interaction, repetitive and stereotyped behaviors, and a strong need for routine. Kanner identified these children as examples of "inborn autistic disturbances of affective contact" (p. 250).

The term "infantile autism" first appeared as a diagnostic category in 1980 in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., *DSM-III)* of the American Psychiatric Association. Since then the criteria for diagnosis have been revised and expanded to include a broader spectrum of autism disorders including milder forms. The current criteria for autism spectrums disorders (ASD) are listed in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition-Text Revision (DSM-IV-TR)* of the American Psychiatric

Association (2000) under a broad category called Pervasive Developmental Disorders (PDDs). The *DSM-IV-TR* (2000) is used by medical professionals as a basis for diagnosis of autism spectrum disorders. Pervasive Developmental Disorders involve significant impairment in social interaction and communication skills and the presence of stereotyped behaviors and restricted interests.

The *DSM-IV-TR* (2000) lists five types of Pervasive Developmental Disorders including Autistic Disorder, Asperger's Disorder, Pervasive Development Disorder Not Otherwise Specified (PDD-NOS), Rett's Disorder, and Childhood Disintegrative Disorder. The terms Pervasive Developmental Disorder (PDD) and Autism Spectrum Disorders (ASD) are often used interchangeably in the research literature to describe all five Pervasive Developmental Disorders, ranging from mild to severe along the autism spectrum, as shown in Figure 1.
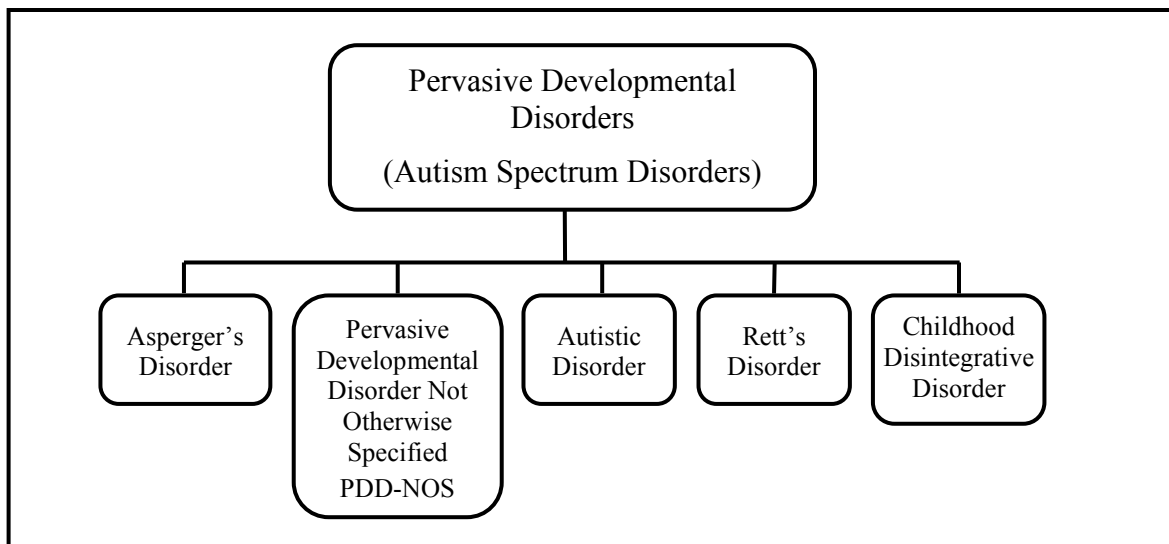
Figure 1. Pervasive Developmental Disorders

DSM-IV-TR **Diagnostic Criteria**

The *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text revision, *DSM-IV-TR*) of the American Psychiatric Association (2000) lists the following diagnostic criteria for Autistic Disorder, which is the most common of the five Pervasive Developmental Disorders:

A. A total of six (or more) items from (1), (2), and (3), with at least two from (1), and one each from (2) and (3):

   (1) qualitative impairment in social interaction, as manifested by at least two of the following:
      (a) marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction
      (b) failure to develop peer relationships appropriate to developmental level
      (c) a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest)
      (d) lack of social or emotional reciprocity

   (2) qualitative impairments in communication as manifested by at least one of the following:
      (a) delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gestures or mime)
      (b) in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others
      (c) stereotyped and repetitive use of language or idiosyncratic language
      (d) lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level

   (3) restricted repetitive and stereotyped patterns of behavior, interests, and activities, as manifested by at least one of the following:
      (a) encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
      (b) apparently inflexible adherence to specific, nonfunctional routines or rituals
      (c) stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)
      (d) persistent preoccupation with parts of objects

B. Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years: (1) social interaction, (2) language as used in social communication, or (3) symbolic or imaginative play.

C. The disturbance is not better accounted for by Rett's Disorder or Childhood Disintegrative Disorder. (p. 75)

The second most common of the five Pervasive Developmental Disorders is Asperger's

Disorder. The *DSM-IV-TR* (2000) diagnostic criteria for Asperger's Disorder include those

listed for Autistic Disorder with regard to significant impairment in social interaction and

stereotyped behaviors and restricted interests. Asperger's Disorder differs from Autistic

Disorder in that children with this diagnosis do not exhibit any significant delay in language

development, cognitive development, or adaptive behavior (other than social interaction),

although they may exhibit motor delays (*DSM-IV-TR,* 2000). Children with Asperger's Disorder

function at the higher end of the autism spectrum due to normal cognitive and language

development. However, they often exhibit subtle difficulties with the pragmatics of language,

and their speech may be pedantic with a focus on restricted topics of interest. They have

difficulty reading social cues such as facial expressions and body language, resulting in a lack of

social or emotional reciprocity and poor peer relationships (*DSM-IV-TR*, 2000).

A diagnosis of Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS)

is used for cases of "atypical autism" that do not fully meet all criteria for a diagnosis of Autistic

Disorder or another Pervasive Development Disorder (*DSM-IV-TR*, 2000).

Rett's Disorder is a relatively rare autism spectrum disorder with age of onset sometime

between 6 and 18 months after a period of normal development. Diagnostic features include loss

of previously acquired purposeful hand-skills; stereotyped hand movements such as hand-

wringing; problems with gross motor coordination; severe language and cognitive impairments;

and severe psychomotor retardation (*DSM-IV-TR*, 2000).

Childhood Disintegrative Disorder is extremely rare and is characterized by apparently

normal development for the first 2 years of life followed by significant loss of previously

acquired skills in at least two of the following areas: language, social skills, bowel or bladder

control, play, and motor skills. The regression typically occurs between age 3 and 4 and prior to

age 10 and is usually associated with severe mental retardation (*DSM-IV-TR*, 2000).

The preponderance of literature in the field of autism research includes subjects globally

categorized as those with "autism," or "autism spectrum disorder" (ASD), although subjects in

various studies typically include children with one or more of the three most common Pervasive

Developmental Disorders including Autistic Disorder, Asperger's Disorder, and PDD-NOS.

Rett's Disorder and Childhood Disintegrative Disorder are so rare that such children are not

included in the research. For the purpose of this review of the literature the labels "autism" and "autism spectrum disorder" (ASD) are used interchangeably to refer to children with Autistic Disorder, Asperger's Disorder, or PDD-NOS unless otherwise specified in a particular study.

IDEA Definition

While physicians and mental health professionals use *DSM-IV-TR* (2000) criteria to diagnose Pervasive Developmental Disorders, educators and school systems must follow guidelines outlined in federal legislation to determine the presence of a disability and eligibility for special education services for children suspected of having an autism spectrum disorder. In 1975 the Education for All Handicapped Children Act (EHA) was passed as the first federal legislation establishing the right of children with disabilities to receive a free, appropriate public education (FAPE). However, this legislation did not specifically list autism as a disability category. Therefore children with autism who received special education services in the late 1970s and 1980s often did so under another disability category such as mental retardation. "Autism" was not specifically listed as a disability covered by federal legislation until 1990 when Congress reauthorized EHA as the Individuals with Disabilities Education Act (IDEA, 1990). IDEA was amended in 1997 and again in 2004 when it was reauthorized as the Individuals with Disabilities Education Improvement Act. Still commonly referred to as IDEA the 2004 reauthorization lists autism as 1 of 13 categories of disabilities. The current federal definition of autism is stated as follows in the Individuals with Disabilities Education Improvement Act (2004):

> (i) Autism means a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three, that adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences.

> (ii) Autism does not apply if a child's educational performance is adversely affected primarily because the child has an emotional disturbance, as defined in paragraph (c)(4) of this section.

(iii) A child who manifests the characteristics of autism after age three could be identified as having autism if the criteria in paragraph (c)(1)(i) of this section are satisfied. (Section 300.8)

The IDEA (2004) definition of Autism is more restrictive than that in the *DSM-IV-TR* (2000) because it does not specifically mention Asperger's Syndrome or PDD-NOS. However, the Office of Special Education Programs (OSEP) of the U. S. Department of Education has responded by policy letters to inquiries about the eligibility under IDEA of students with other Pervasive Developmental Disorders such as Asperger's Disorder and PDD-NOS. For example in one policy letter OSEP clarified a school district's responsibility under Part B of IDEA to identify and evaluate children suspected of having Asperger's Syndrome, stating that "if a child with Asperger's Syndrome meets the criteria in the Part B definition of 'autism' at 34 CFR §300.7(e)(1), a child with that condition could be found eligible for services under Part B" (U. S. Department of Education, March 24, 2000, p. 3). Furthermore, IDEA does not preclude states from adopting a more detailed description of the category of autism in state rules and regulations for implementation of IDEA, as Tennessee and other states have done.

State of Tennessee Definition

Individual states must adopt rules, regulations, and criteria for determining eligibility for disabilities in accordance with the eligibility criteria found in IDEA (2004). In 2008 Tennessee's Disability Specific Eligibility Standards were revised to align those standards with the final regulations of the 2004 reauthorization of IDEA and the revised Rules of the State Board of Education, Chapter 0520-1-9, Special Education Programs and Services (Tennessee State Board of Education, February 2008). Tennessee went beyond the language of IDEA and specifically included children with all autism spectrums disorders under the umbrella category of "Autism," thereby including children with Autistic Disorder, Asperger's Syndrome, PDD-NOS, and other Pervasive Developmental Disorders as eligible for special education services if the child's educational performance is adversely affected. The definition of autism for special education

purposes is stated as follows in the Tennessee Department of Education's (2010a) Approved

Disability Eligibility Standards:

> Autism means a developmental disability, which significantly affects verbal and
> nonverbal communication and social interaction, generally evident before age
> three (3) that adversely affects a child's educational performance. Other
> characteristics often associated with autism are engagement in repetitive activities
> and stereotyped movements, resistance to environmental change or change in
> daily routines, and unusual responses to sensory experience. The term does not
> apply if a child's educational performance is adversely affected primarily because
> the child has an Emotional Disturbance, as defined in this section.
>
> The term Autism also includes students who have been diagnosed with an Autism
> Spectrum Disorder such as Autism, Pervasive Developmental Disorder—Not
> Otherwise Specified (PDD-NOS) or Asperger's Syndrome when the child's
> educational performance is adversely affected. Additionally, it may also include a
> diagnosis of a Pervasive Developmental Disorder such as Rett's or Childhood
> Disintegrative Disorder. Autism may exist concurrently with other areas of
> disability.
>
> After age three (3), a child could be diagnosed as having Autism if the child
> manifests the above characteristics. Children with Autism demonstrate the
> following characteristics prior to age 3:
>
> (a) Difficulty relating to others or interacting in a socially appropriate manner;
>
> (b) Absence, disorder, or delay in verbal and/or nonverbal communication; and
>
> (c) One or more of the following:
>
> > 1. Insistence on sameness as evidenced by restricted play patterns, repetitive
> >   body movements, persistent or unusual preoccupations, and/or resistance to
> >   change;
> >
> > 2. Unusual or inconsistent responses to sensory stimuli. (p. 1)

Etiology

According to the American Academy of Pediatrics (2001) autism is generally believed to

be a neurodevelopmental disability with a strong genetic basis, but the exact cause remains

unknown for most children affected with an autism spectrum disorder. Most experts think both

genes and the environment play a role, and there may be multiple causes that lead to various

autism spectrum disorders (American Academy of Pediatrics, 2001).

Research on possible genetic causes of autism is being conducted by the Network on the Neurobiology and Genetics of Autism: Collaborative Programs of Excellence in Autism (CPEA), a worldwide research consortium that is cosponsored by the National Institute of Child Health and Human Development (NICHD) and the National Institute on Deafness and Other Communication Disorders (NIDCD). Studies released by the CPEA Network found that genes are involved in autism and that some people have an error in their genes that makes them more at-risk for developing autism (National Institute of Child Health and Human Development, NICHD, 2009).

Strong evidence for a genetic basis has also been provided by twin studies conducted by Bailey, Le Courteur, and Gottesman (1995) and Bailey, Phillips, and Rutter (1996). These researchers (Bailey et al., 1995; Bailey et al., 1996) found that identical (monozygotic) twins had a concordance rate of 60% for Autistic Disorder and 92% for the broader spectrum of ASD, whereas fraternal (dizygotic) twins had concordance rates of 0% for Autistic Disorder and 10% to 30% for the broader spectrum. Siblings had a recurrence rate of 3% to 7% for the broader spectrum. Based on their twin study data Bailey et al. (1995) calculated the heritability of autism to be approximately 90%.

The American Academy of Pediatrics (2001) reported that research generally supports a polygencic model of inheritance for autism with at least 3 (and as many as 20) gene loci believed to contribute to the broader spectrum of autistic disorders. "Gene markers have recently been identified on chromosomes 1p, 7q, 16p, and 17p in preliminary linkage studies. In fact autism has thus far been associated with an abnormality of every chromosome except 14 and 20" (American Academy of Pediatrics, 2001, p. 3). Mutations of two genes, WNT2 and HOXA1, that are part of a family of genes that influence brain development, have been found in studies of children with ASD and their parents or relatives, suggesting that these genes play a role in susceptibility to autism (Ingram et al., 2000; Vastag, 2001). A neurologic basis is also supported by the increased rate of ASD among children with various genetic, chromosomal, and metabolic disorders including fragile X syndrome, tuberous sclerosis, untreated phenylketonuria, and

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methylmalonicaciduria, and the common association of ASD with mental retardation and seizures (American Academy of Pediatrics, 2001).

Even though autism appears to be mainly genetic in origin, researchers also believe that a number of environmental factors likely play an important role in whether a child with a genetic predisposition actually develops the disorder. Many researchers support a multifactorial mode of inheritance for autism based on a combination of genetic and environmental factors (American Academy of Pediatrics, 2001). For example congenital rubella and early first trimester thalidomide exposure have both been linked with increased risk for autism. More recently, wide-spread public controversy has raged over whether the measles-mumps-rubella (MMR) vaccine and other childhood immunizations are associated with an increased risk of autism. However, any linkage between childhood immunizations and increased risk for autism has been repeatedly refuted by the research community (American Academy of Pediatrics, 2001; National Institute of Child Health and Human Development, NICHD, 2009).

Prevalence

Around the middle of the 20th century the prevalence of autism was estimated to be only 4 to 5 in 10,000 children (American Academy of Pediatrics, 2001). Such estimates changed radically by the end of the century. The Centers for Disease Control and Prevention (CDC) (2010) currently estimates that an average of 1 in 110 children in the United States has an autism spectrum disorder. An estimated 1.5 million people in the United States are affected by autism at a cost to the nation of $35 billion annually, and more children are diagnosed with autism each year than with diabetes, AIDS, and cancer combined (Autism Speaks, 2010).

The CDC (2010) has charged its Autism and Developmental Disabilities Monitoring Network (ADDM) with the task of providing on-going data about the prevalence of autism spectrum disorders (ASD) in the United States, identifying changes in ASD prevalence over time, and comparing ASD prevalence in different parts of the county and in different racial, ethnic, and gender groups. Based on data gathered from 14 sites throughout the United States by

the ADDM Network, the CDC currently reports that between 1 in 80 and 1 in 240 children, with an average of 1 in 110, has an autism spectrum disorder. The CDC further reports that autism spectrum disorders are found among all racial, ethnic, and socioeconomic groups and are four to five times more prevalent among boys than among girls.

Even more recently the American Academy of Pediatrics (Kogan et al., 2009) published a study based on parent report that indicates an autism prevalence rate of 1 in every 91 American children including 1 in 50 boys. These statistics were based on data gathered as part of the 2007 National Survey of Children's Health (NSCH), a national survey funded by the Health Resources and Services Administration (HRSA) and the Centers for Disease Control and Prevention (CDC). In the NSCH survey more than 78,000 parents of children aged 3 to 17 were asked to report whether their child currently had an autism spectrum disorder diagnosis (including autism, Asperger's syndrome, pervasive developmental disorder, or another ASD) or whether their child had received that diagnosis in the past from a doctor or other health care provider but was no longer diagnosed with ASD (Kogan et al., 2009).

Multiple factors including wider public awareness, improved diagnostic methods, and the broadening of diagnostic criteria to include milder forms of autism such as Asperger's Disorder may have contributed this explosive increase in the prevalence of autism disorders (Wing, 1996). With the assistance of an expanding variety of tools for conducting diagnostic interviews and assessments, physicians, psychologists, and other professionals have become more skilled at recognizing and diagnosing autism spectrum disorders. Autism was not recognized as a specific disability for public education purposes until 1990 with federal passage of the Individuals with Disabilities Education Act. After "autism" was included as a specific disability category in IDEA (1990), the number of children identified as having this disability for special education purposes increased dramatically (Zirkel, 2001). Even so many experts believe that these factors alone cannot account for the significant increase in the prevalence of autism in the United States and other countries world-wide. Many speculate that environmental factors are also likely to be involved (American Academy of Pediatrics, 2001).

As the prevalence of ASD in the United States has increased, so has the number of children with ASD being served through public special education programs. Between 1992 and 2007 the number of children (ages 3-21) receiving public special education services in the United States due to "autism" increased from 19,000 (U.S. Department of Education, 1996) to 297,739 (Individuals with Disabilities Education Act [IDEA] Data, 2007). In 2007 a total of 6,718,203 children ages 3-21 received services through 13 categories in public special education programs. Autism was the fifth largest disability category, accounting for about 4.4% of all children ages 3-21 receiving special education services in 2007 (Individuals with Disabilities Education Act [IDEA] Data, 2007).

The Tennessee Department of Education publishes statewide special education data including a count of the number of children with disabilities receiving public special education services in the state. In 1996-1997 Tennessee provided public special education services to 714 children ages 3-21 under the "autism" disability classification (Tennessee Department of Education, 1997). By 2006 the number of children with autism (ages 3-21) receiving public special education services in Tennessee had grown to 3,362 (Tennessee Department of Education, 2006). These data represent a 370% increase between 1997 and 2006 in the number of children with autism (ages 3-21) receiving public special education services in Tennessee (Tennessee Department of Education, 1997, 2006).

Special Education Programming and Eligibility

The Individuals with Disabilities Education Act (IDEA) of 1990 included "autism" as one of several disability categories mandated to receive a free and appropriate education (FAPE) in the least restrictive environment (LRE) appropriate to meet the child's individual needs in accordance with an Individual Education Program (IEP). IDEA 1990 also mandated early intervention for any child younger than age 3 with a known developmental disability or developmental delay. Under Part C of the 1997 and 2004 reauthorizations of the Individuals with Disabilities Education Act of 1990, children from birth to age 3 who have a disability

(including autism or developmental delay) are eligible to receive appropriate developmental, therapeutic, and family support services under an Individual Family Services Plan (IFSP). Under the provisions of Part B of IDEA (1997, 2004) the local public school district is responsible for providing special education and related services to children ages 3-21 who have a disability.

There is no medical test for autism. Because symptoms typically appear before the age of 3, some young children receive a diagnosis of autism or pervasive developmental disorder by a physician based on developmental screening, parent interview, and observations of the child (American Academy of Pediatrics, 2001). For children ages 3-21 IDEA (2004) requires school systems to evaluate and identify students suspected of having a disability. An Individualized Education Program Team (IEP Team) is responsible for determining whether a child has a disability and is eligible for special education services under the provisions of IDEA.

Diagnosis and determination of eligibility for special education services due to autism is based on parent interview, developmental history, speech and language assessment, educational and psychological testing, and observation of the child's behavior. A comprehensive evaluation may also include the use of one or more autism diagnostic scales such as the *Autism Diagnostic Observation Schedule (ADOS)* (Lord, Rutter, DiLavore, & Risi, 1999), *The Childhood Autism Rating Scale (CARS)* (Schopler, Reichler, & Renner, 1988), the *Gilliam Autism Rating Scale – Second Edition (GARS-2)* (Gilliam, 2009), and the *Asperger Syndrome Diagnostic Scale (ASDS)* (Myles, Bock, & Simpson, 2001).

The procedures for evaluation of children to determine eligibility for special education services due to "autism" are stated as follows in the Approved Disability Eligibility Standards of the Tennessee Department of Education (2010a):

Evaluation Procedures
Evaluation of Autism shall include the following:
    (1) parental interviews including developmental history;
    (2) behavioral observations in two or more settings (can be two settings
        within the school);
    (3) physical and neurological information from a licensed physician,
        pediatrician or neurologist who can provide general health history to
        evaluate the possibility of other impacting health conditions;

(4) evaluation of speech/language/communication skills, cognitive/developmental skills, adaptive behavior skills and social skills; and

(5) documentation, including observation and/or assessment, of how Autism Spectrum Disorder adversely impacts the child's educational performance in his/her learning environment.

Evaluation Participants
Information shall be gathered from the following persons in the evaluation of Autism Spectrum Disorders:

(1) the parent;

(2) the child's general education classroom teacher (with a child of less than school age, an individual qualified to teach a child of his/her age)

(3) a licensed special education teacher;

(4) a licensed school psychologist, licensed psychologist, licensed psychological examiner (under the direct supervision of a licensed psychologist), licensed senior psychological examiner, or licensed psychiatrist;

(5) a licensed physician, neurologist, pediatrician or primary health care provider; and

(6) a certified speech/language teacher or specialist; and

(7) other professional personnel as needed, such as an occupational therapist, physical therapist or guidance counselor. (pp. 1-2)

After the IEP Team determines a child eligible for special education services due to autism, the team must develop a written Individual Education Program (IEP) for the child in accordance with the provisions of IDEA (2004). The IEP must include information about the child's current levels of academic performance; measurable annual goals and how progress toward goals will be measured; information about special education services and supplementary aides and services to be provided to the child; a list of any classroom accommodations and any appropriate accommodations to be provided on State assessments; and an explanation of the extent (if any) to which the child will not participate with nondisabled children in the general education program (IDEA, 2004, 20 U.S.C. § 1414 (d)(1)[A]).

When determining when and where a child with autism will receive special education services, the IEP Team must follow the mandate of IDEA (2004) that children with disabilities be place in the least restrictive environment (LRE) appropriate, and that they have the opportunity to be educated with nondisabled peers to the maximum extent appropriate.

Supplementary aids and services must be provided as needed to enable students with autism spectrum disorders to achieve educational goals in the general education setting to the extent possible. The IEP Team must consider placement in the regular education classroom as the starting point for their analysis of the least restrictive environment followed by a continuum of available placements extending from the regular education classroom to part-time resource room services, self-contained special education classrooms, and finally residential settings. The degree to which a child is removed from the general education environment to a more restrictive setting depends upon a child's individual needs as determined by the IEP Team. Parents must be included in the development of the IEP and give consent for any change in the child's placement (IDEA, 2004).

Given the diversity of the ASD population schools must plan for a full range of placement options in order to meet the individual needs of all children with autism spectrum disorders. Some children receive services in self-contained special education programs while others receive part-time "pull out" services in a resource room setting. Many children with autism receive part-time or full-time inclusion services in general education classrooms with nondisabled peers. Services available to children with autism under the provisions of IDEA (2004) that deal with "related services" may include speech-language therapy, augmentative communication methods, occupational therapy, physical therapy, counseling services, social skills training, a one-to-one assistant, a positive behavior support plan, and parent training. IEP goals typically target deficits in communication and social development related to autism along with any weaknesses in adaptive, cognitive, academic, or motor development.

Specific educational interventions implemented by the IEP Team for children with autism are likely to vary depending upon factors such as the child's age; the severity of symptoms; the child's level of communication, cognitive, and social development; parent input; and the familiarity of IEP Team members with empirically supported practices. The literature on educational interventions for children with autism spectrum disorders is so vast that even experts in the field have difficulty keeping up with the empirical research. Educators often find the

literature confusing, contradictory, or simply overwhelming in quantity. Even so the 2004 reauthorization of IDEA requires schools to implement research-based instructional practices to improve the performance of students receiving special education services. Much of the research on interventions for children with autism has been devoted to various forms of applied behavior analysis, but there are a number of other interventions that enjoy empirical support in the literature (National Autism Center, 2009). Therefore, school personnel and parents have a wide array of evidence-based interventions to choose from when writing IEPs and planning educational programs for children with autism.

The next section of this review of the literature addresses educational interventions for children with ASD that have at least some level of empirical support for their efficacy based on peer reviewed research. Such interventions include comprehensive intervention programs using various forms of applied behavior analysis ranging from more traditional discrete trial training to naturalistic teaching methods such as incidental teaching, pivotal response training, and milieu teaching. Other comprehensive intervention programs, particularly the TEACCH method (Schopler, Mesibov, & Hearsey,1995), are also reviewed. Specific educational interventions that target social skills are discussed. These include adult and peer modeling, priming, and the use of social stories. Augmentative and alternative communication strategies such as the Picture Exchange Communication System (PECS) (Bondy & Frost, 1994) and use of manual signs and gestures are described followed by strategies designed to address sensory and motor issues. This section closes with a summary of essential characteristics of effective educational interventions for children with ASD that are common to a broad range of empirically supported methods and treatment programs.

Applied Behavior Analysis

Since the early 1960s numerous studies have been conducted using applied behavior analysis (ABA) with autistic children of all ages, and ABA remains one of the most popular and widely used treatment strategies for children with autism spectrum disorders. A wide variety of

ABA-based interventions have been developed for use in structured situations and in more "natural" everyday situations and in one-to-one as well as group settings (National Research Council, 2001). Several researchers have conducted comprehensive reviews of a plethora of studies documenting the effectiveness of ABA-based interventions for developing communication, play, social, academic, and adaptive skills in children with autism spectrum disorders and reducing problem behaviors (e.g., Dawson & Osterling, 1997; Green, 1996; Matson et al., 1996).

Behavior analysis is a scientific approach to understanding behavior based upon the principles of respondent and operant conditioning as originally described by Skinner (1953). Applied behavior analysis (ABA) involves the application of behavior analysis and principles of learning theory to reduce or eliminate problem behaviors and teach new skills. Antecedent conditions and consequences of behavior are analyzed and manipulated, and principles of positive and negative reinforcement, shaping, and fading are used to increase or reduce target behaviors (Heflin & Simpson, 1998; Lovaas, 1987). Positive reinforcement is used to strengthen a behavior by following that behavior with something that is desired or valued. Skills are broken down into small steps, and the child is given repeated opportunities to learn new skills with reinforcement. The goals of intervention and types of reinforcers used are tailored to meet the needs of the individual child whose performance is measured by direct observation and data tracking (Heflin & Simpson, 1998; Lovaas, 1987).

Although ABA is now widely accepted among researchers as strongly empirically-supported and among the most effective interventions for children with autism, ABA remains among the most controversial and widely misunderstood treatment strategies (Heflin & Simpson, 1998). In part this is because many mischaracterize ABA as synonymous with Discrete Trial Training (DTT) and the early work of Lovaas (1987) that describes only *one* type of applied behavior analysis (Tarbox & Najdowski, 2008). Discrete Trial Training and the Lovaas Method have played an important role in intensive ABA intervention programs particularly for very young children during the initial stages of treatment. However, the field of applied behavior

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analysis has broadened in the past 30 years to include many other applied behavioral approaches including "naturalistic" teaching procedures (e.g., "pivotal response training," "incidental teaching," and "milieu teaching") and a variety of other techniques such as prompting, choice, priming, time delay, adult and peer modeling, and picture exchange systems (Allen & Cowan, 2008; Frea & McNerney, 2008; National Research Council, 2001). The field of ABA remains a long way from identifying any one systematic approach that best fits the needs of an individual child (Sherer & Schreibman, 2005), and educators are faced with an increasingly vast array of choices. However, in order to understand the origins of the controversy surrounding ABA, one must start with the ground-breaking work of Lovaas and his colleagues (McEachin, Smith, & Lovaas, 1993) and the dramatic findings they reported based on their studies of autistic children in an Early Childhood Intervention Project at the University of California, Los Angeles.

Early Intensive ABA with Discrete Trial Training: The Lovaas Method

Prior to the 1980s the long-term prognosis for children with autism was generally considered to be extremely poor. For example in one longitudinal study (Rutter, 1970) reported that fewer than 2% of subjects with autism were able as adults to hold a job, live independently, and maintain an age-appropriate social life.

This grim outlook changed radically when behavioral psychologist Lovaas (1987) published a ground-breaking study reporting the results of an Early Intervention Project (EIP) for young children with autism enrolled in a highly intensive clinic-based behavioral therapy program at the University of California, Los Angeles (UCLA). Based on principles of operant conditioning, Lovaas used applied behavior analytic (ABA) procedures with a heavy reliance on discrete trial training (DTT). A discrete trial is a small unit of instruction (typically lasting only 5-20 seconds) that is delivered by an adult who works one-to-one with a child. Based upon the three-term contingency model of applied behavioral analysis (antecedent, response, and consequence), each discrete trial is further broken down into five parts (Lovaas, 1987; Smith, 2001; Tarbox & Najdowski, 2008):

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(1) Cue (antecedent stimulus): The teacher gives the child a simple instruction such as "Sit here," "What is this?" or "Look at me."

(2) Prompt: The teacher provides supplementary assistance along with the cue to help the child respond correctly. For example the teacher may model the correct response or take the child's hand to guide him or her to perform the desired behavior. Prompts are gradually faded out and eliminated as the child progresses in therapy.

(3) Response: The response is anything the child says or does following the cue, including a correct response, an incorrect response, or failure to respond. The teacher typically allows the child 3 to 5 seconds to respond before a consequence is given.

(4) Consequence: The teacher reinforces a correct response with immediate positive reinforcement such as praise, hugs, food treats, or access to preferred toys. If the child responds incorrectly or fails to respond, the teacher gives vocal feedback (e.g., "no," "try again") or looks away and does not provide reinforcers.

(5) Intertrial interval: After delivering the consequence the teacher pauses for a few seconds before beginning the next discrete trial.

In his landmark study Lovaas (1987) reported outcomes for an experimental group of 19 autistic children under the age of 4 who received at least 40 hours of one-to-one ABA intervention per week for a period of 2 to 3 years along with participation in regular preschool environments when possible. One-to-one behavioral treatments involved the use of applied behavior analysis (ABA) and discrete trial training (DTT) provided by trained therapists, with a focus on developing imitation skills, language, and social interaction, while reducing problem behavior. A control group of 19 children with autism received a less intensive intervention of approximately 10 hours a week of one-to-one behavioral treatment. A second control group of 21 autistic children received a variety of community-based special education services but no behavioral treatment through the UCLA project. Treatment outcome was assessed based on comparison of pretreatment and posttreatment measures of the children's IQ scores and educational placement. When re-evaluated at a mean age of 7 years, the experimental group had

gained an average of 20 IQ points. Furthermore, 9 of the 19 experimental subjects (47%) were considered normal functioning, as defined by scoring in the average range on cognitive ability tests and having completed first grade in a general education class. By contrast none of the children in either control group were considered normal functioning or found capable of attending inclusive general education classes (Lovaas, 1987).

In a follow-up study McEachin et al. (1993) reported that the experimental group of 19 children who had received intensive behavioral treatment prior to age 4 maintained their gains over the control group that received minimal behavioral treatment. At follow-up the experimental group scored significantly higher in cognitive ability (mean IQ 84.5) than did the control group (mean IQ 54.9). Scores were similar to those obtained by the two groups at age 7, when the experimental and control groups had obtained mean IQs of 83 and 52 respectively. Furthermore, 8 of the 9 subjects from the experimental group who had previously been classified as average functioning in the 1987 study continued to score in the average range on measures of cognitive ability, adaptive behavior, and social skills, and they were able to function in regular education classes. These 8 children from the experimental group (42%) made substantial gains that lasted into adolescence, resulting in their being classified as "normal-functioning" by the authors (McEachin et al., 1993, p. 368). By contrast none of the minimal treatment control group achieved this outcome.

The UCLA Project findings and the claims made by Lovaas (1987) and his colleagues (McEachin et al., 1993) had a major impact on researchers, educators, and parents of children with autism. Believing that 40 hours of intensive, one-to-one, early ABA intervention with discrete trial training (DTT) offered hope of a "normal" outcome for their autistic children, many parents successfully sued their public school systems, forcing them to provide Lovaas therapy with intensive, discrete trial programs (Feinberg & Beyer, 1998; Gresham & MacMillan, 1998). Given the labor-intensive, high cost of such an intervention, school systems often resisted implementation, resulting in conflict between parents and educators and controversy over

whether the Lovaas methodology should be considered an entitlement under the Individuals with Disabilities Education Act (Feinberg & Beyer, 1998).

Researchers have noted several methodological concerns that threaten the validity of Lovaas's (1987) Early Intervention Project findings, and many have cautioned that the outcomes should be viewed as preliminary until the results have been independently replicated (e.g., Frea & McNerney, 2008). Some researchers (e.g., Gresham & MacMillan, 1998; Schopler, Short, & Mesibov, 1989) have questioned the representativeness of the autistic children in Lovaas's experimental group due to (a) lack of random sampling from a population of children with autism, (b) nonrandom-assignment of children to experimental and control groups, resulting in potential selection biases in terms of parental characteristics, motivation, and initial level of functioning for the experimental group compared to the control groups, and (c) a higher mean age for the experimental group than the minimal treatment control group, whose treatment was delayed due to staff shortages.

Researchers (e.g., Heflin & Simpson, 1998; Schopler et al., 1989) have also questioned Lovaas's (1987) claim that some children "truly recovered from autism" (p. 8). Treatment outcome claims were based upon IQ measures and placement in a normal classroom. These may not be the best indicators of outcome. Schopler et al. (1989) argued that children's higher IQ scores in the experimental group at follow-up may have reflected improved test-taking skills (e.g., ability to sit in a chair, attend to the examiner, and comply with simple directions) rather than improved intellectual functioning. Classroom placement may not be a good indicator of outcome because the type of placement may depend less on the severity of a child's symptoms than on school system policy toward inclusion for special needs children, how much parents push for inclusion, and the availability of a one-to-one assistant to support the autistic child in a general education classroom (Heflin & Simplson, 1998; Schopler et al., 1989).

In spite of weaknesses in methodological design, the work of Lovaas (1987) was pivotal in demonstrating that children with autism could make impressive gains in cognitive, language,

and social skills. It is now commonly accepted that young children with autism can make significant gains in early intervention ABA programs (Frea & McNerney, 2008).

Discrete Trial Training: Further Research

Intensive early intervention with discrete trial training (DTT) remains one of the best-known, best-researched behavior analytic techniques for teaching children with autism (Smith, 2001; Tarbox & Najdowski, 2008). In their recently published *National Standards Report* the National Autism Center (2009) reported results of an extensive review of peer-reviewed research studies on educational and behavioral treatments for children with ASD. In this report the National Autism Center identified Comprehensive Behavioral Treatment for Young Children involving applied behavior analytic (ABA) procedures as an "Established Treatment" for which for which several well-controlled studies have shown the intervention to be effective for children (ages 0-9) with Autistic Disorder and PDD-NOS. The National Autism Center identified Behavioral Package interventions as an "Established Treatment" that has proven beneficial for children with ASD (ages 0-21). Behavioral Package interventions (including but not limited to discrete trial training , stimulus-stimulus pairing with reinforcement, shaping, and differential reinforcement strategies) were found effective in increasing academic skills, communication, interpersonal skills, learning readiness, personal responsibility, play skills, and self-regulation while decreasing problem behaviors and restricted, repetitive, nonfunctional patterns of behavior (National Autism Center, 2009).

However, since Lovaas's (1987) pioneering studies researchers have questioned the definition of "intensive" early intervention and how many hours of direct behavioral intervention and discrete trial training (DTT) are required to produce meaningful results. Several research studies (e.g., Anderson, Avery, Dipietro, Edwards, & Christian, 1987; Luiselli, Cannon, Ellis, & Sisson, 2000; Scheinkopf & Siegel, 1998; Smith, Groen, & Wynn, 2000) indicate that significant therapeutic outcomes can be attained with less than the 40 hours per week first proposed by Lovaas. For example Anderson et al. (1987) reported significant gains in language, adaptive,

social, and academic development for a group of autistic children who received an average of 20 hours per week of intensive one-to-one ABA intervention with discrete trial training in a home-based setting for at least 1 year. Luiselli et al. (2000) reported significant gains for two groups of young autistic children who received between 11.8 and 15.6 hours per week of home-based ABA intervention with DTT.

Scheinkopf and Siegel (1998) also studied treatment outcomes for a group of autistic children who received intensive home-based therapy based on the methods developed by Lovaas (1987). Treatment was implemented for a shorter period of time (average 15 months) and fewer hours per week (average 19 hours per week) than by Lovaas (1987). Children in the ABA treatment group obtained a mean IQ about 25 points higher than a control group at follow up. Based on these findings the researchers concluded that "it is possible that Lovaas overestimated the minimum number of treatment hours per week needed for therapeutic effects" (Scheinkopf & Siegel, 1998, p. 21). The authors also suggested that the behavioral intervention itself effectively taught skills relevant to scoring higher on posttreatment IQ tests (e.g., imitation, language, and test-taking skills such as compliance with adult requests).

Numerous studies have documented the effectiveness of ABA with discrete trial training (DTT) for developing language, social, and play skills and in reducing problem behaviors such as tantrums, aggression, and self-injury (e.g., Anderson et al., 1987; Luiselli et al., 2000; National Research Council, 2001; Smith, 2001). Researchers agree that ABA with DTT is especially useful for teaching autistic children new forms of behavior they previously could not or did not perform (e.g., new speech sounds, words, or use of sign language) and for teaching simple imitation skills (e.g., how to roll a car or wave "good bye") that are the basis for mastering more complex social, play, and academic skills (Smith, 2001). Therefore, DTT is especially helpful in early intervention with very young autistic children who have limited verbal, imitation, or basic play skills. However, once autistic children acquire a basic repertoire of communication, play, and social skills, they often require less use of DTT over time. Many older and higher functioning autistic children can discontinue traditional ABA with Discrete

Trial Training in favor of incidental teaching and other approaches that are easier to implement in natural settings without as much one-on-one instruction and that foster greater generalization of new skills in the natural environment (Heflin & Simpson, 1998; Smith, 2001).

Discrete trial training (DTT) is different from other educational interventions due to the high degree of structure inherent in the procedure that occurs in a somewhat artificial setting with the adult initiating trials and selecting behaviors for reinforcement and choice of reinforcers (Smith, 2001; Tarbox & Najdowski, 2008). Researchers have observed that DTT can lead to rote responding and lack of generalization of new learning to the child's natural environment (e.g., classroom or playground) because the child is dependent upon responding in a rote fashion to teacher cues that are not always present in the natural environment (Matson et al., 1996; Smith, 2001; Tarbox & Najdowski, 2008). The reinforcers used to increase appropriate behavior are usually unrelated to the target response, and it can be difficult to find potent enough reinforcers especially when working on behaviors for which the child has low interest (Matson et al., 1996; Smith, 2001; Tarbox & Najdowski, 2008). Teachers must be systematically trained in the methods of ABA and DTT before they can effectively implement this intervention. The necessity for specialized training places this intervention beyond the capability of most general education teachers, and the requirement that DTT be implemented one-to-one in a quiet setting makes implementation difficult in an inclusion classroom (Smith, 2001).

Children who are ready for placement in general education or inclusion classrooms often require incidental teaching and other methods that foster greater generalization and transfer of skills to the natural environment with less dependence upon teacher cues in a highly controlled environment (Smith, 2001; Tarbox & Najdowski, 2008). Therefore, educators often turn to naturalistic teaching procedures such as incidental teaching, pivotal response training, and milieu teaching, using these behavioral analytic approaches in ways especially suited to educating children with autism in general education settings with less dependence upon specialized teacher training and more opportunities for generalization of new learning.

Naturalistic Teaching Procedures

Over the past 3 decades the inclusion of children with autism in educational settings with typical age peers has become a standard of recommended practice (National Research Council, 2001). One reason for this trend is that IDEA (2004) requires that children with disabilities be educated in the least restrictive environment appropriate to meet their individual needs. A second factor is wide-spread recognition among experts that autistic children benefit from exposure to typically developing peers for modeling language, social, and adaptive skills (National Research Council, 2001).

The inclusion classroom provides a "natural" setting where a variety of natural teaching procedures can be implemented with the child's peers included in the intervention. By contrast ABA-based discrete trial training (DTT) requires taking the autistic child out of this "natural" environment for many hours per day and placing the child in a distraction-free, individualized, highly scontrolled situation. Researchers have found that treatment gains made under the "artificial" and highly controlled conditions of DTT often lead to rote learning and do not generalize to other situations or other people in the child's everyday classroom and home environment (Allen & Cowan, 2008).

An alternative to DTT is to arrange for training to occur in the child's natural environment in a way that taps the child's interests and motivations and uses reinforcers that are functionally related to the target behavior (e.g., giving the child a toy "car" as a reward for saying the word "car" as he reaches for a desired toy). Naturalistic teaching methods use applied behavior analytic (ABA) principles but in a much looser manner and in a variety of natural locations. Naturalistic teaching methods that have relatively strong empirical support within the professional literature include incidental teaching, pivotal response training (PRT), and milieu teaching. Based on a review of the research Allen and Cowan (2008) identified several common features of various naturalistic teaching methods:

(1) Naturalistic procedures involve loosely structured sessions that take place in the context of play or everyday events across a variety of settings. This is in contrast to DTT that involves highly structured sessions with an adult in a one-to-one setting.

(2) Trials are typically initiated and paced by the child rather than the teacher, who follows the child's natural interests and motivations, in contrast to DTT where the teacher initiates and paces all trials.

(3) The stimulus is often selected by the child, and a variety of stimuli are used across trials with no set order of responses. This is in contrast to DTT where the same stimuli are used repeatedly and always chosen by the teacher.

(4) With naturalistic procedures a variety of prompts are used to elicit a desired response, as opposed to using the same prompt over and over in DTT.

(5) Naturalistic teaching conditions permit a desire object chosen by the child to serve as a natural reinforcer, whereas DTT often relies upon artificial reinforcers that are not directly related to the stimulus (Allen & Cowen, 2008).

Naturalistic teaching procedures have been found effective with autistic children in the development of language and communication skills (e.g., McGee, Almeida, Sulzer-Azaroff, & Feldman, 1992; R. L. Koegel, Camarata, Koegel, Ben-Tall, & Smith, 1998); in teaching social interaction skills (e.g., Kohler, Anthony, Steighner, & Hoyson, 2001; Pierce & Schreibman, 1995, 1997); and in developing play skills (e.g., Stahmer, 1995).

In their *National Standards Report* based on an extensive review of peer-reviewed research studies on educational and behavioral treatments for children with ASD the National Autism Center (2009) identified Naturalistic Teaching Strategies (including incidental teaching and milieu teaching) as an "Established Treatment" for children (ages 0-9) with Autistic Disorder and PDD-NOS in developing communication, interpersonal, and play skills and learning readiness. Furthermore, the National Autism Center identified Pivotal Response Treatment (a naturalistic teaching procedure) as an "Established Treatment" for children with Autistic Disorder (ages 3-9) in increasing communication, interpersonal, and play skills. Self-

Management intervention (often a focus of Pivotal Response Training) was also identified as an "Established Treatment" for children with Autistic Disorder (ages 3-18) in decreasing problem behaviors and increasing interpersonal and self-regulation skills (National Autism Center, 2009).

Incidental Teaching

Incidental teaching (Hart & Risley, 1968) was one of the first naturalistic teaching procedures developed, and it remains one of the most popular naturalistic intervention methods (Allen & Cowan, 2008). The natural teaching environment is arranged to appeal to the interests of children with autism by strategically placing a variety of preferred toys and materials around the classroom. The teacher blocks access to these toys and materials (e.g., by placing them out of reach or inside clear plastic boxes) to increase the probability that children will demonstrate verbal responses in order to obtain desired objects. When children initiate interaction by reaching, pointing, or approaching in an effort to gain something they want, the teacher provides prompts to elicit more elaborated language (e.g., by asking children to name what they want or describe its color). Correct verbal responses are reinforced with teacher attention and access to desired objects (Allen & Cowan, 2008).

McGee, Krantz, and McClannahan (1985) compared the effectiveness of discrete trial training (DTT) and incidental teaching conditions in teaching children with autism to use prepositions to describe the location of preferred items. Although both methods were found effective, the incidental teaching method resulted in greater generalization and more spontaneous use of prepositions to describe the location of items. In another study McGee et al. (1992) successfully trained typical peers to use incidental teaching methods to increase reciprocal peer interactions in children with autism.

One weakness of the incidental teaching approach is that it is highly dependent on the child's initiation of interactions with others, a behavior that many children with autism often do not display (Allen & Cowan, 2008). Modifications to the incidental teaching procedure have been developed to eliminate this dependence on child initiations. For example in the mand-

model variation on incidental teaching (Allen & Cowan, 2008) the teacher approaches children with ASD and mands (i.e. requests) that they name what they are doing, what they are playing with, or what they want. The teacher still tries to identify toys or activities in which children seem interested or in which they are already engaged (e.g., coloring, swinging). The teacher then approaches children and requests that they name or describe the material (e.g., "Tell me what it is…"). Appropriate verbal response are reinforced with praise and attention. When children do not respond, the teacher models the correct response.

Another modification of incidental teaching is a time-delay procedure whereby the teacher inserts a time-delay before giving help or a desired object to children with autism (Allen & Cowan, 2008). For example if a teacher notices a child trying open a toy box or get on a swing, the teacher might approach and wait 5 to 10 seconds for the child to ask for help. If the child gives a verbal response, the teacher praises the child and provides the desired help or toy. If the child does not respond, the teacher provides a mand ("What do you want?") and waits for a verbal response. The teacher can model the correct response, but in subsequent trials the teacher gradually lengthens the time-delay to give the child a chance to respond independently (Allen & Cowan, 2008). Incidental teaching with time-delay has been found effective in increasing language development, use of social greetings, and spontaneous use of color adjectives while enhancing generalization in children with autism (Allen & Cowan, 2008; Charlop-Christy & Carpenter, 2000; Miranda-Linne & Melin, 1992).

Pivotal Response Training

Pivotal Response Training (PRT) is another major naturalistic approach to intervention for children with autism (L. K. Koegel, Koegel, Harrower, & Carter, 1999). The goals of PRT are: (a) to teach the child to be responsive to multiple learning opportunities that occur in the child's everyday natural environment; (b) to decrease the need for constant, direct intervention by a teacher; and (c) to decrease the need for removing the child from natural settings such as an inclusive classroom environment (L. K. Koegel et al., 1999). The goals of PRT are approached

by focusing intervention on a few core "pivotal" behaviors or responses, i.e. "behaviors that are central to wide areas of functioning such that a change in the pivotal behavior will produce improvement across a number of behaviors" (R. L. Koegel, Koegel, & Carter, 1999, p. 577). In contrast to ABA-based digital response training (DTT), PRT requires far fewer hours of direct contact with a highly skilled specialist because the child is taught pivotal behaviors that produce increasing independence and self-direction. Social and academic learning occurs in the natural environment throughout the day (R. L. Koegel et al., 1999).

Like other naturalistic teaching methods, PRT uses applied behavior analytic (ABA) procedures with an emphasis on providing intervention in the most inclusive settings possible while following the child's choices or interests and using reinforcers that are directly related to the response being taught. Target behaviors are generally taught using toys or other materials that are found in the child's natural environment. PRT research has focused on four particularly important pivotal areas: (a) responding to multiple cues, (b) self-initiation, (c) child motivation, and (d) self-management (L. K. Koegel et al., 1999).

Because children with autism tend to respond on the basis of a limited number of stimuli in their environment, PRT is often used to teach children to respond on the basis of multiple cues. For example a child might be asked to get a green sweatshirt from among other green articles of clothing (pants, shirts, dresses), requiring the child to respond to both color (green) and object (sweatshirt). The number of cues can be systematically increased as the child masters a certain number of cues (L. K. Koegel et al., 1999). A second target of pivotal response training research is developing self-initiated learning interactions. Children with autism exhibit low levels of question asking. Pivotal response techniques have been successfully used to increase question asking and initiation of conversation among children with autism (e.g., L. K. Koegel, Camarata, Valdez-Menchaca, & Koegel, 1998).

Another pivotal area often targeted in PRT research is motivation, which is often lacking in children with autism during everyday teaching and social interactions (L. K. Koegel et al., 1999). R. L. Koegel, O'Dell, and Koegel (1987) demonstrated that several variables were

effective in producing spontaneous verbal language acquisition in nonverbal children, and that these variables were more effective in producing rapid language gains than a massed trial (DTT) procedure. In particular the researchers found that the following tactics increased the autistic children's motivation to learn: (a) use of child choice in stimulus selection; (b) frequent task variation, interspersing mastered tasks with new learning tasks; (c) use of natural reinforcers related to the task; (d) reinforcing the child's attempts or approximations along the way to mastery; (e) and incorporating turn-taking within teacher-child interactions (R. L. Koegel et al., 1987).

A fourth pivotal behavior that has been a target of PRT research is that of self-management. Steps for teaching self-management include (a) defining the target behaviors in observable terms; (b) identifying reinforcers for the child to earn that are child-selected and naturally available in everyday settings; (c) choosing a self-monitoring device; (d) teaching the child to use the self-monitoring method (e.g., by discriminating between desired and undesirable behaviors and recording occurrences of the target behavior); (e) fading use of the self-monitoring device; and (f) confirming that the child is using the self-monitoring device in natural settings (L.K. Koegel et al., 1999). Self-management procedures using PRT have been found effective for children with autism in inclusion school settings in improving social and play skills and increasing time on-task while reducing disruptive behavior (L. K. Koegel et al., 1999; R. L. Koegel, Koegel, & Surratt, 1992; Stahmer, 1995).

Milieu Teaching

Milieu teaching involves the integration of any number of the naturalistic teaching methods described above (e.g., incidental teaching, mand-modeling, time-delay procedures, and pivotal response training) within the context of a child's everyday activities and interests (Allen & Cowan, 2008).

For example Kohler et al. (2001) used milieu teaching to increase the social interaction skills of four preschool children with autism in an inclusive preschool classroom. The classroom

teachers were trained in a variety of naturalistic teaching methods including incidental teaching, the mand-model procedure, time-delay, and activity-based intervention to stimulate children's play and interaction with others. The classroom environment was structured to block access to desired toys so that autistic children would have to ask for them. Teachers followed the children's lead and used preferred toys in teaching. Teachers also joined with the children in play, encouraged turn-taking, solicited verbal responses, and encouraged social interaction. In the first phase teachers received brief verbal instruction plus handouts on naturalistic teaching methods. In a second phase teachers also received daily practice and feedback. The teachers had little success using the procedures during phase one. However, when practice and feedback were added during phase two all four children with autism increased their social interactions during play. This study is particularly important because it not only supports the effectiveness of naturalistic teaching methods, but it also reveals the critical importance of providing teachers with adequate training in those methods with on-going opportunities for practice and feedback (Kohler et al., 2001).

The various applied behavior analytic (ABA) methods described thus far, including those using the Lovaas (1987) method with discrete trial training and those using naturalistic teaching methods such as incidental teaching, pivotal response training, and milieu teaching, are all comprehensive intervention approaches based on the principles of applied behavior analysis and behavioral psychology. An alternative approach, structured teaching or the TEACCH method (Schopler, Reichler, & Lansing, 1980), also enjoys widespread popularity as a comprehensive intervention program for children with autism spectrum disorders.

Structured Teaching: The TEACCH Program

Structured teaching, also referred to as TEACCH (Treatment and Education of Autistic and Related Communication Handicapped Children), is a comprehensive intervention program that uses a different approach than traditional or modified ABA by combining features of behavioral and developmental orientations (Lord & Schopler, 1994; Schopler et al., 1980).

Based on neuropsychological characteristics of children with autism (e.g., concrete thinking, distractibility, excessive focus on details, impaired verbal skills, poor eye contact, visual learning style), structured teaching involves a combination of procedures that rely heavily on the physical organization of the classroom environment, predictable schedules and routines, visually-based instruction, and individualized teaching materials. Modifications in structure of the classroom environment, instructional materials, and methods of presenting information make learning and understanding easier for children with ASD because modifications and materials are adapted to the individual learning style and characteristics of each child (Lord & Schopler, 1994; Schopler et al., 1980).

The structured teaching program for Treatment and Education of Autistic and Communication Handicapped Children (TEACCH) was originally developed in 1972 as a statewide program in North Carolina for the diagnosis, treatment, training, and education of children with autism spectrum disorders (Lord & Schopler, 1994). TEACCH currently operates nine regional centers in North Carolina that provide diagnostic evaluation, individualized curriculum development, social skills, and vocational training for children and adults with ASD and parent counseling services. TEACCH centers also provide inservice training and consultation services for educators and other professionals. The program has also been implemented throughout the United States and Europe, becoming one of the most influential educational programs for children with autism disorders (Smith, 1999).

The TEACCH model is especially pertinent to the current case study because it is in use throughout North Carolina with training centers scattered throughout the state. The proximity of those training centers to Tennessee has made training opportunities in the TEACCH model more readily available to educators in East Tennessee, including my own school system, than university-based training programs at more distant sites. I have attended two TEACCH training workshops in North Carolina. Even before beginning this study I was aware that other educators and parents in this area have enjoyed similar opportunities. Therefore, it seemed likely that I

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might find TEACCH methods being implemented with autistic children in the school system that was the site of study.

The TEACCH model of intervention for children with autism spectrum disorders is an eclectic model that shares features of behavioral and developmental approaches (Smith, 1999). Applied behavior analysis and behavioral interventions may be used for controlling disruptive behaviors and developing self-help skills (Smith, 1999). For example the treatment manual includes specific instructions in the use of behavior analysis techniques for identifying antecedents or triggers that precede problem behaviors, then developing a behavior plan using behavior management techniques to eliminate or modify those triggers while reinforcing desired alternative behaviors (Schopler et al., 1980). However, the treatment manual (Schopler et al., 1980) cautions against using applied behavior analytic approaches for other skills such as communication. Unlike traditional behavioral approaches, TEACCH has developed a communication curriculum that incorporates more naturalistic procedures along with alternative communication strategies (such as picture exchange systems) for children with little or no speech. Schopler et al. (1995) assert that interventions favored by TEACCH are more likely than ABA approaches to foster generalization to everyday life. Also, rather than attempting to remediate weaknesses, as in many behavior analytic programs, the TEACCH approach emphasizes the child's capacities and strengths while accommodating for specific deficits (Schopler et al., 1995).

TEACCH is based on a structured teaching approach that involves modifying and organizing the learning environment with clear, concrete, visual information. The environment is structured by the use of schedules for daily routines, the use of individual systems for work and play, and visually clear organization of tasks (National Research Council, 2001; Schopler et al., 1995). Because visual skills tend to be more advanced than verbal skills among children with autism, instructions may be presented in pictures rather than spoken words or supplemented with visual aids. Tasks may have visual prompts (e.g., pictures of each step in a task). Children often work at individual workstations because noise and intrusions from peers may be

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distracting, although some work also occurs in small groups. The program involves simplified

directions and the use of visual cues, prompts, and reinforcement. Because transitions from one

situation to the next are often difficult for children with autism, highly structured visual

schedules are displayed to help the child visualize the order of events and what comes next

(Heflin & Simpson, 1998; Schopler et al., 1995; Smith, 1999).

A number of research studies provide empirical support for the effectiveness of the

TEACCH program. In two early studies Schopler, Brehm, Kinsbourne, and Reichler (1971) and

Rutter and Bartak (1973) found that children with autism learned more with structured teaching

methods such as those used in the TEACCH program than with unstructured interventions.

More recently Panerai, Ferrante, and Caputo (1997) studied the effectiveness of the TEACCH

program with 18 autistic children and youth (age 7 to 18) with co-occurring mental retardation.

Most students were nonverbal. After 1 year in a TEACCH program, study subjects showed

significant gains in communication, socialization, self-help skills, perception, motor activities,

and cognitive performance. Panerai et al. (1997) also found that TEACCH methods promoted

more independence during work sessions and in moving from one activity to another, and study

participants communicated more frequently using different ways of communication (e.g., objects

on cards, photos, pictures).

Lord and Schopler (1988) investigated the effects of the TEACCH method on cognitive

development in children with autism. On average children who received early intervention in

TEACCH gained 3-7 IQ points between age 3-4 and age 7-9 years. These gains were fairly

small in comparison to cognitive gains reported by Lovaas (1987) for children receiving early

intervention using ABA-based methods with discrete trial training. However, Lord and Schopler

noted that even though the cognitive functioning of most children in the TEACCH program

remained fairly stable over time, a subgroup of the 44 lowest functioning children (nonverbal

children with IQ <50) made impressive IQ gains, averaging 15-24 points. The researchers

concluded that TEACCH may be especially effective in facilitating the cognitive development

among a subgroup of nonverbal autistic children who are low functioning at entrance to the program (Lord & Schopler, 1988).

Ozonoff and Cathcart (1998) evaluated the effectiveness of a TEACCH-based program implemented by parents in a home program intervention for young children with autism. Comparisons were made between a treatment and a no-treatment control group matched for age, pretest scores, and severity of autism. After 4 months of TEACCH-based home intervention children in the treatment group improved significantly more than those in the control group on measures of fine motor, gross motor, nonverbal conceptual skills, and imitation skills.

Major weaknesses of many studies on the TEACCH method are lack of control groups (e.g., Keel, Mesibov, & Woods, 1997; Panerai et al., 1997). Although further research is needed, TEACCH has been quite influential in promoting the use of structured teaching for children with autism, the use of visual strategies and environmental supports, a holistic treatment approach, an emphasis on skill enhancement, and parent-teacher collaboration (American Academy of Pediatrics, 2001; Mesibov, 1997).

In their recently published *National Standards Report* the National Autism Center (2009) identified Structured Teaching (also referred to as TEACCH) as an "Emerging Treatment," or one for which one or more well-designed studies suggest the intervention may produce favorable outcomes for children with ASD, although additional high quality research is needed that consistently demonstrates the treatment to be effective. In particular the National Autism Center reviewed four studies supporting the effectiveness of TEACCH for children (ages 0-18) with Autistic Disorder and PDD-NOS in increasing communication, higher cognitive functions, interpersonal skills, learning readiness, motor skills, and personal responsibility.

In the same report the National Autism Center (2009) also identified Schedules (a key component of the TEACCH method) as an "Established Treatment" for which several well-controlled studies have shown the intervention to be effective for children with ASD. In particular schedules that communicate a series of steps required to complete a specific task were found effective for children (ages 3-14) with Autistic Disorder in increasing self-regulation.

Schedules could be in the form of written words, pictures or photographs, or work stations (National Autism Center, 2009). All these types of schedules are used in the TEACCH method.

All comprehensive intervention approaches described thus far, including those using traditional ABA with discrete trial training, those using naturalistic teaching procedures, and those using an eclectic approach such as the TEACCH method are designed to target a wide range of skills among children with autism spectrum disorders. Comprehensive intervention approaches have been found effective in improving communication, social, cognitive, adaptive, play, self-management, and academic skills among children with ASD and in reducing problem behaviors (National Research Council, 2001). However, the research literature also contains numerous examples of specific educational interventions designed to target individual skills that are deficient among children with ASD. The next section of this review of the literature addresses specific educational interventions that target three areas: (1) social skills, (2) augmentative and alternative communication systems, and (3) sensory-motor skills.

Interventions to Teach Social Skills

Significant impairment in social interaction is one of the core characteristics of children with autism spectrum disorders (*DSM-IV-TR,* 2000). Vital social skills such as sharing joint attention, initiating and maintaining social interaction, and engaging in cooperative play may be lacking or severely impaired (National Research Council, 2001). Several excellent reviews of the literature have been conducted describing a variety of interventions used to teach social skills to children with autism (e.g., Machalicek et al., 2008; McConnell, 2002; Weiss & Harris, 2001). Such studies have generally used single subject designs with pre-post, multiple baseline, or ABAB formats without ensuring researcher blindness or random assignment to treatment conditions (National Research Council, 2001). In spite of these methodological limitations, a significant body of research has emerged providing empirical support for various types of social skills interventions.

In their review of related literature Machalicek et al. (2008) identified four general categories of interventions used to teach social skills to children with autism including (a) adult-mediated antecedent interventions (e.g., priming and social stories); (b) peer-mediated strategies; (c) video modeling; and (d) pivotal response training. Pivotal response training (PRT) has already been described in detail because this method is a comprehensive teaching approach used to target a wider range of behaviors than just social skills. Examples from the research have already been cited describing the effectiveness of PRT in teaching children with autism social skills such as initiating social interactions and increasing joint attention, which are pivotal behaviors for developing more complex social skills (e.g., Pierce & Schreibman, 1995, 1997). A discussion of adult-mediated and peer-mediated strategies follows with examples from the research literature illustrating the effectiveness, strengths, and limitations of each approach.

Adult-Mediated Interventions

Two of the most common interventions used by adults in school settings to teach social skills to children with autism spectrum disorders are priming with modeling and social stories. These are antecedent interventions that are designed to prepare the student ahead of time to exhibit a desired behavior in a particular situation (Machalicek et al., 2008).

Priming with adult modeling. Priming involves providing a child with opportunities to practice a target behavior immediately before it must be performed (Zanolli, Daggett, & Adams, 1996). During priming sessions a teacher models a behavior for the child and gives verbal cues or prompts and instructions about how to perform that behavior. Modeling and prompting may be followed by reinforcement of appropriate responses. Brief priming sessions are followed by an activity in which no prompts are given although reinforcers may be continued. Researchers have used priming interventions to target nonverbal social skills (e.g., smiling, maintaining eye contact, and giving and receiving affection) and social initiation behaviors (Machalicek et al., 2008; Zanolli et al., 1996).

Priming with adult modeling can be easily implemented by teachers over brief periods of time before target activities and can be combined with reinforcement (e.g., Zanolli et al., 1996). However, Machalicek et al. (2008) reported that studies demonstrating the effectiveness of priming in maintaining target social skills over time after priming sessions have ended are somewhat lacking. Furthermore, when adult-mediated strategies such as priming and adult modeling are used in isolation they may encourage the dependence of children with autism on adults. When adult support is withdrawn there may be a decrease in social behavior (Weiss & Harris, 2001).

In spite of these weaknesses in the approach, the National Autism Center (2009) included priming in a list of Antecedent interventions identified as an "Established Treatment" for which several well-controlled studies have demonstrated its effectiveness for those with ASD. The National Autism Center also identified Modeling (by adults or peers, often combined with other strategies such as priming and reinforcement) as an "Established Treatment" for children (ages 3-18) at all levels on the autism spectrum, including those with Autistic Disorder, Asperger's Syndrome, and PDD-NOS. In particular Modeling was found effective in increasing communication, higher cognitive functions, interpersonal skills, personal responsibility, sensory regulation, and play skills and decreasing problem behaviors. Finally, the National Autism Center designated Initiation Training as an "Emerging Treatment" for children at all levels on the autism spectrum. Initiation Training is a form of priming in which an adult directly prompts children with ASD to initiate interactions with their peers (e.g., Zanolli et al., 1996).

Social stories. Social stories have become an increasingly popular strategy for teaching social skills to children with autism spectrum disorders since the approach was developed by Gray (2000; see also Gray & Garand, 1993). Social stories are brief, individualized stories that describe a particular social situation and provide specific information about expected behavior in that situation, the viewpoint of others, and specific steps for implementing appropriate social skills (Gray, 2000; Sansosti, Powell-Smith, & Kincaid, 2004). A social story helps a child to

understand what other people in a given situation typically do, think, say, or feel. The story provides the child with a script for what to do and what to say in various social situations. The story is read to the child before a target activity to help the child understand the social cues for a given setting and prepare the child to perform appropriate social behavior in that situation (Gray, 2000; Sansosti et al., 2004).

Social stories are designed to address the deficit children with autism display in reading social cues and comprehending social situations from the perspectives of others. This deficit causes difficulty knowing what to do and how to act in various social situations (Machalicek et al., 2008). Gray (2000) specified that social stories should be written on a child's comprehension level and should include four basic types of sentences: (a) descriptive sentences that describe the setting in which the target behavior should occur; (b) perspective sentences that describe the feelings of others in the situation; (c) affirmative sentences that state commonly held beliefs shared by most people in the culture; and (d) directive sentences that tell the student what to do, how to behave, or how to respond to social cues in the situation.

Social stories have been used to target a variety of skills including conversational skills such as initiating, joining, and maintaining a reciprocal conversation; play skills such as sharing and taking turns; and pivotal behaviors such as initiating requests (Machalicek et al., 2008). In a synthesis of available research regarding social story interventions for children with autism spectrum disorders, Sansosti et al. (2004) found 10 studies related to their effectiveness but only six studies demonstrated adequate experimental control by using ABAB reversal or multiple-baseline designs. Among the better-designed studies, social stories were found effective in decreasing temper tantrums, loud verbal vocalizations, and disruptive behavior (e.g., chair-flipping, shouting) in students with autism (Sansosti et al., 2004).

Almost all research on social stories has been conducted with children who have moderate to severe forms of autism. One notable exception is a study by Sansosti and Powell-Smith (2006) who examined the effects of social story interventions for three children with

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Asperger syndrome (ages 9 to 11) on social interaction with peers. Following the social story intervention, two of the three participants showed increases in social engagement.

Major advantages of social stories are that they are simple, cost-efficient, and fairly easy to implement and that a story can be read as often as needed by the child or by the teacher (Machalicek et al., 2008). In their recently published *National Standards Report* the National Autism Center (2009) identified Story-based Interventions including the use of social stories as an "Established Treatment" for which several well-controlled studies have shown the intervention to be effective for children with ASD. In particular social stories were found effective in increasing interpersonal skills and self-regulation in children (ages 6-14) with Autistic Disorder and Asperger's Syndrome.

Peer-Mediated Interventions

A second major category of interventions used to teach social skills to children with autism spectrum disorders is that of peer-mediated strategies. Peer-mediated procedures represent a highly effective treatment approach for developing social skills among children with autism (McConnell, 2002; National Research Council, 2001). This treatment approach is commonly used in research studies on improving social skills of children with autism in school settings where typical peers provide readily available models of appropriate social and play skills, especially in inclusion classrooms (Machalicek et al., 2008).

Peer-mediated interventions have been found effective in improving a variety of skills in children with autism spectrum disorders including play skills (e.g., sharing, taking turns, sportsmanship), conversation skills (e.g., initiating conversation, giving greetings and compliments, responding to others), pivotal behaviors (e.g., requesting and joint attention), and cooperative social behaviors (Machalicek et al., 2008; McConnell, 2002; National Research Council, 2001; Weiss & Harris, 2001). In a review of research on peer-mediated procedures for facilitating social interaction in children with autism McConnell (2002) remarked that such

procedures "represent a robust treatment approach for social interaction deficits among young children with autism" (p. 363).

The research literature on peer-medicated interventions can be grouped into three major categories: (a) peers as partners, which involves placing typically developing children in close proximity with children with autism but no special training for the peers; (b) peers as trainers, which involves teaching peers how to prompt and reinforce social behavior among children with autism; and (c) peers as tutors for children with autism in academic sessions (Machalicek et al., 2008; Weiss & Harris, 2001). Examples from the research are provided for each of these three categories.

Peers as partners (*in vivo* modeling). Peer-mediated interventions that rely upon peers as partners involve placing typically developing children in close proximity with children with autism, thereby providing naturally occurring opportunities for social interaction (Machalicek et al., 2008; Weiss & Harris, 2001). Sheer proximity between typical peers and children with autism is common in inclusion classrooms making this setting ideal for peer-mediated interventions. Typical peers provide *in vivo* models of age-appropriate social, communication, and play skills in their everyday interaction with their classmates with autism. The peers are not given any special training, although they may be taught basic information about children with autism and simply instructed to play with the target children (Weiss & Harris, 2001).

In one well-designed peer-mediation intervention study, Roeyers (1996) randomly assigned 85 children (ages 5 to 13) with autism to treatment and control groups. Forty-eight typically developing peers served as playmates for children in the treatment group. The peer partners were shown a video about children with autism, but they were not trained in specific techniques for how to play with autistic children. Next "reverse inclusion" was implemented by bringing the peer partners to the schools of the children with autism for 30-minute play sessions. Each peer was given the simple instruction, "Do your best to get him (or her) to play with you" (Roeyers, 1996, p. 310). Children with autism in the treatment group displayed significant

increases in social interaction with peers, longer duration of interaction, more responsiveness to peer initiations, and fewer interfering behaviors such as self-stimulation. The untreated control group did not exhibit any of these changes (Roeyers, 1996).

Study results such as these suggest that children with autism can benefit from regular opportunities to interact with typical peers. However, the literature on proximity intervention indicates that peer proximity alone (without prompts, reinforcement) is not highly effective in producing lasting changes in social skills among children with autism or generalization across settings (Weiss & Harris, 2001). Therefore, a second approach has been developed whereby peers are specifically taught how to prompt and reinforce the use of social skills among children with autism spectrum disorders.

Peers as trainers. When peers serve as trainers they are taught to implement social skill intervention strategies such as prompting a child with autism to engage in a task, asking questions to solicit conversation, ignoring inappropriate behavior, and reinforcing target social behaviors (Machalicek et al., 2008; Weiss & Harris, 2001). There is a large body of research on the use of peers as trainers. Some research has been conducted within the framework of peer-implemented pivotal response training (e.g., L. K. Koegel et al., 1999; Pierce & Schreibman, 1995, 1997). Interventions using peers as trainers have been found effective in increasing social interactions between children with autism and their typical peers (Gonzalez-Lopez & Kamps, 1997; Kamps, Potucek, Lopez, Kravits, & Kemmerer, 1997); increasing social skills such as requesting, commenting, and sharing during play with peers (Morrison, Kamps, Garcia, & Parker, 2001); and increasing social-communicative behaviors of children with autism while decreasing disruptive behavior (Garrison-Harrell, Kamps, & Kravits, 1997).

In the study by Gonzalez-Lopez and Kamps (1997), special education teachers trained 12 typically developing peers (ages 5 to 7) to use behavior management skills such as modeling, prompting, giving assistance, and ignoring inappropriate behavior to teach specific social skills to 4 children with autism (ages 5 to 7). During 25-minute sessions three to four times a week,

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the teacher met with children in small groups, consisting of three peer trainers and one child with autism. During the first 10 minutes the teacher modeled specific social skills such as taking turns, greeting, sharing, imitating, and requesting, then let the children practice those skills with feedback. During the last 10 to 15 minutes of the session the teacher did not interact with the group but allowed the peers to continue using the skills they had been taught to prompt and reinforce target social skills in the child with autism. All target students demonstrated increased frequency and duration of social interactions (Gonzalez-Lopez & Kamps, 1997).

In a similar study Morrison et al. (2001) taught four children with autism and same-age nondisabled peers to use and monitor social skills such as requesting, commenting, and sharing while playing games. Each autistic child was grouped with 2 to 3 typical peers for three weekly social skills training sessions followed by free play. For the first 10 minutes of each intervention session typical peers and autistic children were brought together to play various games and were trained by an adult in the target social skills (requesting, commenting, sharing) with reinforcers provided (e.g., candy and stickers). Peers and students with autism were also trained to complete monitoring sheets to track instances of the target social behavior. Game play sessions followed the 10-minute training sessions. During game play the adult did not intervene as the typical peers provided prompts, verbal praise, and tangible rewards to the target student. Study results indicated that peer-mediated social skills training combined with reinforcement was effective with all four children with autism in increasing initiations, interaction with peers, requesting, commenting, and sharing behaviors (Morrison et al., 2001).

In their *National Standards Report* the National Autism Center (2009) identified Modeling (including modeling by peers) and Peer Training Package (including peer-mediated social interactions, circle of friends, peer networks, and peer-initiation training) as "Established Treatments" for which several well-controlled studies have shown these interventions to be effective for children with ASD. In particular Modeling (by peers or adults) was found effective with children (ages 3-18) at all levels on autism spectrum, especially when combined with other strategies such as prompting and reinforcement. Modeling was associated with increases in

increases in communication, higher cognitive functions, interpersonal and play skills, and personal responsibility. Similarly, the National Autism Center identified Peer Training Package interventions as an "Established Treatment" for children (ages 3-14) with Autistic Disorder and PDD-NOS that is effective in increasing communication, interpersonal, and play skills and decreasing restricted, repetitive, nonfunctional patterns of behavior.

Peers as tutors. In research on peer tutoring typically developing peers provide tutoring to children with autism in some academic area. In a variation on this type of study children with autism and typical peers may join forces and work together as tutors for younger, nondisabled children. The underlying assumption of these studies is that the child with autism will develop social skills during academic tutoring sessions because tutoring involves social interaction (Machalicek et al., 2008). The National Autism Center (2009) identified Peer-mediated Instructional Arrangement (also described as peer tutoring), as an "Emerging Treatment" for which one or more well-controlled studies have demonstrated its effectiveness in increasing interpersonal skills in children (ages 6-9) with Autistic Disorder.

One of the most popular and effective instructional strategies used by teachers in schools today is that of cooperative learning whereby children work collaboratively in small groups using a variety of learning activities to improve their understanding of a subject (Marzano, Pickering, & Pollock, 2005). Members of the group are each responsible for learning what is taught and for helping teammates learn and achieve group goals. Cooperative learning groups provide children with autism particularly rich opportunities to develop social skills when they are grouped with nondisabled peers in inclusive classroom settings for academic activities. For example Dugan et al. (1995) used an ABAB reversal design to compare cooperative learning groups and teacher-led instruction with lectures. Two children with autism were integrated into a fourth-grade social studies class where they and typical peers were exposed to both instructional methods. Study results indicated that children with autism and their typical peers

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gained more information and displayed more social interaction in the cooperative learning group condition than during teacher-led instruction with lectures (Dugan et al., 1995).

Kamps, Dugan, Potucek, and Collins (1999) conducted a study on the effects of cross-age peer tutoring networks on social behaviors among children with autism. Peer networks were created consisting of two fourth-grade students with autism and five nondisabled fourth-grade peers, who were all trained to tutor six first grade students in basic sight word recognition. Study results revealed that both typical peers and children with autism were effectively trained as tutors for younger children. Results also indicated increased duration of social interaction time for the two children with autism and their network peers. The first grade students who received tutoring showed greater gains in word recognition than a control group. Giving children with autism opportunities to participate in peer tutoring networks not only increased their social interaction with typical peers but also gave them a chance to participate in a productive activity for helping younger students (Kamps et al., 1999).

Whether using peers as models, trainers, or tutors, peer-mediated interventions have several strengths and weaknesses. Because a major goal of social skills training for children with autism is to develop appropriate social interaction with peers, the use of peers in the intervention provides a natural means for targeting that goal. Peer-mediated interventions are a perfect fit for inclusive classrooms where children with autism and nondisabled peers can be easily grouped or paired for various interventions. There are benefits for nondisabled peers as well. For example Kamps et al. (1998) surveyed 203 elementary school children in multiple settings over 5 years concerning their participation as members of peer tutoring networks, cooperative learning groups, and social skills groups with 38 children with autism. The majority of typical peers reported that they enjoyed the peer group activities, wanted to be involved in the activities again, and wanted to spend more time with the children with autism. The authors concluded that peer-mediated interventions increase tolerance and acceptance among peers for children with autism thereby helping students with autism to develop improved social relationships with classmates (Kamps et al., 1998).

Major limitations of peer-mediated interventions are that socially competent peers may not be available or willing to participate, and they may find training difficult. Furthermore, children with autism do not always maintain and generalize acquired social skills over time and in other settings after the intervention is discontinued (Kamps et al., 1999; Machalicek et al., 2008; Morrison et al., 2001).

Video Modeling

Cognitive learning theorists (e.g., Bandura, 1977) have long suggested that humans learn many behaviors by observing other people and modeling the behaviors observed. Videotape technology been used for many years to teach a wide variety of skills to children with and without disabilities (Maione & Mirenda, 2006). However, the use of video modeling with children with autism has emerged as a relatively new form of intervention for this population only within the past 15 years. Furthermore, video self-modeling (whereby the autistic child serves as the model and observes himself or herself performing a targeted behavior accurately and independently) has been a focus of research only within the past decade (Buggey, 2005; Darden-Brunson, Green, & Goldstein, 2008). Thus, video-based instruction is an exciting new frontier in the field of educational interventions for children with autism.

Video modeling involves "the child observing a video-tape of a model engaging in a target behavior and subsequently imitating" (Charlop-Christy, Le, & Freeman, 2000, p. 537) with an adult, peer, sibling, or self serving as model. Video-based instruction has been effective in teaching a wide range of social skills to children with autism including conversational speech (Charlop & Milstein, 1989); perspective-taking skills (LeBlanc et al., 2003; Charlop-Christy & Daneshvar, 2003); complex play skills (D'Ateno, Mangiapanello, & Taylor, 2003; MacDonald, Clark, Garrigan, & Vangala, 2005); social interaction skills (Maione & Mirenda, 2006; Nikopoulos & Keenan, 2003); and daily living skills (Shipley-Benamou, Lutzker, & Taubman, 2002). Because video modeling is so new, many educators are not yet familiar with this approach.

Adults as models. Video modeling using adults as models has been successful in teaching children with autism a wide variety of communication, social, and daily living skills (Darden-Brunson et al., 2008) and complex pretend play skills (D'Ateno et al., 2008; MacDonald et al., 2005). For example two studies have demonstrated the effectiveness of video modeling with adult models in teaching perspective taking to children with autism (Charlop-Christy & Daneshvar, 2003; LeBlanc et al., 2003). Perspective taking is "the ability to determine mental states of others in order to explain or predict behavior" (Charlop-Christy & Daneshvar, 2003, p. 12). Children with autism either lack this skill or are delayed in the ability to understand another person's perspective, which is critical to developing social behaviors such as sharing, turn taking, and empathy (Charlop-Christy & Daneshvar, 2003).

Peers as models. Peer models have proven quite effective in video-based instruction for children with autism in teaching social reciprocity skills such as giving compliments (Apple, Billingsley, & Schwartz, 2005); social skills such as sharing, following teacher directions, and giving social greetings (Simpson, Langone, & Ayres, 2004); and reciprocal play skills (Nikopoulos & Keenan, 2003). For example Apple et al. (2005) used peer video modeling to teach two 5-year old boys with autism to respond to compliments with peers. However, the subjects did not begin initiating compliment-giving with peers until video modeling was augmented with either tangible reinforcement or self-management strategies. The combination of video modeling and self-management strategies (e.g., having the child press a button on a wrist-watch self-monitoring device) was especially effective in increasing the children's compliment-giving initiations and fostering generalization across situations (Apple et al., 2005).

Simpson et al. (2004) combined video and computer based instruction to teach four children with autism (age 5 to 6) targeted social skills including sharing, following teacher directions, and initiating social greetings. A computer-based program was embedded with video clips of typical nondisabled peers demonstrating examples of social behaviors (e.g., sharing) in everyday school settings. Following computer-based instruction with video modeling the autistic

children participated in group activities with nondisabled peers allowing for assessment of target social skills. All four students displayed rapid improvements in their rate of unprompted social behavior in the natural environment including frequency of sharing, following teacher directions, and social greetings (Simpson et al., 2004).

Self as model. Video self-modeling has emerged within the past decade as a creative means of improving desired behaviors and decreasing inappropriate behaviors in children with autism (Darden-Brunson et al., 2008). The process involves video-taping the autistic child either in a role-play situation or in a natural setting and prompting the child to perform the desired behavior. The video-tape is then edited to show the child smoothly engaging in the target behavior with all prompts and inaccurate performance or mistakes edited out. The child watches the video of himself or herself performing the target behavior successfully without assistance (Darden-Brunson et al., 2008).

Two groups of researchers (Hepting & Goldstein, 1996; Wert & Neisworth, 2003) found that video self-modeling (VSM) was effective in teaching preschoolers with autism to make spontaneous (unprompted) requests in a school setting (e.g., "Give me Play Doh" or "my turn"). Video self-modeling has also be used to successfully reduce inappropriate behaviors. For example Graetz, Mastropieri, and Scruggs (2006) used video feedback to decrease hand-wringing, arm-flailing, and body-rocking in a 13 year old boy with autism.

Buggey (2005) analyzed the effects of video self-modeling on five children with autism (age 5 to 11) in an inclusive school setting. Behaviors addressed included language production, social initiation, tantrums, and aggression. For each of three substudies a role-playing script was written, and peers and teachers participated with the autistic students in the creation of videos. Video-self modeling was associated with gains in the frequency of social interactions, substantial decreases in tantrums, and decreased pushing and aggression among target study participants (Buggey, 2005).

One disadvantage of video self-modeling is that it can require much time, energy, and editing to develop a final product, especially if the child must be taped over a long period of time and many segments spliced together to form a final product for the child to view (Buggey, 2005). Even so research on video self-modeling appears promising. Generalization is more likely to occur because videotaping occurs in the child's natural environment, and the model is the same as the autistic child. Video self-modeling has proven effective in teaching a variety of social, language, academic, and adaptive behaviors and in decreasing problem behaviors (Buggey, 2005; Darden-Brunson et al., 2008).

Augmentative and Alternative Communication Interventions

Many children with autism spectrum disorders have severe communication deficits, and as many as 50% fail to develop functional speech (Schlosser & Wendt, 2008a). Augmentative and alternative communication (AAC) interventions can be useful components of an educational program for children with autism who have little or no functional speech. AAC is defined as "an area of clinical practice that attempts to compensate (either temporarily or permanently) for the impairment and disability patterns of individuals with severe expressive communication disorders" (American Speech-Language-Hearing Association, as cited in National Research Council, 2001, p. 56).

The research literature on other AAC approaches for children with autism provides a strong body of evidence for the effectiveness of two approaches: (1) the use of manual signs and gestures (National Research Council, 2001; Schlosser & Wendt, 2008a); (2) the Picture Exchange Communication System (PECS), an approach that has gained widespread popularity in the last 15 years (Bondy & Frost, 1994; Frost & Bondy, 2002; Schlosser & Wendt, 2008a). A brief review of each of these two approaches and examples of research supporting their effectiveness follows.

Manual Signs and Gestures

Manual signing was one of the first forms of AAC used with nonspeaking children with autism, and it has proven effective with this population for more than 30 years (National Research Council, 2001; Schlosser & Wendt, 2008a). Manual signing can involve use of a natural sign language (e.g., American Sign Language) or any system of manual signs as a code for spoken language. Gestures are body movements (e.g., pointing or head-nodding) used to communicate wants or needs or to represent an idea, object, or action. Since the 1980s manual signing has often been used in combination with speech training for children with autism, an approach termed "total" or "simultaneous" communication (Mirenda & Erickson, as cited in Schlosser & Wendt, 2008a, p. 361).

According to the National Research Council (2001) numerous studies have been conducted on the efficacy of teaching sign language to children with autism. Sign language instruction may be even more effective when used in combination with direct speech therapy or speech training. For example researchers have found that for many children with autism total communication training (speech training plus sign language) has resulted in greater levels of receptive and expressive vocabulary acquisition at a faster rate than speech training alone (e.g., Barerra & Zulzer-Azaroff, 1983; Carr & Dores, 1981; Layton, 1988; Yoder & Layton, 1988). The National Research Council reported that the research literature provides evidence that use of AAC systems including sign language enhances the acquisition of speech for some children and does not delay or interfere with the development of speech. Furthermore, children with poor verbal imitation skills may be the best candidates for use of an AAC system because they are less likely to make progress in expressive speech development than those with good verbal imitation skills (National Research Council, 2001).

Based on a systematic review of experimental studies that focused on the acquisition and use of manual signs and gestures, Schlosser and Wendt (2008a) concluded that the use of this AAC intervention is an effective communication option for children with autism not only with regard to symbol acquisition and production but also with regard to related outcomes such as

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speech comprehension and production. The National Autism Center (2009) identified Sign Instruction as an "Emerging Treatment" for which one or more well-controlled studies have demonstrated its benefits in increasing communication skills in children with Autistic Disorder (ages 3-9), although additional research is needed to confirm its effectiveness.

Learning manual signs and gestures has an obvious advantage for children with autism who have little or no speech. Many children with autism struggle to imitate vocal sounds but find it easier to imitate simple motor movements demonstrated by an adult. The major limitation of using manual signs and gestures as a communication system for children with autism is that it places demands on communication partners (teachers, parents, peers) to learn the sign system being used in order to communicate with the autistic child (Schlosser & Wendt, 2008a).

Picture Exchange Communication System (PECS)

The Picture Exchange Communication System (PECS) (Bondy & Frost, 1994; Frost & Bondy, 2002) is a structured instructional system that facilitates communication through the exchange of graphic picture symbols. PECS uses behavioral principles to teach children functional communication using black-and-white or color pictures. The pictures are kept on a PECS board with Velcro that the child uses to create a "sentence" by selecting and combining picture cards (e.g., "I want" card plus "milk" card), then giving the sentence strip to a teacher or parent in exchange for the desired object. PECS instruction has six phases. Instruction begins with teaching the child to exchange a picture symbol for a desired object in the immediate vicinity, then progresses to teaching the child to take the picture symbol to someone not immediately nearby to gain the desired object. Next the child learns to recognize an "I want" symbol and combine that symbol with pictures of desired objects on a blank sentence strip, then exchange the sentence strip with someone else to get the desired object. Finally, the child is taught to respond to direct questions (e.g., "What do you want?") using the picture symbols (Bondy & Frost,1994; Frost & Bondy, 2002).

Based on their review of the literature the National Autism Center (2009) identified Picture Exchange Communication System as an "Emerging Treatment," one for which one or more well-controlled studies have demonstrated its effectiveness in increasing communication and interpersonal skills in children with Autistic Disorder and PDD-NOS (ages 0-9) although additional high quality research is needed. In a similar review of the literature on the effectiveness of PECS as an alternative communication system for children with autism, Schlosser and Wendt (2008a) summarized results of 17 studies that met their criteria for inclusion. Five studies were rated as providing "conclusive" or "preponderant" evidence that positive outcomes were the results of the PECS intervention, and another six provided "suggestive" evidence. Seven studies were considered "inconclusive" due to fatal flaws in design. The researchers concluded that "there is considerable evidence for using PECS as a beginning communication strategy in children with autism" (Schlosser & Wendt, 2008a, p. 345).

Three single-subject experiment design studies that met Schlosser and Wendt's (2008a) criteria for "suggestive" to "conclusive" reported evidence that PECS is effective in and of itself as an alternative communication system for children with autism (Charlop-Christy, Carpenter, Le, LeBlanc, & Kellet, 2002; Kravits, Kamps, Kemmerer, & Potucek, 2002; Tincani, Crozier, & Alazetta, 2006). Charlop-Christy et al. (2002) were among the first to conduct a controlled study demonstrating the efficacy of PECS. Using a multiple baseline design the researchers reported that three children with autism (ages 3, 5, and 12) successfully met the learning criterion (80% correct) for each of the six PECS phases. PECS training was found effective for all three children in increasing eye contact, joint attention, cooperative play, requesting, and initiation during free play. Each child displayed a decrease in one or more problem behaviors (tantrums, out of seat, grabbing, disruptions). However, PECS was found effective in improving imitative speech production for only one of the three subjects (Charlop-Christy et al., 2002). Tincani et al. (2006) also found PECS to be highly effective in increasing levels of requesting for two children with autism, but only one child demonstrated an increased level of speech. By contrast Kravits et al. (2002) found that PECS was effective in increasing the frequency of spontaneous language

of a 6-year old child with autism who displayed increases in requesting (using words to ask for items or help), commenting (labeling or describing objects or situations), and expansions (adding new components to previous speech) across the settings in which PECS was implemented.

Researchers have compared PECS with manual signing. For example Anderson (as cited in Schlosser & Wendt, 2008a) found that six children with autism learned to request more effectively with PECS than with manual signing. Tincani (2004) reported that one child with autism learned requesting more effectively with PECS, while another child learned better with manual signing. Because the two subjects differed in their level of hand-motor imitation skills, Tincani suggested that PECS training may be more effective for children with weak hand-motor imitation skills, whereas manual signing may be indicated for those who are stronger in hand-motor imitation.

In two well-designed randomized group studies Yoder and Stone (2006a; 2006b) compared the efficacy of PECS and RMPT (Responsive Education and Prelinguistic Milieu Teaching) in 36 preschoolers with autism spectrum disorders. RPMT is an incidental teaching approach with two components: (a) an education program for parents that supports them in playing with and talking to their children in ways that facilitate language development; (b) a child-led, play-based incidental teaching method designed to teach use of gestures, gaze, and eventually words as forms of communication in a natural play setting. In the first study Yoder and Stone (2006a) found that PECS was more effective than RPMT in increasing nonimitative spoken communication among preschoolers with ASD. In their second randomized group study with the same 36 preschoolers with ASD Yoder and Stone (2006b) reported that RPMT was more effective than PECS in facilitating the frequency of turn-taking and initiation of joint attention. Overall the Yoder and Stone (2006a; 20006b) studies combined suggest that PECS is more effective than RPMT for speech production, while RPMT is more effective for increasing turn-taking and joint attention, although treatment choices may differ depending upon preexisting levels of joint attention in a particular child.

In another systematic review of the literature Schlosser and Wendt (2008b) summarized the effects of augmentative and communicative (AAC) intervention on speech production in children with autism spectrum disorders. Nine single-subject studies (six using PECS) and two group studies (one using manual signing, one using PECS and RPMT) met stringent criteria for inclusion. Based on this exhaustive literature review Schlosser and Wendt concluded that (a) there is no evidence to suggest that AAC interventions impede speech production; (b) most studies report an increase in speech production; but (c) gains observed vary across individuals and are typically small in magnitude. Given the modest gains observed on speech production, Schlosser and Wendt cautioned clinicians, educators, and other stakeholders to maintain realistic expectations about AAC interventions. They also urged that future research be conducted to identify specific child characteristics (e.g., prior speech imitation) that are predictors of subsequent speech production as a result of AAC intervention. Furthermore, the absence of speech production gains does not negate the value of AAC interventions that have proven quite effective in providing autistic children who have little or no speech an alternative means of communication (Schlosser & Wendt, 2008b).

Occupational Therapy and Sensory Integration Therapy

The prevalence of sensory processing and motor abnormalities among children with autism is relatively high, yet there is little controlled research on the effectiveness of interventions designed to address these difficulties (Dawson & Watling, 2000; National Research Council, 2001). Although most children with autism reach milestones in gross motor development at a normal rate, problems with fine motor skills are common at all levels of the autism spectrum. In fact even children with Asperger's Disorder and high-functioning autism frequently display problems with clumsiness, motor coordination, and complex motor tasks (Dawson & Watling, 2000; National Research Council, 2001). Some children with autism also display difficulties with muscle tone, balance, and integration of visual-proprioceptive and motor skills (National Research Council, 2001).

Atypical sensory responses and stereotyped motor behaviors are commonly reported among children with autism spectrum disorders. Unusual sensory and perceptual reactions appear in some children with autism during the first year of life and may be among the first signs of autism (Dawson & Watling, 2000). Unusual sensory and motor behaviors observed in children with autism include failing to respond to certain sounds (e.g., name being called); hypersensitivity to loud noises, certain foods, or certain textures in clothing; increased or reduced sensitivity to pain; watching hands or fingers or finger flicking; body rocking; rubbing, licking, or tasting surfaces; and preoccupation with sensory features of objects (National Research Council, 2001).

In a typical classroom children must respond to a multitude of sensory demands (e.g., the noise level of a regular classroom, visual stimuli on walls, bulletin boards, and instructional materials), and many stimuli may seem unpredictable (e.g., fire alarms, transitions to other classes, any change in the daily schedule). Clearly interventions for children with autism must address any sensory processing deficits. However, there is a paucity of research about exactly how this should be done (National Research Council, 2001).

As a part of an individual educational program (IEP) many children with autism receive occupational therapy services to address sensory-motor needs. Traditional occupational therapy involves activities designed to develop skills needed for an individual to participate as independently as possible in work, play, and other life activities (Dawson & Watling, 2000). Skills addressed may include fine motor, self-help, and adaptive skills. Occupational therapy can help a child with autism by teaching basic self-help and self-care activities as dressing, feeding, and toilet training. The therapist may also address fine motor skills that the child needs for scissor use and hand-writing and visual perceptual skills needed for reading and writing. In a review of the literature Dawson and Watling (2000) did not find any empirical studies on the effectiveness of traditional occupational therapy in children with autism, although they did report that occupational therapy is a common component of intervention programs for this group.

Sensory integration therapy is another form of intervention commonly used to address the sensorimotor deficits of children with autism. Sensory integration therapy is based on a theory developed by Ayres (1972) that emphasizes the neurological processing of sensory information as a foundation for readiness to learn higher level skills. Typically an occupational therapist or physical therapist delivers sensory integration therapy using strategies that "involve the use of planned and controlled sensory experiences including, but not limited to, vestibular, proprioceptive, and somatosensory activities, such as swinging, deep pressure touch, and tactile stimulation" (Dawson & Watling, 2000, p. 416). Sensory integration therapy uses various neurosensory and neuromotor exercises to provide sensory stimulation to the child often in conjunction with purposeful muscle activities to improve how the brain processes sensory information. The overarching goal is to facilitate the nervous system's ability to process sensory input from the environment in a more organized way as a basis for more adaptive responses and higher-order learning (National Research Council, 2001).

The National Research Council (2001) reported a scarcity of research on sensory integration therapy for children with autism and a lack of empirical evidence supporting its effectiveness. The National Research Council concluded, "There is no consistent evidence that sensory-based treatments have specific effects; in many cases, the theories underlying such approaches have not withstood careful consideration" (p. 102.).

Dawson and Watling (2000) reviewed the research literature on sensory integration therapy and found only four studies on the effectiveness of sensory integration therapy that used objective measures of behavior to assess outcome among children with autism. Sample sizes were fewer than six for all but one study, and no study included a control group. The one study with a larger sample and a better (ABAB) design found no changes in vocal behavior following participation in sensory integration therapy, and the duration of the intervention was brief. Based on this review the authors concluded that interventions designed to address the sensory and motor deficits of children with autism have not been well-validated, and in the case of

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occupational therapy and sensory integration therapy "there exist so few studies that conclusions cannot be drawn" (Dawson & Watling, 2000, p. 419).

Similarly, the National Autism Center (2009) identified Sensory Integrative Package as an "Unestablished Treatment," or one for which there is little or no evidence in the research literature that allows us to draw firm conclusions about the effectiveness of this intervention for individuals with ASD. However, both the National Research Council (2001) and the National Autism Center cautioned that a lack of empirical research does not necessarily mean that a particular treatment is ineffective but rather that the quality, quantity, and consistency of research has generally been poor. Further research needs to be done because the treatment has not yet been objectively verified.

Although the National Autism Center (2009) identified sensory-integration therapy as an "Unestablished Treatment" for children with ASD, they identified two other treatments that are often used to address sensory and behavioral issues in children with ASD as "Emerging Treatments," including Exercise and Massage/Touch Therapy. Exercise (increasing a child's physical activity as a means of decreasing problem behaviors and increasing appropriate behavior) was found effective in one or more well-designed studies with children with Autistic Disorder (ages 3-14), although further research is needed on this intervention. Massage/Touch Therapy (deep tissue stimulation) was identified as an "Emerging Treatment" with one or more well-controlled studies demonstrating its effectiveness in children with Autistic Disorder (ages 3-5) in increasing self-regulation, decreasing general symptoms associated with ASD, and decreasing repetitive, nonfunctional patterns of behavior (National Autism Center, 2009).

Essential Components of Effective Educational Programs

From this review of the research on comprehensive programs and specific interventions for children with autism spectrum disorders (ASD) it is clear that a vast body of empirical support exists for a broad range of approaches and educational practices. Although the research literature regarding interventions and programs for children with ASD has exploded over the past

several decades, researchers have not identified one approach that is clearly better than all others (Iovannone, Dunlap, Huber, & Kincaid, 2003). Instead there is support for a wide range of practices due to the diversity among children with ASD in their levels of development, the severity of their symptoms, and their unique learning needs. Iovannone et al. (2003) stated, "There is a consensus among well-respected scholars in the field of autism that there is no empirical basis for recommending one approach or endorsing a single program as being superior for all individuals with ASD" (p. 153).

In 2009 the National Autism Center published a groundbreaking *National Standards Report* based on an extensive review of 775 peer-reviewed research studies on educational and behavioral treatments for children with ASD. The National Autism Center identified the following 11 interventions as "Established Treatments," or those for which several well-controlled studies have shown them to produce beneficial effects for individuals with ASD:

- Antecedent Package
- Behavioral Package
- Comprehensive Behavioral Treatment for Young Children
- Joint Attention Intervention
- Modeling
- Naturalistic Teaching Strategies
- Peer Training Package
- Pivotal Response Treatment
- Schedules
- Self-Management
- Story-based Intervention Package (p. 43)

These 11 "Established Treatments" have been discussed throughout this review of the literature along with many of 22 other interventions that the National Autism Center (2009) identified as "Emerging Treatments," or those that have some empirical evidence of their effectiveness but still require further research. Nearly 90% of the "Established Treatments" identified by the National Autism Center were developed from the behavioral literature (e.g., applied behavioral analysis, behavioral psychology, and positive behavior support). However, treatments based on alternative theories were also represented. Furthermore, both "Established" and "Emerging" interventions varied in the age levels, target skills to be increased or behaviors

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decreased, and diagnostic groups for which they were found effective. For example only two "Established Treatments," Modeling and Story-based Intervention Package, were associated with beneficial outcomes for individuals with Asperger's Syndrome. While the National Autism Center's *National Standards Report* provides a valuable summary of the research to assist educators in selecting effective treatment options for children with ASD, it is clear that educators have a wide range of choices. Furthermore, educators may find it helpful to select a combination of interventions for children with ASD depending upon their age level, severity of autism, and target skills to be increased or behaviors decreased.

Although no one educational intervention is clearly best for all children with ASD, several researchers have identified several essential, core components of effective educational programs for children with ASD that enjoy wide-spread empirical support in the literature (e.g., Dawson & Osterling, 1997; Dunlap, Iovannone, & Kincaid, 2008; Hurth, Shaw, Izeman, Iovannone et al., 2003; National Research Council, 2001; Whaley, & Rogers, 1999). The essential, shared components of effective programs for children with ASD provide educators with a framework for making sound educational decisions and planning programs for these students at all ages (Dunlap et al., 2008).

In a review of the literature on well-established, well-respected models of early intervention programs for young children with autism (age range 0-8 years), Dawson and Osterling (1997) identified the following essential elements in all programs reviewed: a specialized curriculum that focuses on the core deficits of autism such as the ability to pay attention, imitate others, use nonverbal and verbal communication, and engage in reciprocal play and social interaction; a highly supportive and structured learning environment; a program that is predictable and routine; a functional approach to challenging behaviors; careful planning for transitions from preschool to kindergarten and first grade; and an emphasis on family involvement. In their review of effective programs for young children with ASD Hurth et al. (1999) concurred with Dawson and Osterling regarding the importance of a supportive and structured learning environment, family involvement, and use of specialized curricula focusing

on the core deficits of autism. Hurth et al. also emphasized the importance of intensive, early intervention; systematic and carefully planned instruction; and the individualization of services for children and their families.

Under the auspices of the U. S. Department of Education's Office of Special Education Programs the National Research Council (2001) formed the Committee on Educational Interventions for Children with Autism. The committee was charged "to integrate the scientific, theoretical, and policy literature and create a framework for evaluating the scientific evidence concerning the effects and features of educational interventions for young children with autism" (National Research Council, 2001, p. 2). The National Research Council identified the following core characteristics of effective educational programs for young children (birth to age 8) with autism spectrum disorders:

> Early entry into an intervention program; active engagement in intensive instructional programming for the equivalent of a full school day, including services that may be offered in different sites, for a minimum of 5 days a week with full-year programming; use of planned teaching opportunities, organized around relatively brief periods of time for the youngest children (e.g., 15- to 20-minute intervals); and sufficient amounts of adult attention in one-to-one or very small group instruction to meet individualized goals. (p. 6)

The National Research Council (2001) recommended that educational services for young children with autism include a minimum of 25 hours a week of instruction, 12 months a year, in systematically planned and developmentally appropriate activities. However, the committee recognized that the number of hours and types of activities will vary according to a child's chronological age, strengths and weaknesses, and individual family needs. The committee recommended the following priority areas for instructional focus: functional spontaneous communication; social skills with instruction delivered throughout the day in various settings; cognitive development; play skills; and proactive approaches to challenging or problem behaviors. Finally, the committee recommended that children with ASD received specialized instruction in a setting with typically developing peers to the extent that such inclusion supports children with ASD in meeting their educational goals (National Research Council, 2001).

Based on their review of reports by other researchers (e.g., Dawson & Osterling, 1997; Hurth et al., 1999; National Research Council, 2001) combined with their own review of the literature on effective practices, Iovannone et al. (2003) identified six core elements that have empirical support as essential components for comprehensive educational programs for students with ASD of all ages. Core elements include: (a) systematic instruction; (b) individualized supports and services; (c) comprehensible and structured learning environments; (d) specialized curriculum focus (communication and social skills); (e) functional approach to problem behaviors; and (f) family involvement (Iovannone et al., 2003; see also Dunlap et al., 2008).

Systematic Instruction

Systematic instruction includes the identification of meaningful goals, careful planning and implementation of instruction, evaluating the effectiveness of the teaching procedures, and adjusting instruction based on a systematic method of ongoing data collection (Dunlap et al., 2008; Hurth et al., 1999). Educational interventions using applied behavior analysis (ABA) are especially effective in providing systematic instruction (Iovannone et al., 2003). ABA-based strategies include traditional approaches (e.g., discrete trial training) and naturalistic approaches (e.g., incidental teaching, pivotal response training). However, it is evident from this comprehensive review of the literature that systematic instruction is a feature of many other interventions for children with autism (e.g., the TEACCH method, picture exchange systems, and many adult-mediated and peer-mediated interventions).

Individualized Supports and Services

Even though behavioral interventions have proven especially effective, experts generally agree that there is no empirical evidence supporting one specific educational intervention or approach as best or superior for all children with ASD (Dunlap et al., 2008; Heflin & Simpson, 1998; Iovannone et al., 2003). The Individuals with Disabilities Education Act of 1990 (amended 1997, 2004) requires schools to provide students with disabilities with an

individualized education program (IEP). Depending upon individual need, students with disabilities are offered a continuum of supports, services, and placements ranging from self-contained special education settings to full inclusion in general education classroom. Some students with ASD may thrive in a general education setting with only a few modifications, while others may need major adaptations and more intensive instruction in a one-to-one or small group setting. Therefore, no one program, support, or service is appropriate to meet the needs of all children with autism in a school district. Rather, educators must be flexible in determining placement and support services to meet each child's individual needs. Schools must also take into account a child's strengths, weaknesses, and personal interests when deciding the most appropriate program and placement to meet that child's individual needs (Dunlap et al., 2008; Iovannone et al., 2003).

Comprehensible and Structured Learning Environment

Experts almost universally recommend providing students with autism with "structure" and a "structured environment" (Dunlap et al., 2008, p. 119). Dunlap et al. (2008) describe a structured learning environment as one in which the curriculum and behavioral expectations are clear and fully comprehensible to both the students and the teacher in a classroom. In a structured learning environment students with ASD know what they are supposed to be doing. Students are able to predict what will happen next, anticipate the demands of various settings, and generalize skills (Dunlap et al., 2008). Strategies used to provide students with ASD with a structured learning environment include: visual cues to organize the instructional setting or facilitate transitions; a schedule of activities; positive behavioral supports and strategies; feedback about time relations; self-management strategies; and adult-mediated or peer-mediated interventions to promote communication and social interaction and reduce disruptive behavior (Dunlap et al., 2008; Iovannone et al., 2003).

Specialized Curriculum Focus

Children with autism spectrum disorders have core deficits in the areas of communication and social interaction (*DSM-IV-TR*, 2000). A specialized curriculum focus that addresses these core deficits is another essential component of effective educational programs for children with ASD (Dunlap et al., 2008; Iovannone et al., 2003). Specialized curricula target critical social skills such as initiating and responding to social responses, engaging in reciprocal social interaction and play activities, and increasing verbal and nonverbal communication skills (Iovannone et al., 2003). Students with ASD need to be taught an effective method of communication whether using conventional verbal language or communicating with an alternative system. This review of the literature has already covered a vast array of empirical studies exploring the efficacy of interventions that specifically target communication and social skills of children with autism. Much attention has been given to the efficacy of ABA with discrete trial training and naturalistic teaching methods based on ABA principles (e.g., incidental teaching, pivotal response training) for increasing communication, social, and adaptive skills in children with autism. Other effective methods of teaching social skills have also been reviewed including the use of priming, social stories, peer-mediated interventions, and the use of video modeling. Specific alternative and augmentative communication interventions have been reviewed including the use of manual signs and gestures and picture exchange systems.

Functional Approach to Problem Behaviors

According to the National Research Council (2001) the general consensus among experts is that proactive and positive interventions based on functional behavioral assessments have a higher likelihood of being effective for children with autism in reducing the frequency of problems behaviors (e.g., tantrums, aggression, noncompliance, anger outbursts, and stereotyped behaviors). The foundation of a positive behavior support intervention plan is a functional behavior assessment (FBA) that focuses on identifying the contextual situations in which problem behaviors occur, antecedents or triggers that make problems behaviors more likely to

occur, and consequences that help to reinforce the occurrence of the behaviors (Dunlap et al., 2008). Based on information gathered from functional assessments individualized behavior support plans are developed. A positive behavior support (PBS) plan emphasizes modifying the environment to eliminate or reduce various triggers and prevent the occurrence of problem behavior, teaching alternative skills to replace the problem behaviors, and reinforcing desired behaviors (Dunlap et al., 2008).

A large body of research over the past 3 decades has consistently provided evidence for the effectiveness of individualized positive behavior support procedures for reducing problem behaviors of children with ASD (e.g., Horner et al., 1990; L. K. Koegel, Koegel, & Dunlap, 1996; National Research Council, 2001). The National Autism Center (2009) identified both Antecedent Package and Behavioral Package interventions as "Established Treatments" for individuals with ASD. Antecedent interventions have the purpose of preventing the occurrence of problem behaviors before they occur by eliminating triggers or modifying events that typically precede the occurrence of the behavior (Luiselli, 2008). Antecedent interventions that have been found effective for children with ASD in reducing problem behaviors include priming, time delay, modifying task difficulty, modifying the physical environment, providing visual cues and schedules, providing choices, increasing adult presence, incorporating special interests into tasks, and providing breaks from instruction (Luiselli, 2008; National Autism Center, 2009).

Behavioral interventions using positive reinforcement have also been found effective for children with ASD at all ages (0-21) in decreasing problem behavior (National Autism Center, 2009). Positive behavioral interventions found effective in reducing challenging behaviors and increasing self-regulation include differential reinforcement of alternative and incompatible behaviors, contingency contracting, discrete trial teaching, mand training, shaping, stimulus-stimulus pairing with reinforcement, noncontingent reinforcement, and token economy (Kern & Kokina, 2008; National Autism Center, 2009).

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Family Involvement

The interaction between parents of children with autism spectrum disorders and educational professionals is a critical component for effective program planning due to the increasing prevalence of children with ASD (Centers for Disease Control and Prevention, 2010), increasing litigation involving parents of children with ASD and local education agencies (Stoner & Angell, 2006), and the legal requirements of the 1997 and 2004 amendments to the Individuals with Disabilities Education Act that mandate the involvement of parents in planning and implementing individual educational programs for children with disabilities.

Because children with ASD have deficits in their ability to generalize behaviors learned in one setting to other settings, a collaborative partnership between teachers and parents can contribute to the generalization of acquired skills in multiple environments including the home and community (Iovannone et al., 2003). For this reason a primary focus of many ABA-based intensive early intervention programs for children with autism is the involvement of parents who are trained to work with their children at home using discrete trial training procedures, incidental teaching, and positive behavior support strategies, thereby supplementing and reinforcing similar instruction occurring in a school or clinic setting (e.g., McEachin et al., 1993; R. L. Koegel, Bimbela, & Schreibman, 1996).

Although most research on teaching parents to work with the child in the home has involved use of applied behavior analysis, parents have been taught to use other instructional methods. For example Ozonoff and Cathcart (1998) taught parents of young children with autism to use TEACCH methods in the home. These children showed greater improvement in a variety of skills over a 4-month interval than a no-treatment control group. In fact parents are considered co therapists in the TEACCH method and are taught specific strategies for working with their children to assist them in transferring newly acquired skills from school to home and the community (Lord & Schopler, 1994).

Simpson et al. (2003) reported that home-school collaboration and the meaningful participation of parents is essential to the successful inclusion of students with autism spectrum

disorders in general education programs. These researchers placed home-school collaboration at the heart of their Autism Spectrum Disorder Inclusion Collaboration Model that offers guidelines to educators for facilitating the successful inclusion of students with autism and related disabilities. According to Simpson et al. the foundation for successful home-school collaboration is educators' willingness to listen, to build trust, and to enter into partnerships with parents. Furthermore, administrators must be willing to impart and share information about programs and resources.

Although there is a wealth of research supporting the benefits of family involvement, schools do not always succeed in building strong collaborative relationships that fully include parents in making educational decisions about children with autism (Turnbull & Turnbull, 2001). In their analysis of factors contributing to parent-school conflict Lake and Billingsley (2000) reported that interactions between parents of children with disabilities and educators are often characterized by tension, fragmentation, and lack of cooperation. The result is a negative impact on the overall efficacy of educational interventions.

Given that the mandates of IDEA are clear with regard to parents' right to be involved in their child's education, why does such tension exist between parents of children with autism spectrum disorders and school staff? The most common reason cited for less than ideal relations between parents of children with ASD and schools is that schools often perceive such parents as negative, adversarial, and overly demanding (Stoner & Angell, 2006). Also, parents are often perceived by IEP Team members as secondary members of the team, with school staff being the primary decision-makers (Turnbull & Turnbull, 2001). Legal battles and court cases between parents of children with ASD and local educational agencies (LEAs) are expensive, complex, and increasing in frequency. Booth, Donnelly, and Horton (as cited in Stoner & Angell, 2006) astutely observed, "No other group of cases has presented a bigger challenge to special educators and education lawyers" (p. 177).

Yet when families are involved they can have a significant impact on learning outcomes. Dunlap et al. (2008) reported that family involvement has been associated with increased student

learning, greater generalization of acquired skills, greater acceptance of school programs by family members, and a higher level of trust in school professionals. Therefore, it is crucial that educators continue to build strong collaborative relationships with families and strive to fully include parents in educational planning for children with autism. In order to reach this goal parents and educators need to understand more fully the perceptions, views, and attitudes of each other regarding their roles, experiences, and interactions in providing educational services for children with autism.

Unfortunately, there are very few studies in the literature addressing the perceptions of parents of children with autism spectrum disorders and their teachers regarding educational interventions and programs for these children or their interaction with one another. However, the few studies that exist provide essential information that can assist educators in developing stronger collaborative relationships with families. Such studies are also highly relevant to the research question that is the focus of the current study. Therefore, the final section of this literature review summarizes existing studies of the perceptions of parents regarding educational interventions for children with ASD, followed by studies of teacher perceptions, and extremely rare research comparing parent and teacher perceptions in the same study.

Perceptions of Parents

In order to build strong collaborative relationships with parents of children with autism spectrum disorders (ASD) and truly include parents as equal partners in planning and implementing educational programs as mandated by the amendments to IDEA (1997; 2004), it is imperative that educators seek to understand the thoughts, feelings, and experiences of these families. It is not enough to know what hundreds of research studies report about the efficacy of various educational interventions for children with autism. Equally important, educators and researchers must seek a deeper understanding of parent perceptions about their experiences with educational interventions and services. How do parents feel schools are doing? What do parents value most for the education of their children? What are the hopes and expectations of these

parents for their children? What do they feel are the barriers and challenges in providing

services for their children? Parent perceptions can provide a fuller understanding of issues

related to special education services for children with ASD and the efficacy of various

interventions. However, few research studies have been conducted on the perceptions of parents

of children with ASD regarding their children's educational programs.

In 2001 Starr, Foy, and Cramer conducted a pilot study surveying the perceptions of

parents of 69 children with autism spectrum disorders (ASD) regarding their children's

educational programs. At least 70% of the sample of parents responded positively to 17 of 24

Likert items related to "best practices" for teaching children with ASD, and 14 of 19 items

related to the effective functioning of the IEP Team. When asked how schools could better meet

the needs of their child, parents most commonly named three ways: (a) provide more education

and training for school staff; (b) provide more time for their child with a paraprofessional

assistant; and (c) develop a stronger IEP (Starr et al., 2001).

In a follow-up to the 2001 pilot study Starr, Foy, Cramer, and Singh (2006) surveyed 209

parents of children with autism spectrum disorders (ASD), Down syndrome (DS), or learning

disabilities (LD) and compared these three groups regarding their perceptions of the efficacy of

different aspects of their children's education. Statistical analysis of survey results revealed that

parents of children with autism spectrum disorders were significantly more satisfied overall with

their children's educational program than parents of children with learning disabilities. No

significant relationship was found for any group of parents between overall satisfaction and type

of class placement for their child. Starr et al. (2006) astutely observed that "it is not *where* the

children received their education that was so much an issue as *what* happened within the

placement" (p. 323). Parents of all three disability groups indicated that the greatest need was

for school personnel to obtain more training in how to effectively teach their children. This

finding paralleled the results of the authors' pilot study (Starr et al., 2001). Both studies were

conducted in Canada where many school boards have a full inclusion policy, and 86% of the

children whose parents were surveyed in 2006 spent at least part of their day in general education

settings. Therefore, parents considered it vitally important for teachers to receive adequate training and know appropriate teaching strategies (Starr et al., 2006).

In a study conducted in Great Britain Whitaker (2007) surveyed all parents of children with ASD attending mainstream schools in one English county that had programs for children with autism disorders based on the TEACCH (Treatment and Education of Autistic and Communication Handicapped Children) method (Schopler et al., 1995). A sample of 173 parents responded to a questionnaire about their experiences, attitudes, and levels of satisfaction with their children's education. Overall 61% of survey responders reported being "satisfied" or "very satisfied" with the services and programs being provided for their children. Three factors strongly differentiated two groups of "satisfied" and "dissatisfied" parents: (a) the degree to which parents felt that school staff understood and truly empathized with their children's difficulties; (b) the extent to which parents perceived schools as flexible in responding to their children's needs and challenging behaviors; and (c) the amount and quality of communication between school personnel and families. Parents often commented upon a need for school staff to express understanding and empathy with their child as a person with autism. As one parent poignantly stated, "I would like the staff to understand who my daughter is and what it feels like to be her" (Whitaker, 2007, p. 175). Parents placed top priority on educational interventions for social skills development. Only half of parents surveyed said their children had friends; many expressed the view that schools should do more to promote acceptance among peers. The role of communication was central to the 80% of "satisfied" parents who reported that they had a good relationship with school staff. These parents appreciated being kept well informed about their child's progress, and they especially valued the willingness of school personnel to listen and take their concerns seriously (Whitaker, 2007).

A few studies have been conducted in the United States examining the perceptions of parents of children with ASD regarding their children's education programs and their roles and interactions with education professionals (e.g., Dillenburger et al., 2004; Fish, 2006; Spann, Kohler, & Soenksen, 2003; Stoner & Angell, 2006; Stoner et al., 2005). Issues of home-school

communication, teacher empathy, social skills development for children, and training for school staff emerged as major themes in these studies.

For example Spann et al. (2003) conducted a telephone survey of 45 families of children (ages 4-18) with autism spectrum disorders in a mideastern state. The majority (75%) of children spent at least part of their school day in general education classrooms, and more than half had the assistance of a paraprofessional. Parents supported inclusion because it provided access to the same learning opportunities as other students, and the assistance of paraprofessionals was considered critical in making inclusion possible for children with ASD. The majority of families reported that home-school communication occurred on a regular basis through face-to-face meetings, telephone calls, and written notes; 80% of families were moderately to highly satisfied with the level of communication with school staff. The majority of parents also felt adequately informed about and involved in the IEP process (Spann et al., 2003). However, similar to parents in Whitaker's (2007) study, parents in the telephone survey by Spann et al. stated that they wanted their child to have more friends, interact more with nondisabled peers, and develop better social skills. Parents also expressed concern that teachers show more compassion, caring, and concern for their children – a theme that also emerged in Whitaker's study. Finally, Spann et al. reported that parents expressed a need for staff to receive more education about autism and training in how to teach these children – a concern also expressed by parents of children with ASD in surveys conducted by Starr and his colleagues (Starr et al., 2001; Starr et al., 2006).

In contrast to Spann et al. (2003) Fish (2006) found that parents of children with autism in one family support group chapter in Texas reported negative experiences with IEP meetings. In a qualitative case study involving seven families from a family support group chapter in Texas, parents reported that their overall initial experiences with IEP meetings were negative, that they were not treated as equals by educators, and that they were perceived by IEP team members as being unreasonable and demanding. Parents wanted IEP meetings to be more cooperative and less adversarial in nature, more of a democratic, team effort between schools and

families (Fish, 2006). It cannot be assumed that parents in this one support group chapter were representative of all parents of children with ASD. Unfortunately, it is one of the few studies to date focusing specifically on perceptions of parents of children with autism toward IEP meetings, so further research is needed in this area.

Stoner et al. (2005) and Stoner and Angell (2006) conducted two exceptionally revealing investigations of the perceptions of parents of children with ASD regarding their self-reported interactions and roles with educational professionals. Both studies used a qualitative research design involving a collective case study methodology. Purposive sampling was used to recruit participants who were parents of children with ASD (ages 6 to 8) enrolled in public school systems. Stoner et al. summarized their findings regarding parent perceptions of their interactions with education professionals by identifying six major themes:

(1) Parents valued intensive, home-based, early intervention services that gave them a sense of control and involvement in problem-solving. All families interviewed expressed satisfaction with such services.

(2) When their children reached age 3, parents found the process of transitioning to school-based services through the public school system confusing, complicated, and stressful. All parents reported confusion during initial IEP meetings and difficulties obtaining services, resulting in distrust and dissatisfaction with educational professionals. Distrust led to parents becoming increasingly forceful in demanding and negotiating for services.

(3) Parents stressed their need for frequent, open, and honest communication with teachers. This was especially important when their children with ASD were nonverbal and could not tell them what was going on at school.

(4) When asked if they trusted educational professionals, parents responses were negative or conditional, partly due to an impression that educational systems would do no more than they were pushed or forced to do, given financial realities.

(5) Parents' trust in educational professionals increased when they viewed teachers as positive, caring, and genuinely passionate about teaching their children. Trust increased when expectations between parents and educators were clearly defined, when promises were met, and when parents believed that educators had their children's best interest at heart.

(6) Parents perceived administrators who were accessible, supportive, and considerate of their concerns more positively than those who were the opposite (Stoner et al., 2005).

In a further analysis of results from Stoner et al.'s 2005 study Stoner and Angell (2006) summarized their findings regarding parent perceptions of their roles with educational professionals. The researchers found that parents of children with ASD consistently engaged in four roles: (a) negotiator, (b) monitor, (c) supporter, and (d) advocate. Parents engaged in negotiation for issues such as type of placement and the assistance of a paraprofessional for their children. Parents engaged in monitoring the content and quality of their children's educational programs through attending IEP meetings and parent-teacher conferences and using school-home notes with teachers. Parents engaged in the role of supporter by encouraging their children's teachers, purchasing materials or helping in the classroom, and reinforcing intervention strategies at home. Parents engaged in supplemental advocacy roles through local support groups and state and local organizations related to ASD. When parents expressed distrust of educational professionals, they were more likely to engage in the roles of negotiator and monitor. By contrast when parents had higher levels of trust in educators, they increased their engagement in the role of supporter. Parent trust in educational professionals increased when they perceived educators as competent, keeping their promises, and having their children's best interest at heart (Stoner & Angell, 2006).

In summary this review of the limited research on perceptions of parents of children with autism spectrum disorders reveals the following themes regarding parents' attitudes, experiences, and opinions about their children's educational programs and their interaction with educational

professionals (Dillenburger et al., 2004; Fish, 2006; Spann et al., 2003; Starr et al., 2006; Stoner & Angell, 2006; Stoner et al., 2005; Whitaker, 2007):

- The value of strong collaborative relationships between parents and educators based upon perceptions of parents as equal partners with expert knowledge and experience, rather than hostile adversaries or secondary team players.

- The importance of understanding, empathy, and genuine caring by teachers as a foundation for building trust between parents and educators and a major factor related to parental satisfaction with their children's educational program.

- A need for frequent, open, honest communication between home and school, especially when children with ASD are nonverbal and unable to express their needs.

- A desire for a democratic IEP process based upon teamwork and shared decision-making with parents fully involved as equal partners in setting educational goals and making service delivery choices and IEP goals implemented (promises kept) by teachers and school systems.

- A need for assistance with early diagnosis and smoother transitions from early home-based interventions to school-based programs.

- A desire for schools to do more to promote social skills development in children with ASD and increase their interaction and acceptance among peers.

- A need for more education and training for educational professionals about autism and educational interventions.

- The value of inclusion of children with ASD in general education classrooms and the value of teacher training and paraprofessional assistants in making inclusion work.

Perceptions of Teachers

A review of the literature reveals very few studies to date that address teachers' perceptions of educational programs for children with autism spectrum disorders and their

interactions with parents of children with ASD.   Certainly the issue appears to be one of world-wide concern, as suggested by the fact that studies of teachers' perceptions and attitudes toward children with autism and their educational programs have been conducted as far afield as Greece (Mavropoulou & Padeliadu, 2000), Kuwait (Al-Shammari, 2006), and even Saudi Arabia (Al-Faiz, 2007). However, one cannot generalize results from those studies to public school teachers in the United States due to vast dissimilarities in culture and programs for children with autism in the foreign countries represented.

Another reason that the literature on teacher perceptions is so limited is that the few studies that do exist often focus narrowly on teachers' attitudes toward inclusion of children with autism in general education classrooms. For example two studies with some relevance for teachers in the United States were conducted in Scotland regarding the attitudes and experiences of teachers toward the integration of children with autism into mainstream (general education) schools (Glashan, Mackay, & Grieve, 2004; McGregor & Campbell, 2001). Scotland (along with all United Kingdom countries) parallels the United States in its trend toward partial or full inclusion of children with autism in general education programs to the maximum extent possible Similarities in culture and educational programs between the two countries makes cautious and limited generalization of study findings possible.

McGregor and Campbell (2001) used a questionnaire to investigate the attitudes and opinions of 23 specialist (special education) and 49 mainstream (general education) teachers about the advantages and disadvantages of the partial or full integration of children with autism spectrum disorders into mainstream schools. A minority (47% or less) of specialist and mainstream teachers supported full integration where possible. A majority of both specialist and mainstream teachers cited the degree of autism as the most important factor contributing to successful integration. Both specialist and mainstream teachers perceived benefits of integration in providing children with autism opportunities for social interaction and role models, but a majority of mainstream teachers said they lacked the skills and training to teach an autistic child.

Many teachers expressed concern about effects on mainstream students due to disruption or challenging behaviors exhibited by children with autism (McGregor & Campbell, 2001).

In a phenomenological study of teachers' perceptions of support for pupils with autism spectrum disorders in mainstream classes in Scotland Glashan et al. (2004) conducted interviews and identified essential themes related to speech and language therapy, parents, special assistants, learning support, and communication among members of the multi-professional team. All children with autism in the study received speech and language therapy services, and teachers relied on speech-language therapists for advice on communication and social skills. Study findings indicated a positive relationship between parents' knowledge and involvement in their children's education and the success of placements for children, but teachers perceived parents as needing high levels of emotional support from school staff and sometimes having unrealistic expectations. Teachers perceived special assistants as a critical link among all services. However, none of the special assistants had any formal training with autism prior to hiring, and mainstream teachers found it stressful having to direct the assistants when they themselves were untrained. Increased communication among the multi-professional team contributed to teachers' feelings of competence, whereas lack of communication and confusion regarding roles of different team members increased teachers' feelings of stress and vulnerability (Glashan et al., 2004).

In one of the few studies conducted in the United States on teacher perceptions of educational interventions for children with autism Robertson, Chamberlain, and Kasari (2003) examined the perceptions of general education teachers of 187 second- and third-grade children with autism spectrum disorders who were included full-time in general education classrooms. The researchers explored how teacher perceptions were affected by the presence of paraprofessionals, behavior problems displayed by children with autism, and the children's level of social inclusion in the class. Robertson et al. (2003) found that teachers reported generally positive relationships with children with autism included in their general education classes. Furthermore, there was a positive association between teachers' perception of the quality of the

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teacher-student relationship and included children's level of social inclusion within the classroom. By contrast a high incidence of behavioral problems displayed by included children with autism negatively impacted the quality of the teacher-student relationship and social inclusion by peers. Half of the students in the study were accompanied by paraprofessionals, and general education teachers reported strong working relationships with paraprofessionals in which both parties shared responsibility for teaching and managing the behavior of included students with autism. Both general education teachers and paraprofessionals in this study were provided with opportunities for training and in-service programs on educating children with autism, and they had frequent communication with the children's families and special educators who could provide consultation and support. The researchers noted that these factors likely contributed to teachers' generally positive relationships with included children and their strong working relationships with paraprofessionals (Robertson et al., 2003).

Perceptions of Multiple Stakeholders

Research studies that compare the perspectives of educators and families of children with autism spectrum disorders regarding educational interventions or any aspect of service provision for this population are extremely rare.   However, two excellent qualitative research studies investigated and compared the perspectives of multiple stakeholders regarding services for children with ASD (Ruef, Turnbull, Turnbull, & Poston, 1999; Sperry, Whaley, Shaw, & Brame, 1999).

Ruef et al. (1999) examined the perspectives of five stakeholder groups regarding challenging behaviors exhibited by individuals with mental retardation or autism. Their study was narrow in its focus on challenging behaviors but quite broad in targeting experiences involving both children and adults with mental retardation or autism. The study provides a uniquely valuable contribution to the research literature due to the researchers' inclusion of multiple, divergent perspectives. Focus groups were conducted with five stakeholder groups including families, friends, administrators and policy makers, teachers, and individuals with

mental retardation or autism who display challenging behaviors. Focus group participants discussed: (1) the barriers they had experienced related to the behavioral challenges faced by persons with mental retardation or autism and those who support them; (2) how to build positive, practical solutions to those behavioral challenges; and (3) the kinds of informational products they found most helpful in finding solutions to behavioral challenges (Ruef et al., 1999).

All five stakeholder groups identified barriers related to the impact of societal values that tend to devalue and be intolerant of persons with disabilities (Ruef et al., 1999). Interviewees described barriers faced in a society that tends to devalue persons with autism or fails to view them as people. All groups expressed a need to treat persons with disabilities with compassion, respect, and understanding. Other barriers included lack of adequate training for teachers in working with students with autism; lack of adequate resources and support staff to assist teachers especially in inclusion settings; and lack of planning for transition from school-based to adult service programs. Three major themes emerged describing positive solutions to addressing behavioral challenges faced by those with mental retardation or autism including (1) the presence of positive behavioral supports, (2) good people, and (3) friendships. Positive behavioral supports included strategies that increase skills among persons with disabilities and their parents, friends, and support personnel and environmental changes or adaptations (e.g., changing class size, establishing predictable schedules, and including persons with challenging behaviors with typical peers). All five groups endorsed the value of "good people," referring to teachers, friends, family members, or other support persons who were caring, flexible, persistent, and willing to go beyond what was required to provide an appropriate educational program for those with challenging behaviors (Ruef et al., 1999, p.50)

Finally, Ruef et al. (1999) found that all stakeholder groups expressed a desire for practical information to provide useful solutions for dealing with challenging behaviors among individuals with mental retardation or autism. For example families desired information about functional behavior assessments and specific types of therapy, and teachers desired information about positive behavioral approaches and step-by-step instructions on what to do in specific

situations. Although all groups agreed on the importance of research-based information, families, friends, and teachers all preferred to receive information in a person-to-person format from someone with experience whom they knew and trusted. Study participants questioned the relevance of much research, and they did not find the form in which it is circulated particularly useful. They had neither the time nor interest in reading research literature to interpret how a particular study might apply to a real-life situation. Instead they sought out information from trusted families, friends, or teachers with experience in similar situations (Ruef et al., 1999).

A second important and rare study comparing the perspectives of more than one stakeholder group was conducted by Sperry et al. (1999). These researchers used focus groups to explore the perspectives of service providers and parents of children with autism spectrum disorders regarding the expectations, barriers, and effective practices they had experienced in accessing or providing services for young children with ASD. Those in the service provider groups included administrators, special education teachers, psychologists, and project coordinators. They were employed in early intervention, early childhood special education, or family support programs. Study findings revealed several convergent themes that emerged in both parent and service provider groups. In particular both groups identified the importance of family-centered support services; the need for early identification of children with ASD; financial challenges in raising and educating children with ASD; training needs for educators and parents; the need for collaboration between parents and professionals; the importance of effective advocacy for children with ASD; the value of inclusion for children with ASD; the importance of equitable access to services for all families; and equitable sharing of decision-making among parents and service providers (Sperry et al., 1999). Most important, Sperry et al. reported that both groups endorsed the benefits of close, mutually respectful, collaborative partnership between parents and service providers, a theme that is emphasized repeatedly in the research literature (e.g., Dunlap et al., 2008; National Research Council, 2001; Stoner & Angell, 2006; Stoner et al., 2005; Whitaker, 2007).

Summary

This review of the literature began with a description of the general characteristics of children with autism spectrum disorders, information about diagnosis, etiology and prevalence, and a summary of relevant federal legislation regarding educational programming. This information laid the foundation for understanding the challenges faced by America's public schools in providing appropriate, effective educational programs for students with autism spectrum disorders. The task is daunting not only due to the challenging characteristics of ASD but also due to the explosive increase in the prevalence of children in the United States who have an autism spectrum disorder, now estimated at approximately 1 in 110 (Centers for Disease Control and Prevention, 2010).

A review of the research literature on educational interventions for children with autism spectrum disorder revealed a vast body of empirical support for a broad range of approaches and educational practices. Such interventions include comprehensive approaches using various forms of applied behavior analysis ranging from more traditional discrete trial training to naturalistic teaching methods as well as alternative approaches such as structured teaching. Specific educational interventions targeting social skills, communication, sensory and motor skills have also been reviewed. Although much of the research on effective interventions comes from the behavioral literature (i.e., applied behavioral analysis, behavioral psychology, and positive behavior support), it is clear that empirical support exists for a broad range of approaches and educational practices. Researchers have not identified one approach or a single program that is clearly superior to all others for all individuals with ASD. However, researchers have provided parents, educators, and service providers with a strong body of empirical research regarding specific educational interventions that have been shown effective for children with ASD. Researchers have also identified several essential, core components of effective educational programs for children with ASD that enjoy empirical support in the literature. These essential features provide parents and educators with a framework for making sound educational decisions for these students.

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This review of the literature also revealed a very limited number of studies exploring the perceptions of parents of children with autism spectrum disorders and their teachers regarding various educational interventions for these children. Studies of teacher perceptions have focused almost entirely on attitudes of general education teachers toward inclusion for children with ASD. Therefore, little is known about the perceptions of special education teachers or general education teachers regarding the vast array of educational interventions for children with ASD covered in this review of the literature. Studies of parent perceptions are somewhat more revealing but limited in scope and number. Clearly a gap exists in the research literature. There is a need for more research on parent and teacher perceptions to provide a richer understanding of how key stakeholders view the efficacy of various educational interventions for children with ASD, the barriers and challenges they face in implementing those programs and practices, and how they view their relationships with one another as they collaborate to meet the educational needs of these children.

CHAPTER 3

RESEARCH METHODOLOGY

The purpose of this qualitative case study was to investigate the perceptions of parents of children with autism spectrum disorders (ASD), special education teachers, and general education teachers regarding educational interventions for children with ASD in a Northeast Tennessee public school system. I explored the attitudes, opinions, and experiences of three key stakeholder groups regarding the successes and barriers they have experienced in meeting the educational needs of these children, what interventions and teaching strategies they have found most helpful and effective, and how they view their relationships with one another. The views of these stakeholders might be used to increase understanding and collaboration among parents and educators and to positively impact educational programs for children with ASD in the school system that was the site of study and among others who may learn from their experiences. The purpose of this chapter is to describe the methods and procedures used to conduct the investigation. Specifically, this chapter provides a description of the design of the study, the selection of participants, the methods and procedures used for data collection and data analysis, and measures taken to ensure trustworthiness.

Design of the Study

Qualitative research is a form of naturalistic inquiry rooted in the constructivist view that multiple realities are socially constructed by individuals based upon the different ways they perceive phenomena, interpret their lived experiences, and find meaning in their world (Merriam, 1998). The purpose of qualitative research is to understand the nature or essence of people's lived experiences, the meanings they have constructed, and how they make sense of their experiences in the world (Merriam, 1998). I selected a qualitative research design not only to fill an obvious void in the research literature but also because this design was particularly suited to my purpose of exploring the lived experiences of parents of children with autism spectrum

disorders and their teachers in educating these children with the goal of understanding this phenomenon from the participants' perspectives. Patton (as cited in Merriam, 1998) explained:

> [Qualitative research] is an effort to understand situations in their uniqueness as part of a particular context and the interactions there. This understanding is an end in itself, so that it is not attempting to predict what may happen in the future necessarily, but to understand the nature of that setting – what it means for participants to be in that setting, what their lives are like, what's going on for them, what their meanings are, what the world looks like in that particular setting – and in the analysis to be able to communicate that faithfully to others who are interested in that setting…The analysis strives for depth of understanding. (p. 6)

Because qualitative research is undertaken in a natural setting, the researcher is the primary instrument of data collection and becomes a part of the study with the aim of describing real-world situations in a manner that is nonmanipulative and unobtrusive (Best & Kahn, 1993). In order to immerse myself in the field of study for the purpose of gaining deeper understanding of the participants' perceptions and experiences, I conducted an on-site case study bounded by the limits of one school district in Northeast Tennessee. Creswell (2007) defined qualitative case study research as follows:

> The case study research involves the study of an issue explored through one or more cases within a bounded system. I choose to view it as a methodology, a type of design in qualitative research, or an object of study, as well as a product of the inquiry. Case study research is a qualitative approach in which the investigator explores a bounded system (a case) over time, through detailed, in-depth data collection involving multiple sources of information (e.g., observations, interviews, audiovisual materials, and documents and reports), and reports a case description and case-based themes. (p. 73)

For the current case study I collected data by conducting semistructured, in-depth interviews with a purposeful sample of parents of children with autism spectrum disorders, special education teachers, and general education teachers at the site of study. I also gathered documents for review and analysis. Inductive coding techniques and the constant comparative method of data analysis (Lincoln & Guba, 1985; Strauss & Corbin, 1998) were used to identify themes and patterns that represented shared meanings among study participants regarding their perceptions and real-world experiences with educational interventions for children with ASD.

Research Questions

Four research questions provided a broad framework for the study:

1. What educational interventions have parents of children with autism spectrum disorders (ASD), special education teachers, and general education teachers used to address the educational needs of children with ASD, and what have been their experiences with those specific interventions?

2. What educational methods, practices, and interventions do parents of children with ASD, special education teachers, and general education teachers perceive to be helpful and effective in meeting the educational needs of children with ASD?

3. What are the barriers and challenges that parents of children with ASD, special education teachers, and general education teachers have experienced in meeting the educational needs of children with ASD?

4. What are the perceptions of parents of children with ASD, special education teachers, and general education teachers regarding their experiences and relationships with one another in meeting the educational needs of children with ASD?

Selection of Participants

In accordance with qualitative research design I used purposeful sampling in "selecting information rich cases for study in-depth" (Patton, 2002, p. 242). "Information rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the research, thus the term purposeful sampling" (Patton, 1990, p. 169). Parents of children with autism spectrum disorders, special education teachers, and general education teachers were selected according to purposeful sampling criteria. Furthermore, maximum variation sampling was used to select parents and teachers representing children across the autism spectrum (from mild to severe) in a variety of grade levels (PreK-12) and a variety of educational settings (ranging from full inclusion to self-contained special education classrooms). Patton (1990) defined maximum variation sampling as intentionally selecting subjects who are suspected to be

dissimilar to increase heterogeneity. Gall, Borg, and Gall (1996) suggested that this strategy helps to increase the range of variation between participants who operate in different settings, and it facilitates identifying "themes, patterns, and outcomes" that are prevalent across lines of variation (p. 233).

Recruiting Protocol

I met in person with the Superintendent of Schools and sent him a formal letter to explain the purpose, outline, and protocols of the study, and I obtained his written consent to conduct the study (see Appendix G). After receiving formal consent from the Superintendent of Schools and the Institutional Review Board at East Tennessee State University to proceed with the research study, I contacted the principal at each school in the district to explain the purpose and outline of the study. Although it was not possible to inform principals ahead of time which schools might ultimately be represented among parents and teachers who volunteered for the study, I explained to principals that potential study participants would be solicited throughout the school district with the goal of obtaining a wide representation from among preschool, elementary, and secondary schools. I worked with the Director of Special Services to obtain a list of names of prospective parent and teacher participants from 2009-2010 district records of all students in grades PreK-12 who were currently receiving special education services under the eligibility category of "Autism," in accordance with the Individuals with Disabilities Education Improvement Act (2004) and the Tennessee Department of Education (2010a) Approved Disability Eligibility Standards. District records were used to access the names of these students' parents and the names of their current (2009-10) and prior (2007-09) special education and general education teachers. Purposeful sampling for maximum variation was used to select study participants, resulting in a sample of seven parents of six children with autism spectrum disorders, eight special education teachers, and six general education teachers who participated in the study.

I made initial contact with prospective study participants by a Letter to Parents (see Appendix H) and a Letter to Teachers (see Appendix I) explaining the general purpose and outline of the study, assuring them of complete anonymity and confidentiality should they choose to participate, and inviting those who were interested in participating to contact me by phone or e-mail. I made further contact with interested participants by phone or in person to explain the Informed Consent process. I mailed a copy of the Informed Consent Form for Parents (see Appendix E) or the Informed Consent Form for Teachers (see Appendix F) to each interested participant for review. Interested study participants were given at least 1 week to review the Informed Consent Form before being asked to make a final decision to participate in the study. Individual interviews were scheduled with study participants at a convenient time and place of their choosing. The Informed Consent Form was reviewed again with each participant just prior to the individual interview with written consent to participate in the research study obtained at that time.

Parent Purposeful Sample

Parents selected to participate in the study had to be the parent of a child currently (2009-2010) receiving special education services in any grade (PreK-12) in the school system that was the site of study in accordance with an Individual Education Plan (IEP) under the eligibility category of "Autism," which in Tennessee includes students who have been diagnosed with Autism, Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS), Asperger's Syndrome, Rett's Disorder, or Childhood Disintegrative Disorder (Tennessee Department of Education, 2010a). The child so designated could be receiving special education services through inclusion in a general education setting, direct resource room service, a self-contained special education classroom, or some combination of these. I worked with the Director of Special Services to obtain a list of names of parents who might be information rich sources of information and sent a Letter to Parents (see Appendix H) to 12 families inviting the mother or father to participate in the study. Parents were given the option of participating in a joint

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interview if both wished to participate in the study; one family chose this option. Using further purposeful sampling to achieve maximum variation among parent participants with regard to the age levels, severity of autism, and type of educational placement of their children, I selected seven parents (representing six children) to participate in the study. These parents met sampling criteria for representing children at all levels on the autism spectrum and those receiving special education services in a variety of settings (ranging from full inclusion in general education classrooms to self-contained programs) at the preschool, elementary, and secondary levels.

Special Education Teacher Purposeful Sample

Special education teachers selected to participated in the study were licensed by the state of Tennessee in the area of special education and were employed at the time of the study in the school district that was the site of study. Furthermore, they had experience during the current school year (2009-10) or prior 2 school years (2007-09) in providing special education services to one or more students under the disability category of "Autism" in accordance with an Individual Education Plan (IEP) as specified by the Individuals with Disabilities Education Improvement Act (2004). Study participants provided special education services in an inclusion setting, a resource room setting, a self-contained special education classroom, or some combination of these. Further purposeful sampling was used for maximum variation to select eight special education teachers who were currently teaching (2009-10) or recently taught (2007-09) children with autism spectrum disorders across the spectrum (from mild to severe) at a variety of age and grade levels (preschool to secondary) in a variety of educational settings (ranging from full inclusion to self-contained special education classrooms).

General Education Teacher Purposeful Sample

General education teachers selected to participate in the study held a valid teaching license from the state of Tennessee and were employed at the time of the study by the school district that was the site of study. Furthermore, they had experience during the current school

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year (2009-10) or prior 2 school years (2007-2009) in providing educational services in an inclusive general education setting to one or more students identified eligible for special education services due to "Autism" in accordance with an Individual Education Plan (IEP), as outlined in the Individuals with Disabilities Education Improvement Act (2004). Using further purposeful sampling to achieve a representation of both elementary (PreK-5) and secondary level (6-12) teachers, I selected six general education teachers to participate in the study.

Data Collection

Interviews

The primary method of data collection for this study was conducting in-depth individual interviews. Rubin and Rubin (2005) observed:

> Qualitative interviews are conversations in which a researcher gently guides a conversational partner in an extended discussion. The researcher elicits depth and detail about the research topic by following up on answers given by the interviewee during the discussion…in qualitative interviews each conversation is unique, as researchers match their questions to what each interviewee knows and is willing to share. (p. 4)

As a qualitative researcher assuming nothing *a priori*, I engaged in interviews with study participants as conversational partners to elicit their understandings and meanings concerning the overarching research question: What are the perceptions of parents of children with autism spectrum disorders, special education teachers, and general education teachers regarding educational interventions for children with ASD, the efficacy of various practices, and facilitators and barriers to successful intervention? The purpose of the interviews was to provide depth, detail, and richness – what qualitative researchers call "thick description" (Rubin & Rubin, 2005, p. 13) – rooted in the first-hand experiences of study participants.

Individual interviews were scheduled at a convenient time and place of each participant's choosing. Teachers generally chose to be interviewed after school in their own classrooms or in my office (a private, one-person office). Parents chose to be interviewed in their own home or in my office. One father and mother participated in a joint interview in their home because both

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parents wanted to be involved in the study. Interviews were approximately 60 to 90 minutes in length. A digital audio recorder was used to tape record interviews, which were transcribed verbatim. Purposeful sampling and individual interviews were continued to the point of saturation, resulting in a total of seven parents of six children with ASD, eight special education teachers, and six general education teachers who participated in the study.

Interview Guide

An interview guide (see Appendices A, B, C) containing semistructured and open-ended questions was used to explore the perceptions of study participants regarding educational interventions for children with autism spectrum disorders and the four research questions that provided a framework for the study. To put participants at ease I began by asking study participants several broad demographic questions. Parents were asked to provide general information about their child with ASD including the age at which the child was diagnosed, the child's current school level (preschool, elementary, secondary) and type of special education placement (inclusion, part-time resource, or self-contained class), any related services (e.g., speech-language therapy, occupational therapy, physical therapy, one-to-one assistant), and the child's level of communication (mostly nonverbal, limited single-word responses, or verbal, functional speech). Teachers were asked about their type of certification, their number of years of teaching experience and the approximate number of children with ASD whom they have taught during that time, and the level (preschool, elementary, or secondary) and setting(s) in which they have provided services to children with autism spectrum disorders (full inclusion, resource setting, self-contained classroom, or some combination of these). All study participants were asked to describe how they have obtained training and knowledge about educating children with autism disorders.

After obtaining general demographic data I asked open-ended questions designed to give interviewees opportunities to reflect upon and verbalize their experiences with specific educational interventions for children with ASD including those described in the research

literature. The interview guide included questions regarding participants' perceptions of the efficacy of specific educational interventions and their opinions about factors that contribute to success in meeting the educational needs of children with ASD. I also asked study participants to reflect upon the barriers and challenges they have faced in implementing specific educational interventions and meeting the needs of children with ASD. Additional open-ended questions provided opportunities for parents, special education teachers, and general education teachers to share their perceptions of their interactions and relationships with one another. Throughout the interview process, I encouraged participants to share stories and examples that illuminated their perceptions and life experiences. I used the same broad interview questions for parents, special education teachers, and general education teachers with minor changes in wording for each group and flexibility in presentation. According to Patton (2002) a general interview guide is used "to insure that the same basic lines of inquiry are pursued with each person interviewed" (p. 343). However, my follow-up questions differed as I probed for personal meanings and gave participants the opportunity to answer from their own experiences.

Ethical Protocol for Interviews

Prior to the start of the individual interview I gave each participant an overview of the research study and asked him or her to sign an Informed Consent Form (see Appendices E, F). I reviewed all points of the consent form with each participant and provided an opportunity to ask questions. I reminded participants not to use their own names or the real names of any children, teachers, parents, or schools during the interview. Study participants were asked to use pseudonyms of their choice during interviews for themselves and children with ASD. To further protect the identity of children with ASD I provided study participants with a "safe" list of pseudonyms to chose from when talking about their own child or students with ASD during interviews. I developed this list by reviewing the district's census of all children currently receiving special education services due to "autism" then creating a list of pseudonyms for children that were "safe" for participants to use during interviews because none represented the

real names of children with autism receiving services in the school system. No real names of students, parents, teachers, or other personal identifiers were included in interview transcripts or the final research report.

In addition to pseudonyms selected by study participants code numbers were used to identify study participants and interview transcripts (e.g., parents as P1, P2, P3, etc.; special education teachers as SE1, SE2, SE3, etc.; general education teachers as GE1, GE2, GE3, etc.). Permission to transcribe each interview was requested and obtained from each participant as well as consent to use direct quotes in the final research report. Copies of interview transcripts identified only by pseudonyms and code numbers will be kept in a secure, locked metal file cabinet in my home for a minimum of 5 years in keeping with Institutional Review Board standards then destroyed by shredding.

Participation in individual interviews was not expected to expose participants to risk beyond that which they ordinarily encounter in their normal daily activities and routines. However, due to the nature of autism spectrum disorder and the challenging demands of parenting and educating children with ASD, I was aware that some parents and teachers might experience mild discomfort in the interview situation when discussing their thoughts, perceptions, and feelings about educational interventions for these children. To help participants feel more comfortable in the interview situation I emphasized that the purpose of this study was not to evaluate or criticize the school system, parents, teachers, or their actions in any way but to provide a voice for parents and teachers regarding their own perspectives and experiences. I expressed to participants my hope that insights and findings that emerge from this study may enable parents and teachers to be even more effective in meeting the educational needs of children with ASD. To further prevent undue risk or anxiety I emphasized that participants were free to decline to answer any particular interview question and that they were free to withdraw from the study at any time without any negative consequence. All participants were given opportunities for closure at the end of interview to defuse any discomfort or intense feelings that may have been aroused.

Document Review

      In order to provide a more comprehensive perspective on the topic of study by using multiple sources of information I collected and reviewed documents purposefully selected to validate and cross-check findings obtained from interview data. According to Merriam (1998) documents provide particularly good sources for qualitative case studies because they exist independent of the researcher's agenda and as such are unaffected by the research process, yet they ground a study in the real world in which they were produced. Analysis of documents "lends contextual richness and helps to ground an inquiry in the milieu of the writer. This grounding in real-world issues and day-to-day concerns is ultimately what the naturalistic inquiry is working toward" (Lincoln & Guba, as cited in Merriam, 1998, p. 126).

Purposeful Sample for Documents

      Parents of children with ASD who participated in the study only took part in an individual interview and were not asked to provide any documents for review. In addition to participating in an individual interview special education and general teachers were asked to voluntarily provide documents of their choice for review pertaining to educational interventions and teaching practices for children with ASD in general. Types of documents provided by teachers included teacher-made materials used in the classroom to support educational interventions for children with autism disorders, program manuals accompanying specific educational interventions, materials from professional development training on educating children with autism disorders, samples of visual aids and schedules used in the classroom, and templates for behavior intervention plans. Copies were made of documents collected from teachers, and the original documents were returned to teachers. Documents collected from teachers for review were nonidentifiable. They did not contain any names or personal identifiers that would allow them to be individually identifiable because the identity of a particular student, parent, teacher, or other person could readily be ascertained or associated with the information. Code numbers were assigned to documents gathered.

Documents that were publically available at the state or district level were also reviewed, including the following:

(1) Tennessee Department of Education (2010b) statewide special education data reports;

(2) District brochures or pamphlets describing special education programs and services;

(3) The Internet website of the school district that was the site of study;

(4) Documents pertaining to professional development opportunities, workshops, and teacher in-service offered at the district level for teachers, paraprofessionals, and parents on topics related to educating children with autism spectrum disorders;

(5) Documents pertaining to professional development workshops or seminars offered off-site to which the district has sent educators for further training on topics related to educating children with autism spectrum disorders;

(6) Program or treatment manuals used by school staff to implement specific educational programs or interventions for children with autism spectrum disorders.

Document Review Guide

A document review guide (see Appendix D) was used to assist in analyzing documents and focusing analysis on the overarching research question regarding the perceptions of parents of children with ASD, special education teachers, and general education teachers regarding educational interventions for children with ASD. Documents were also analyzed for evidence of facilitators and barriers to successful intervention, what interventions have proven most helpful and effective, and how parents and educators view their relationships and experiences with one another in meeting the educational needs of children with ASD.

Ethical Protocol for Documents

Teachers study participants were allowed to offer documents of their choice for review. They did not have to provide any documents if they did not have any that were relevant to the topic of research. Documents provided by teachers pertained to educational interventions and

teaching practices for children with ASD in general and were nonidentifiable. These documents did not contain any names or personal identifiers that would allow them to be individually identifiable because the identity of a particular student, parent, teacher, or other person could be readily ascertained or associated with the information. I assigned code numbers to copies of documents gathered for review. Copies of documents identified only by code numbers will be kept in a locked metal file cabinet in my home for a minimum of 5 years in keeping with Institutional Review Board standards then destroyed by shredding.

Data Analysis

Bogdan and Biklen (1992) described data analysis for qualitative research as a process of systematically sifting through interview transcripts, field notes, documents, and other materials gathered and continually comparing all of the data gathered during the study. For this study I used inductive coding techniques and the constant comparative method for data analysis (Lincoln & Guba, 1985; Merriam, 1998; Strauss & Corbin, 1998).

Interviews

After completing each interview I transcribed the digital audio file verbatim. Merriam (1998) suggests that analysis be made after each interview. I analyzed data using the constant comparison analysis process (Strauss & Corbin, 1998) beginning with a close reading and microscopic examination of each interview transcript and making memos to generate initial categories and overall impressions. Next I analyzed each interview transcript using line-by-line, open-coding to distinguish and generate coding categories among the data. I developed a codebook within the coding process containing labels and definitions of the codes. After each interview all subsequent interview transcripts were read to verify or refine existing codes and to add new codes. Categories developed from the open-coding process were used to create axial codes that related categories along the lines of common themes and properties. Next I used selective coding to combine the themes into patterns and to develop an overall framework for the

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data (Strauss & Corbin, 1998). To improve validity I also analyzed any discrepant data to present any variant to the emerging themes and patterns (McMillan & Schumacher, 2006).

Document Review

With the categories, themes, and patterns in hand from analysis of interview transcripts, I reviewed the documents gathered and incorporated findings into the case study data. I used a document review guide (see Appendix D) to examine documents in light of the same research questions that formed a framework for the study. I used Strauss and Corbin's (1998) constant comparison method to analyze documents for corroboration of the categories, themes, and patterns that emerged from analysis of the interview data (triangulation). In addition I applied open coding to documents to identify any new categories, themes, and patterns represented in the documents that were discrepant from those that emerged from interview data. The purpose of the data analysis for the document review phase was to further refine emerging themes, provide contextual richness, and help to ground the investigation in the real-life experiences of study participants (Merriam, 1998).

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Trustworthiness

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According to McMillan and Schumacher (2006) trustworthiness in qualitative research refers to "the degree to which the interpretations have *mutual meanings* between the participants and the researcher. Thus, the researcher and participants agree on the description or composition of events, and especially the meanings of these events" (p. 324). Qualitative researchers use a combination of strategies to enhance and establish trustworthiness or credibility. Strategies used to enhance trustworthiness in the current study included prolonged field work, multi-method strategies of data collection to permit triangulation, mechanically recorded data, verbatim accounts, and negative case analysis. Additional strategies were used to enhance reflexivity and rigorous self-scrutiny throughout the research process to control for researcher bias and further enhance the trustworthiness and dependability of study findings. Strategies used to enhance

reflexivity (McMillan & Schumacher, 2006) included maintaining a field log and a reflective journal and corroboration of findings by an independent auditor.

Prolonged and persistent field work at the site of study enabled me to establish trust with study participants and become immersed in the culture. Conducting in-depth interviews and collecting documents for review in the natural setting over a period of time provided opportunities for interim data analyses and corroboration to ensure a match between the themes that emerged and participant reality (McMillan & Schumacher, 2006).

Multi-method strategies of data collection were used including in-depth interviews with three different stakeholder groups (parents, special education teachers, and general education teachers) and review of documents, permitting triangulation of data analysis across stakeholder groups and across inquiry techniques. According to Patton (2002), "It is in data analysis that the strategy of triangulation really pays off, not only in providing diverse ways of looking at the same phenomenon but in adding to credibility by strengthening confidence in whatever conclusions are drawn" (p. 556).

Individual interviews were audio taped and transcribed verbatim to provide accurate and complete records. Member checking was used during interviews as topics were rephrased, probed for subtle meanings, and summarized to confirm participants' meanings. By recording and transcribing interviews verbatim, I was able to use direct quotations from the data in the participants own words. I used direct quotations and verbatim accounts to support the kind of thick, rich description that Lincoln and Guba (1985) advocate in order to illustrate the participants' meanings. Verbatim accounts also ensured that emerging themes were supported by the participants' own perceptions and experiences. I analyzed and reported discrepant data to present any variant to emerging patterns or cases where a participant's views were an exception to the emerging themes found in the data (McMillan & Schumacher, 2006).

Those who conduct qualitative research do not deny human subjectivity but rather take it into account through various strategies designed to enhance reflexivity and control for the researcher's own bias, perceptions, and predispositions (McMillan & Schumacher, 2006).

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Reflexivity involves "rigorous examination of one's personal and theoretical commitments to see how they serve as resources for selecting a qualitative approach, framing the research problem, generating particular data, relating to participants, and developing specific interpretations" (McMillan & Schumacher, 2006, p. 327). Pillow (2003) suggests that reflexivity in qualitative research requires personal self-awareness, respect for others with an insistence on letting them speak for themselves, being accurate in gathering the truth about their own stories and experiences, and transcending one's own subjectivity to maintain accuracy in reporting.

In order to enhance reflexivity and monitor and evaluate the impact of my own subjectivity, I kept a field log to maintain a chronological record by date, time, and place spent in the field, including activities used to gain access to sites, participants, and documents. I also maintained a record of decisions made during the emergent design of the study and my own thoughts and personal reactions throughout the field work (McMillan & Schumacher, 2006).

Finally, in order to make sure that my own bias did not interfere with the interpretation of the findings I maintained an audit trail, or chain of evidence, for inspection and confirmation by an independent auditor (Lincoln & Guba,1985; McMillan & Schumacher, 2006). Based on my experiences with students with autism spectrum disorders in my role as a school psychologist, I have developed opinions about various educational interventions and instructional strategies for this population. In a qualitative study involving naturalistic inquiry regarding a phenomenon of interest the inquirer often has in-depth knowledge of the subject and is seen as a participant in the phenomenon rather than as an outsider (Patton, 1990). My experiences with children with autism spectrum disorders in an educational setting was an asset in this sense. However, to guarantee the plausibility of the data analysis, ensure credibility, and guard against researcher bias I used an independent auditor to examine the data and corroborate the emerging categories, themes, and findings of the research.

Summary

Chapter 3 provided an overview of the methodology and procedures that were used for a qualitative case study investigating the perceptions of parents of children with autism spectrum disorders (ASD), special education teachers, and general education teachers regarding educational interventions for children with ASD in a Northeast Tennessee public school system. Specifically, the purpose of this chapter was to provide a description of the design of the study, the recruiting protocol and purposeful sampling criteria for selection of participants, the methods and procedures that were used for data collection and data analysis, and measures that were taken to ensure trustworthiness.

CHAPTER 4

ANALYSIS OF DATA

The purpose of this qualitative case study was to investigate the perceptions of parents of children with autism spectrum disorders (ASD), special education teachers, and general education teachers regarding educational interventions for children with ASD in a Northeast Tennessee public school system. I explored the attitudes, opinions, and experiences of three key stakeholder groups regarding the successes and barriers they have experienced in meeting the educational needs of children with ASD, what interventions and teaching strategies they have found most helpful and effective, and how they view their interaction and relationships with one another.

Data were collected through 20 in-depth interviews with a purposeful sample of seven parents of six children with autism spectrum disorders, eight special education teachers, and six general education teachers in a Northeast Tennessee School system. Maximum variation sampling was used in an effort to select parent and teacher participants representing children at all levels on the autism spectrum (from mild to severe), a variety of grade levels (preschool through high school), and a variety of educational settings (ranging from full inclusion to self-contained special education classrooms).

Interviews lasted 60 to 90 minutes and were conducted at a time and place of each participant's choosing. All eight special education teachers decided to have interviews after school in their classrooms or personal school office. All six general education teachers decided to have interviews in their classrooms, five after school and one during a free class period. Four parents chose the researcher's private office for interviews. Two families including one mother and a father and mother who decided to participate in a joint interview had interviews in their homes. Prior to each interview I explained the Informed Consent process explained in detail, and each study participant signed an Informed Consent Form (see Appendices E, F). During interviews participants used pseudonyms of their choosing for names of children, teachers,

parents, and schools. I audio-taped interviews, transcribed them verbatim myself, and assigned code numbers to each transcript to further protect the identity of participants. I used an independent IRB trained auditor to verify interview transcripts and corroborate the emerging categories, themes, and findings of the research.

During individual interviews I used Interview Guides (see Appendices B, C, D) and additional probing questions to allow participants to reflect upon their thoughts and experiences regarding the four questions that provided a broad framework for the study:

1. What educational interventions have parents of children with autism spectrum disorders (ASD), special education teachers, and general education teachers used to address the educational needs of children with ASD, and what have been their experiences with those specific interventions?

2. What educational methods, practices, and interventions do parents of children with ASD, special education teachers, and general education teachers perceive to be helpful and effective in meeting the educational needs of children with ASD?

3. What are the barriers and challenges that parents of children with ASD, special education teachers, and general education teachers have experienced in meeting the educational needs of children with ASD?

4. What are the perceptions of parents of children with ASD, special education teachers, and general education teachers regarding their experiences and relationships with one another in meeting the educational needs of children with ASD?

Study Participants

In this section broad demographic information about the 21 research participants is presented so that the reader has some familiarity with their background as this pertains to purposeful sampling criteria and the topic of study. All children are identified by pseudonyms of their parents' choosing.

Parents

Sam's mother and father were the only parents who elected to participate in a joint interview. Sam was first diagnosed with Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS) when he was 6 years old. Sam has been in the current school system since elementary school although the family moved out of state briefly then back again. Sam is currently in middle school. He participates in a self-contained special education program combined with general education related arts classes. He also receives speech-language therapy and occupational therapy services. Sam is verbal with fully functional speech (complete sentences). His mother placed him "right in the middle" of the autism spectrum describing him as "classic." Outside of school he participates in a soccer team for special needs children.

Gordon's mother reported that he has been in the current school system since age 3 when he entered a preschool special education Early Childhood Intervention Program. He was identified as Developmentally Delayed around 18 months and was diagnosed with Autistic Disorder when he was in preschool. Gordon is currently in elementary school where he participates in a general education inclusion classroom combined with part-time "pull out" resource room services. He also receives speech-language therapy and occupational therapy services. When Gordon entered the preschool program at age 3 he was mainly nonverbal and spoke only a few single words. By the time he left the preschool program he was using three-word sentences. Gordon's mother described his current level of communication as "fully functional" with "a slight delay."

Troy's mother indicated that he has been in the current school system since preschool when he participated in self-contained special education Early Childhood Intervention Program. He was first diagnosed with Autistic Disorder between age 1 and 2. Troy is currently in elementary school where he participates in a general education inclusion classroom combined with part-time "pull out" resource room services. Troy has a part-time one-on-one ancillary assistant. He also receives speech-language therapy and occupational therapy services. Outside of school Troy participates in music therapy and a therapeutic horse-back riding program for

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children with special needs. When Troy entered preschool at age 3 he was mostly nonverbal with a few single words.   Troy currently communicates with single words, two-word combinations, and some complete sentences.

Karen's father stated that she has been in the current school system since middle school. Karen was diagnosed with Asperger's Disorder around age 5. In middle school Karen participated in general education inclusion classes. She also received speech-language therapy, but this has been discontinued. Karen is currently in high school where she participates in general education classes with some inclusion services. She is progressing toward a general high school diploma. Typical of those with Asperger's Disorder, Karen did not exhibit an early language delay. Her father described her level of speech as fully functional, but he noted that "she conveys stuff better with short, choppy sentences." He added, "Even if I'm speaking to her and I say a long sentence, I have to break it up."

Ross's mother indicated that he was diagnosed with "autism spectrum disorder" between age 2 and 3. For the past 3 years Ross has participated in a self-contained special education Early Childhood Intervention Program (ECIP). He also receives speech-language therapy and occupational therapy services. Although the ECIP program is generally for children ages 3-5, many children with autism disorders remain an extra year. Ross has taken this step to facilitate readiness for kindergarten. In the coming school year he will enter a regular kindergarten program with supportive inclusion services and continuation of occupational therapy and speech-language therapy services. Ross also receives additional therapies outside of school at parent expense, including speech therapy and occupational therapy once a week and in-home ABA (applied behavior analysis) therapy once a week. When Ross entered his current preschool program, he used single words and had a vocabulary of "maybe 40 or 50 words." He now speaks in "simple sentences."

Brent's mother said that he was first diagnosed with "autism spectrum disorder" at age 2. Like Ross, Brent has participated for the past 3 years in a self-contained special education Early Childhood Intervention Program. He too has remained in the program an extra year to facilitate

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readiness for kindergarten. Brent also receives speech-language therapy and occupational therapy services. In the coming school year he will enter a regular kindergarten program with supportive inclusion services, speech-language therapy, and occupational therapy. Brent was mostly nonverbal when he entered the preschool program. He currently speaks in two-word combinations and some simple sentences.

Table 1 provides a summary of current demographic information pertaining to parent participants and their children with ASD.

Table 1

Demographic Information About Parent Participants And Their Children With ASD

Parent code	Parent gender	Child's pseudonym, gender	Child's diagnosis	Age when diagnosed	Child's school level	Child's current placement, services
P 1A P 1B	Female Male	Sam, male	PDD-NOS	6	Middle School	Self-contained class; inclusion for related arts; OT, speech-language therapy
P 2	Female	Gordon, male	Autistic Disorder	3-4	Elementary	Inclusion & part-time resource; OT, speech-language therapy
P 3	Female	Troy, male	Autistic Disorder	1-2	Elementary	Inclusion & part-time resource; OT, speech-language therapy; part-time one-on-one assistant
P 4	Male	Karen, female	Asperger's Disorder	5	High School	All general education classes with some inclusion
P 5	Female	Ross, male	Autism Spectrum Disorder	2	Preschool	Self-contained ECIP program; OT, speech-language therapy
P 6	Female	Brent, male	Autism Spectrum Disorder	2 ½	Preschool	Self-contained ECIP program; OT, speech-language therapy

Special Education Teachers

Special education teachers provided brief demographic information about their type of special education teaching certificate, their number of years of teaching experience, and the approximate number of children with autism spectrum disorders whom they have taught. They

were also asked to describe the school levels and settings (full inclusion, resource setting, self-contained classroom, or some combination of these) in which they currently provide or have provided special education services to children with autism disorders. Table 2 provides a summary of demographic information pertaining to special education teacher participants.

Table 2

Demographic Information About Special Education Teacher Participants

Code	Gender	Special education teaching certificate	Years experience	Number with ASD taught	Level(s) taught	Settings(s)
SE1	Female	Preschool, early childhood; Comprehensive K-12 Related Art Resource	9	40-50	Prior: all grade levels as Autism Coordinator; Current: PreK	Current: Self-Contained PreK; consultation K-12, part-time Autism Coordinator
SE2	Female	Comprehensive K-12	27	About 12	Prior: Middle School; Current: Elementary	Inclusion and Resource
SE3	Female	Comprehensive K-12	15	About 18	Prior: PreK, Elementary, High School; Current: Elementary	Prior: Inclusion, Resource, Self-Contained; Current: Resource, Extended Resource
SE4	Female	Modified K-12	12	About 10	Middle School	Inclusion and Resource
SE5	Female	Comprehensive K-12	20	About 10	Middle School	Inclusion and Resource
SE6	Female	Comprehensive K-12	16	About 10-15	Prior: Elementary, Middle School; Current: Elementary	Prior: Inclusion, Resource, Self-Contained; Current: Resource, Extended Resource
SE7	Female	Comprehensive K-12	30	About 25	High School	Prior: Inclusion, Resource, Self-Contained; Current: Inclusion and Resource
SE8	Female	Preschool, early childhood; Comprehensive K-12	23	About 20	Prior: PreK through high school; Current: Elementary	Prior: Resource and Self-Contained Current: Self-Contained

It is important to note that Special Education Teacher #1 (SE1) is unique in that she wears two "hats" in the school system. She currently teaches a self-contained preschool special education class in the Early Childhood Intervention Program. She also serves informally as Autism Coordinator providing part-time consultation services to teachers of children with ASD and other school staff throughout the district. Before 1995 she worked full-time as Autism Coordinator for the district providing direct services to children with autism spectrum disorders (PreK-12) and consultation services to their teachers and parents. At that time she had about 12 students on her case load and provided direct one-on-one instruction to about 8 of those children twice weekly. In addition she provided consultation services to special education and general education teachers of children with ASD on an as-needed basis. By 1995 the number of young children with autism disorders entering the school system was increasing so rapidly that a third preschool special education class had to be added to serve the needs of this growing population. This teacher left her full-time position as Autism Coordinator in 1995 to teach the third preschool special education class. Because she has been teaching this preschool special education class for the past 5 years, she no longer provides direct services to children with ASD at other schools. She continues her role as Autism Coordinator part-time by providing consultation services to other school staff and some in-service workshops as she has time.

General Education Teachers

General education teacher participants provided demographic information about their type of teaching certificate, number of years of teaching experience, the approximate number of children with autism spectrum disorders whom they have taught in this school district, and the school level(s) in which they currently teach or have taught children with ASD in a general education classroom. Table 3 provides a summary of demographic information pertaining to general education teacher participants.

Table 3

Demographic Information About General Education Teacher Participants

Code	Gender	Teaching certificate	Years experience	Number with ASD taught	School Level(s)
GE1	Female	Early Childhood; General Education K-6 (also Comprehensive Special Education K-12)	14	About 9	Prior: PreK Current: Elementary
GE2	Male	General Education 1-8; all subjects 1-6; math & science, 7th and 8th	16	About 5	Elementary
GE3	Male	General Education K-6	6	About 4	Middle School
GE4	Female	General Education K-3	25	About 3	Elementary
GE5	Female	Physical Education; Health; English	27	1 known	High School
GE6	Female	General Education K-6	16	About 2	Elementary

Documents Collected

In addition to participating in individual interviews five special education teachers and three general education teachers voluntarily provided documents of their choice for review. Documents provided by teachers included teacher-made materials used in the classroom to support educational interventions for children with ASD, program manuals for specific educational interventions, materials from professional development training on educating children with autism disorders, samples of visual aids and schedules used in the classroom, and samples of behavior plans. No personal identifiers were included in copies of documents, and code numbers were assigned to documents gathered.

During the course of the study I also collected public domain documents for review, including general brochures describing special education services, information on school websites, and materials from professional development training provided by the district for school personnel on teaching children with autism disorders. I also accessed Tennessee Department of Education (2010b) special education data reports at the state and district level.

Themes

Interview data and documents gathered were analyzed using the constant comparison analysis process (Strauss & Corbin, 1998). Beginning with line-by-line open coding of interview transcripts, I generated a list of 138 codes that were refined and combined to identify categories along the lines of common themes. I used a Document Review Guide (see Appendix D) to further refine the list of codes in light of the research questions, to corroborate the themes that emerged from the interview data, and to identify any themes represented in the documents that were discrepant from those that emerged from interview data.

Throughout the data analysis I first concentrated on identifying major themes that were strongly represented among all three participant groups (parents, special education teachers, and general education teachers). At another level of analysis involving group by group comparisons I also identified any divergent themes that were unique to any one participant group or that were shared by two groups but not a third. Emerging themes describing parent and teacher perceptions fell into three broad categories: (1) perceptions of effective educational interventions and teaching methods for children with autism spectrum disorders; (2) perceptions of barriers and challenges experienced; and (3) perceptions of relationships among parents and teachers in meeting the educational needs of children with ASD.

Nine themes emerged regarding parent and teacher perceptions of effective educational interventions and teaching methods for children with autism spectrum disorders. Eight of these nine themes were endorsed by all three study groups who perceived the effectiveness of: (1) intensive early intervention using multiple methods; (2) a structured learning environment; (3) adult-mediated interventions for social and communication skills; (4) peer-mediated interventions for social and communication skills; (5) inclusion with a balance of direct services; (6) adequate support staff to facilitate inclusion; (7) a functional approach to problem behaviors; and (8) alternative and augmentative communication interventions. A ninth theme was supported by parents and special education teachers: (9) sensory-motor interventions.

Seven themes emerged regarding the barriers and challenges that parents, special education teachers, and general education teachers have experienced in meeting the educational needs of children with ASD. Six themes were endorsed by all three participant groups as follows: (1) lack of training and knowledge; (2) lack of time; (3) challenges caused by characteristics of ASD itself; (4) problematic teacher attitudes; (5) problematic parent attitudes; and (6) transition issues. A seventh theme was endorsed by parents and special education teachers: (7) need for additional services and therapies.

The perceptions of parents of children with ASD, special education teachers, and general education teachers regarding their relationships with one another were analyzed first with regard to parent-teacher relationships then with regard to relationships between special education teachers and general education teachers. Four major themes emerged among all three study groups regarding factors they believe facilitate positive parent-teacher relationships: (1) collaboration, teamwork, and support; (2) on-going communication; (3) IEP Team meetings and the IEP itself; and (4) positive teacher relationships with autistic children. Two themes emerged summarizing special education and general education teacher perceptions of their relationships: (1) collegiality and closeness; (2) divergent needs.

Themes from each of these three broad categories are discussed in detail beginning with the nine themes summarizing parent and teacher perceptions of effective educational interventions and teaching methods for children with autism spectrum disorders.

Perceptions of Effective Educational Interventions and Teaching Methods

Intensive Early Intervention Using Multiple Methods

Parents and teachers in all three study groups strongly endorsed the effectiveness of intensive early intervention programs for children with autism spectrum disorders using multiple intervention strategies. The district's preschool Early Childhood Intervention Program (ECIP) has three self-contained special education classes for children (ages 3-5) with disabilities

including those with autism disorders. Study participants described the district's ECIP program as extremely effective in meeting the educational needs of young children with ASD.

For example Ross's mother exclaimed, "Oh gosh, I love the whole program. I don't ever want him to leave!" Troy's mother was "very pleased with all the help that he got" during his 3 years in the preschool program. Gordon's mother especially liked the fact that many children with ASD are allowed to spend an extra year in the program, a strategy that was used with success with Gordon, Troy, Brent, and Ross to facilitate acquisition of kindergarten readiness skills. Brent's mother described how much she liked the program and laughed as she said, "I opted to leave him there one more year before sending him on to kindergarten; and you know, I asked his teacher, 'Can he just stay here till he graduates?' "

Parents cited their children's acquisition of language as evidence of the success of the ECIP program. When he began the ECIP program, Gordon could say only a few single words. By the time he left he was using three-word sentences. When Ross entered the preschool program, he used single words and had a vocabulary of "maybe 40 or 50 words." He now speaks in "simple sentences." Brent was almost nonverbal when he entered the program. He currently speaks in two-word combinations and complete sentences up to five words in length.

Parents also reported academic gains as evidence of success. Ross's mother stated, "They've taught him all of his letters. He knows his numbers…and he knows all his colors. They taught him shapes…Once he started in Ms. Jones's *(pseudonym)* class, we just were really amazed." She also mentioned the benefits of the program in developing Ross's social and play skills:

> I think being in this program, he's got a friend in class that they really like each other and hang out, and they have a good time. But just being with the same children and doing the same kind of routine. And I don't know what she [the teacher] does in class. She should probably bottle it to get them to do like that, because he'll go to daycare when he leaves that program, and there's not really any kids in there that he ever really would, I would see him playing with or bonding with. It used to make me so sad, because when I'd pick him up he'd always be off by himself. But this one little boy in class, he's just bonded with. I don't know what they do in class, but he and his little buddy love each other.

Consistent with recommendations of the National Research Council (2001) no one methodology is used in isolation in the early intervention program. Instead teachers use a variety of teaching methods and interventions including (1) structured teaching and the TEACCH model, (2) naturalistic or incidental teaching methods, and (3) applied behavior analysis (ABA) with discrete trial training (DTT). Parent and teacher interviewees perceived all three approaches to be effective, although the first two methods are more strongly emphasized in early intervention classes, and use of ABA with DTT is reportedly rare after the preschool years.

Structured teaching (TEACCH). Study participants reported positive perceptions of TEACCH and structured teaching methods, viewing them as effective educational interventions for young children with autism disorders. Structured teaching, also referred to as TEACCH (Treatment and Education of Autistic and Related Communication Handicapped Children), focuses on modifying and organizing the learning environment with clear, concrete visual information, the use of schedules for work and play activities, and visually clear organization of tasks (National Research Council, 2001; Schopler et al., 1995). Because visual skills tend to be more advanced than verbal skills among children with autism, instructions are often presented in pictures rather than spoken words. The program involves use of visual cues, prompts, and reinforcement. Because transitions are often difficult for children with autism, highly structured schedules are displayed to help the child visualize the order of events and what comes next (Heflin & Simpson, 1998; Schopler et al., 1995; Smith, 1999).

A preschool special education teacher described how she uses TEACCH methods in the Early Childhood Intervention Program:

> My classroom is basically set up like a TEACCH classroom as the main part of it…I've got two assistants. We have big center. We call it "big center" because we can teach social skills that way if we have all the kids together. There are a lot of visual boundaries. I'd like more, but I can't put tape on the floor…We use structured teaching. A big part of TEACCH methods is preparing the classroom, setting up the classroom. As far as the teaching methods, we teach specific social skills. We teach a lot of adaptive skills, prevocational skills. We teach a lot of communication skills. We use a lot of visuals. That's another big part of

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TEACCH, but that's really a big part of all the programs for children with autism, and it's really just good for all of them. So we use a lot of visuals. We use schedules, not for all of them, but for some of them. We have strips that tell the order of doing things…It tells you how to wash your hands or how to go to the potty. So we can point to them. We use less language. We try to do a lot of pointing…It's called an activity schedule. We use activity schedules. As far as transitions, we use objects for transitioning that will tell them a little bit about what they are going to next. Sometimes it's a picture. Like I have a picture when we're at circle time and they need to go wash their hands, it's time to wash your hands or time for lunch, I've got a picture of someone washing their hands…Then I've got some that if it's time to eat, we take them a cup or an actual object. That's from TEACCH [to know] what's coming next. My class is a five hour class, and we follow the same schedule every day…And we do a lot of repetition.

This teacher provided me with documents that included a number of teacher-made materials typical of those used in the TEACCH method. For example she showed me an activity schedule she made using picture symbols to help children in the preschool class visualize their morning routine and "what comes next" as they transition from one activity to the next. She made the activity schedule by attaching picture symbol cards for activities (e.g., "wash hands," "eat," "potty," "big center," and "circle time") to a strip of Velcro on a piece of white shower board. The pictures on this activity schedule are added or removed by the teacher as children transition throughout their day.

The preschool ECIP teacher has also made activity schedules for parents of children with ASD to use in the home setting. Brent's mother reported that teacher-made activity schedules have helped greatly in managing Brent's behavior at home "because for a while his behavior at home and his behavior at school [were] like two different children." The teacher made Brent an activity schedule with picture cards for "the whole bedtime routine." His mother said, "It was very short. It was like, 'Put on your pajamas, read a book, brush your teeth, go to bed.' " Brent also has a teacher-made activity schedule with picture cards for the evening. His mother said:

So then he'll come home and he'll play and he'll take a bath. So she made a picture exchange thing for me that kind of had every option of what we would do for the evening. That way he could see what was coming next, because if he is pretty much familiar with his routine he's fine. And as long as he knew what he was going to do, pretty much within reason he was OK with it. No meltdowns, major behaviors or anything.

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Another TEACCH method that study participants have often used in early intervention programs is a "work-play" or "if-then" contingency to structure learning tasks. Preschool and elementary teachers gave me copies of teacher-made visual aids they created to help children with ASD visualize "work-play" contingencies. For example one teacher places three colored circles (two yellow, one orange) on a strip of Velcro on a piece of white shower board. The teacher places picture cards below each yellow circle to show two tasks that the child must complete ("work-work"), followed by a picture below the orange circle showing the reward ("play") the child can earn for task completion. The visual cues provide structure for learning, and the child can remove a circle from the board as each step is completed. For older children more colored circles can be placed on the board (e.g., a work, work, work, reward contingency). For older students who can read teachers write on the board the tasks to be completed and the reward that will follow. Study participants reported that simple "work-play" contingencies like this have been effective in increasing self-direction in learning among students with ASD.

Two elementary general education teachers and one elementary special education teacher who participated in the study described how various teaching methods implemented in the preschool early intervention program are carried over into the early elementary grades (K-3) in a variety of settings ranging from a self-contained special education program for severely delayed children to general education inclusion classrooms. Elementary special education and general education teachers who have received training in the TEACCH method reported using various features of that model including an emphasis on a structured learning environment, schedules, picture cues, and work-play contingencies for learning.

For example an elementary special education teacher who teaches a self-contained class for children with severe delays (including severe autism) described how she uses features of the TEACCH model:

> I do more of a modified TEACCH model. But the thing about a TEACCH model
> is it's really beneficial to any child, not just to an autistic child. Because it's
> highly structured, and it's very visual…The room is set up in a certain way. It's
> set up into areas, like a work area and a play area and an eating area. And the

children are not allowed to just freely roam about the room going wherever they please. They're directed to certain areas at certain times…everyone even at the end has their own independent work station. And it's very visual, and the whole concept is that as quickly as possible they need to work independently. And they work from left to right or top to bottom. And you don't do a lot of talking. You do more pointing and tapping, but you don't say a lot because they don't respond to the language. Its "rah, rah, rah, rah." So it's not a lot of language…And it's amazing how well, I mean it's just a miracle how well it works. I mean you'll see kids that just can't do anything. They're just off the wall. And in a matter of an hour or two you can have them sitting at a station doing something, which is kind of a miracle.

Naturalistic teaching. A second major approach used in early intervention programs is that of naturalistic or incidental teaching. Study participants perceived naturalistic teaching methods as very effective in the preschool and elementary grades in working with autistic children. For example teachers described using naturalistic teaching methods to structure the classroom environment to block access to desired toys or place them out of reach so that autistic children have to use verbal responses to ask for them. Naturalistic, incidental teaching methods have also been implemented as teachers join with the children in play, encourage turn-taking, give choices, solicit expanded verbal responses, and encourage social interaction with peers. As one special education teacher reflected, "We try to make everything a teaching moment."

The mand-model variation on incidental teaching (Allen & Cowan, 2008) has been used by teachers who approach children with autism and mand (request) that they name or describe what they are doing (e.g., coloring, swinging), what they are playing with, or what they want. Appropriate verbal responses are rewarded with praise and attention. If a child does not respond, the teacher models the correct response. Another modification of incidental teaching has been used in early intervention programs whereby the teacher inserts a time-delay before giving a desired object to the autistic child. The preschool special education teacher gave several examples of mand-model and time-delay procedures she has found effective:

Like say we're eating lunch and they want more food. Right now we're working big time on "please." So I wait for them, and I look at them. If they don't say "please," I just look at them, which is cueing them. Then they'll say "please," and

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then I'll give them more. We give them just a small amount of food so they can use language…If we're swinging, I might stop them and wait for them to signal "more" or say "more, please." We might hide something, like hide something that goes on the train, and we'll say, "Where is it?" Or they'll start to looking for it, and we'll say, "Where is it?" and they'll have to ask for it.

Consistent with the research on incidental learning with time-delay procedures (e.g., Allen & Cowan, 2008; Charlop-Christy & Carpenter, 2000; Miranda-Linne & Melin, 1992) preschool and elementary level teachers perceived this approach to be effective in increasing language development and spontaneous use of words.

Naturalistic teaching methods involving hands-on, multisensory, highly engaging tasks have been implemented during "circle time" in the preschool ECIP program and in a some elementary special education programs to develop academic and communication skills. The preschool special education teacher described a typical circle time:

Our circle time is our main pre-academic time. It is some of my children's favorite time of the day, and I love it too. We start off with the same songs every day…We use a lot of music. We do a lot of up and down. We do work on their names, and each one of them comes up individually, and we sing a little song...Some of them are working on just sitting up on my lap for a second and letting us sing the song…We count. We have a big glass jar song where we put the item. We count how many kids are there, and then we put the item, like if it's the color "green," then we put green pom-poms or green buttons in there. We usually have a sensory activity. Like I have the tubes that you pull, and we'll work on hand strength…they love that. I call it a "gotcha activity," something to get them going…Like St. Patrick's Day we worked on positional words, and we used a Leprechaun and a St. Patrick's Day hat. Each of the kids, I'd throw them the Leprechaun and they'd catch it, so we got some of the gross motor. Then they'd come up and put it where I said, like "under the hat," "behind the hat" or whatever, just all those positional words…Some days I'll do a story like "Know and Follow the Rules"…We also do a lot of potty stories. We sing a lot. Usually we cover a color and a shape…I have pieces of paper that are those colors, and we'll hand out the bottles, and they'll match it to the color and then they'll name the color. Things like that where they can get up and get down, and then we do some dancing music, some gross motor things.

Among the documents this teacher shared with me were a wide variety of teacher-made materials with picture cards for children to use during circle time as they select songs to sing, books to read, and body movements to use for counting. For example she created a picture menu

for children to use when they practice counting. Students take turns deciding how they want to count by pointing to picture cards for stomping feet, clapping hands, touching noses, and so forth. A similar picture menu allows children to select songs to sing by moving picture cards next to a "Let's Sing" card at the top of a picture chart. Picture menus are also used for children to choose books to read or nursery rhymes to recite. These types of teacher-made materials represent a blend of the TEACCH model (with its emphasis on visual cues) and naturalistic teaching methods. The preschool teacher reported that children with ASD really enjoy this kind of active engagement in learning with pictures, movement, and multisensory input.

Applied behavior analysis with discrete trial training. A third major intervention used in early intervention programs for children with autism disorders is applied behavior analysis (ABA) with discrete trial training (DTT). Study participants reported that ABA with DTT has mainly been used with very young children who are nonverbal and more severely autistic. For these children ABA with DTT has been used in one-to-one instruction with reinforcers to develop beginning imitation skills and engagement as prerequisites for other learning activities.

A preschool special education teacher explained use of ABA with DTT in her class:

We do try to work one-on-one. It's not every child every day. It's kind of ABA. It's modified ABA, like my class is a modified TEACCH class. We do that, and we do a lot of reinforcers. With ABA if they do a skill they get a reinforcer… Some of them we're working on their address and their phone number or the positional words. Others, the ones who are more autistic, we are just working on attending and interacting with us in some way. If it's tickling, if it's just babbling and we babble back to them. Some engagement. And there's three of them we're doing that with because they are very, very severely autistic.

I asked the teacher what kinds of reinforcers she is using with ABA. She responded:

It depends on the kid because they all want different things. One of them is reinforced by letting him close off for a few minutes, so he can go and wander around the room a little bit and then come back. Another one we use tickling. He likes tickling. One of them we use a glitter spinner or visual. He's very visually stimulated. We use M & M's sometimes. We get the mini M & M's. We use Skittles with some of them. We use fish crackers with some of them.

As we discussed her use of ABA with discrete trial training (DTT) the preschool special education teacher reported that she typically uses this method with individual children roughly 30 minutes a day at most (not counting any use of ABA during direct speech-language therapy). Thus, ABA with DTT is not the primary intervention in the preschool program, and it is not used anywhere near the number of hours reported by early researchers as necessary for effective results (e.g., Anderson et al., 1987; Lovaas, 1987). Even so consistent with research findings that ABA with DTT is useful with very young autistic children who have limited verbal and imitation skills (e.g., Smith, 2001), this preschool teacher perceived ABA with DTT to be helpful with such children in developing joint attention and simple imitation skills as a foundation for mastering more complex skills.

Three parents reported positive experiences with ABA with discrete trial training as one part of their child's early intervention program. For example Ross's parent said that ABA has been helpful with him in developing simple communication and adaptive skills. She stated, "I like the repetition. It kind of drives it in, and Ross picks upon stuff pretty quick, so it didn't have to be too many weeks, but just that over and over and over and immediately."

However, consistent with the findings of Smith (2001) teacher interviewees in this study reported not using ABA with DTT after the preschool years because of the intensive amount of one-to-one instructional time required and difficulties with implementation in the everyday environment. Once autistic children have acquired a basic repertoire of communication and social skills, teachers in this study said they discard traditional ABA with discrete trial training in favor of structured teaching and naturalistic teaching strategies that still use applied behavior analytic methods but do not require as much one-on-one intervention. Even in the preschool program, and certainly by the elementary grades, participants in this study reported more positive experiences with structured teaching methods and naturalistic teaching strategies that they have found easier to implement with autistic children in the natural classroom environment than intensive applied behavior analysis with discrete trial training.

A Structured Learning Environment

One of the strongest themes to emerge during interviews with all three study groups was the need for a structured learning environment as an essential feature of effective educational programs for children with autism spectrum disorders. In fact almost every study participant used the word "structure" when describing essential components of effective educational programs for children with autism disorders. For example one middle school general education teacher remarked:

> I think they thrive on structure. If you don't give them structure…it's hard for them to get a task accomplished if you don't say, "OK, this is how we do it. This is what I expect, and this if what you will get in return."

An elementary general education teacher voiced similar thoughts as she said, "Structure is essential, what I keep referring to as the black and white of a situation. I think that's essential." One special education teacher summarized, "I think structure in the classroom is huge."

The ways in which preschool and elementary special education teachers and elementary general education teachers use structured teaching and TEACCH methods to structure the learning environment in early intervention programs have already been described. As previously noted, study participants involved in early intervention programs for children with ASD found it very helpful to structure the learning environment with clear, visual information and boundaries, activity schedules and picture prompts, and "if-then" or "work-work-play" contingencies for learning.

However, early intervention teachers and parents of very young children are not alone in using structure, schedules, and visuals to facilitate positive outcomes for children with autism disorders. Study participants representing students with ASD at all ages and grade levels perceived the following strategies to be very effective in creating a structured learning environment for students with ASD: (1) providing schedules, routines, and visuals to organize learning, prompt desired behavior, and facilitate transitions; and (2) providing highly engaging, hands-on, active learning activities.

Schedules, routines, and visuals. Schedules, routines, and visual prompts were perceived by parents, special education teachers, and general education teachers to be particularly effective with children with autism disorders in helping them to understand what they are supposed to be doing, what will happen next, and any change that may occur in their day. Because children with autism disorders tend to like order, stability, and sameness, they can be easily upset by unexpected changes in routine (National Research Council, 2001). Schedules and routines help to prevent problem behavior due to unexpected change, and they provide the order and sameness that many autistic children need. For example Sam's father observed, "If something is supposed to happen and it doesn't happen, then it will usually trigger it [an emotional upset]." Sam's mother added, "We do have a lot of structure just because of that. Like we have waffles every morning."

Ross's mother commented that "if you don't give Ross structure, he'll just be all over the place." When I asked her what structure looks like for Ross, she replied, "I think in the classroom it just looks like knowing what we're doing and what comes next and what's expected while you're doing it."

Troy's mother had similar thoughts as she reflected that Troy "needs structure. He does better with structure. He knows what is expected of him." She added, "He needs, like when he comes in, what is expected of him, if he needs to sit down in a circle. But anytime anything was off the schedule, that could also cause him to get upset…change is very hard." Troy's daily schedule is both visual and written. Any changes in his school day are written on his schedule with a picture cue so that Troy can prepare for the change and "know what to expect."

Gordon's mother said he used a picture schedule in first and second grade in a general education class with a teacher who used "lots of visuals" for "work, then play" contingencies whereby Gordon could earn time on the computer, a strong motivator for him. To help him transition from one activity to the next Gordon also used a picture schedule that was attached next to his desk on a Velcro strip. His mother explained, "On one side was the schedule for the

day, and on the other side was speech, OT, the different related arts they would go to. And on

Monday if he had speech therapy, he would move the card over."

One elementary special education teacher described the benefits of a picture schedule for

an autistic child in a self-contained classroom:

> One has some verbal delay, but he is verbal. And he's very, very dependent on a picture schedule…We found out really quickly that he needs a picture schedule, and as long as he has that schedule, he's OK…and he does real well. And he's constantly saying, "Check my schedule. Check my schedule." I'll say, "OK, go check your schedule." And as long as he can see that schedule, he's very calm and feels secure about what's going to happen next.

Visual schedules do not just help children with autism disorders anticipate what will

happen next. They can also be used as self-monitoring devices to help children get organized

and direct their own learning. One special education teacher gave several examples:

> Visuals are for schedules. They're for instruction. They're for everything. I have a student now that has visual checklist. It's a picture of a toilet. It's a picture of the water fountain. It's a picture of food, and it is a picture of a work folder. Because he kept forgetting what he was supposed to do in the morning, was wandering around the room…Go to the bathroom. Wash your hands at the sink. Get a drink. Vote for lunch. Get out your folder. That was essential for him. He checked off all his things. His day goes on. He's doing great and does not wander around the room….Another thing. They were checking their work, and if they corrected their work, they got 100. He'd just sit there. So we had to make him a sheet: top half green, bottom half red. If you're checking your work, you get a point in the green. If you're not, you're in the red. You're in the red. You get this? It's not a good thing. You want to stay in the green, to check your work.

This teacher gave me copies of teacher-made materials for review including the visual

checklist for an ASD student's morning procedure checklist and the color-coded sheet she made

for him to self-monitor his own work completion. Consistent with research on use of pivotal

response training to increase self-regulation in natural settings (e.g., L. K. Koegel et al., 1999)

this teacher has found these self-monitoring devices to be very effective in increasing student

time on-task while reducing problem behavior.

Schedules do not have to be in the form of pictures. Many study participants reported

that written schedules are effective with older students who can read. For example Karen's

father observed that she has benefitted from a daily assignment notebook to help her get organized and have a written reminder of homework assignments. Like Karen Sam is too old for picture schedules, but his mother said that he still loves checklists that help him to stay focused and self-regulate. Sam's mother explained:

> He did a schedule. He did write one, I think it was last year. He would write one every morning and check it off. He loves checklists…You can take him to the grocery store, give him the list, [or] hiking, give him a nature list, and it's our way of keeping him engaged. Because if we don't give him something like a nature checklist or a grocery list, he sings to himself or goes into his world.

Visuals are not only used for schedules. Study participants also reported effective use of visuals to prompt desired behavior. For example one special education teacher used visual cues to help a middle school student who had difficulty with personal space visualize what "personal space" looked like, thereby improving the child's ability to read social cues. She explained:

> Another example, a youngster that was having issues with personal space. I got big sheets of construction paper, the biggest ones, and put a series of squares on the floor, purple and yellow, contrasting colors. I would have one child stand on the purple, one child stand on the yellow, to demonstrate personal space, and talk, moving the student with autism, and say, "Look at this visual. This is how much space you need." And it had to be color coded. He had trouble, would go up and get too close to people during locker time. I'd put a row of construction paper down the hall. It only lasted a day. It got stomped up, but I had that visual for the day, and it helped.

An elementary general education teacher described how she used a picture cue to prompt a student with autism to transition from recess back into the classroom, a technique that she learned in her TEACCH training. Her description of recess with two different autistic students before and after her TEACCH training is quite interesting:

> One thing that I learned about autistic kids is the whole transition issue, that it's hard for them to move from one thing to the next, and they sometimes need warning. So when we would need to line up like at recess or something, when we were outside playing, when I had my first autistic kid [before her TEACCH training] he wouldn't come line up. He would sit on the swing and keep going, or it would be like a "knock out drag out" issue to get him to line up…I just thought that it was a power struggle. And so I didn't know that I was supposed to transition him gently. And so with Bruce *(pseudonym)* [after her training] I would just go and say "OK" and I would show him the picture. This one meant "line up"…and I would show him we're going to line up in a few minutes. Then he

would watch me walk over to our spot where we lined up, and I would hold that [picture card] up and blow my whistle, and then he would come.

This same teacher used picture cues with Bruce *(pseudonym)* to prompt desired behavior and reduce problem behaviors such as frequent noise-making and interrupting. She stated, "What frustrated me was learning how to deal with the interruptions. He came with some of the impulsive things, the talking out and the singing and demanding my attention right when he wanted it. That was sometimes hard." She developed a notebook with picture cards to prompt desired behavior. "If he was singing or talking out, I would show him a picture that said 'Quiet'." She also had picture cues for "sitting in your chair," "fire drill," "not interrupting," "time to work," and "remember to raise you hand." As Bruce went on field trips or elsewhere in the school, the teacher took the picture cards with her to use as prompts for expected behavior.

This teacher provided me with a copy of the notebook with picture cards that she used with Bruce. Documents collected from this interviewee and other teachers confirmed that picture cues are commonly used by special education and general education teachers with autistic children to prompt and increase desired behavior.

Highly engaging, hands-on, active learning tasks. Study participants also reported using a variety of highly engaging, hands-on, active learning activities to provide a more structured learning environment for students with ASD. For example one general education teacher reported that one of her ASD students "really benefitted from being able to act things out or to use manipulatives to structure an answer." This made learning more concrete and comprehensible for him. Troy's mother said he has benefitted from "a lot of hands-on activities." She reflected, "I think that was very good, because he learned he could do it on his own too on some things, and that was very rewarding, whenever he knew that he could do it himself."

Several study participants observed that many children with ASD become more highly engaged when using computers and other multi-media devices to facilitate their interest and

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involvement in learning. Sam's mother said, "I think for him in particular learning on the computer is the best way to get this kid to learn." One special education teacher stated:

> Other things that we have seen to be very effective is the use of technology. This helps for several reasons. Number one is you're not interacting with another person, and many times our students with autism or students with Asperger's or on that spectrum will interact with things more so than people…computer programs…what it does is provide a highly motivating way to get to academics.

A middle school general education teacher described how he structures the learning environment by using multiple teaching methods with an emphasis on hands-on, active learning. The teacher explained that he uses a variety of teaching methods with clear structure built into the class because attention is so difficult for students with ASD:

> Concentration is so difficult. I try to use as many different teaching strategies every day as possible because I know if I get on the wrong one, that day's a waste for them. So I'll show a cartoon. We'll read from the book. I'll demonstrate something on my lab station. We'll do a group demonstration. We'll just do four or five different things every day. And so I give them that structure with OK, from here we're going to here, from here we're going to here, from here we're going to here.

This teacher observed that learning by doing is essential for students with autism because "they have to take charge of it…autistic kids have to own it. It they don't own it, they will not grasp it. It's like hot lead. They'll just stay away from it." He also noted that application to real-life experiences is critical for students with ASD. He said, "I think that is essential, not just important, it's essential for those kids. If you don't get them to believe in what they're doing, their focus just isn't there. Just is not there."

This talented middle school general education teacher facilitates learning by doing with applications to real-life experiences by structuring his class around several projects that students complete during the school year. The teacher goes a step further to facilitate student engagement by actively involving parents in their own children's learning. He gives parents and students clear instructions and rubrics for several of the projects done during the school year and provides time for parents to work with their children toward completion. For a project called "travel the solar system" each student designs a brochure describing one planet including features like

weather and physical landscape. In connection with this project the teacher has a "star party"

and invites parents to attend. Parents and children with ASD become very engaged through this

fun, hands-on activity:

> We also towards the beginning of the year…have a star party. And that's where I
> get the kids out of school on a Friday night, and we go outside, and I have about
> seven or eight telescopes, and we go look at stars. And that's another way to get
> them to say, "Oooh, that's a planet! I'm just not reading this." And again autistic
> kids are very hands-on, the ones that I've experienced. And so they want to
> handle the telescope. They want to bring in the moon and the crater, and it's just
> a great thing for them, but also their parents…The parents can walk around with
> them at the star party. They can come and participate and look at stars. And most
> of the parents, most of them have not looked through a telescope beyond, outside
> the school setting. So it's kind of neat to say, "This is Saturn."

Two other projects are centered around biomes. The teacher provides students with

rubrics for each project that have proven helpful to those with ASD. As the teacher stated, "My

experience with autistic kids is that you have to give them parameters. You have to give them a

guideline to go by." The teacher reflected how involved students with ASD get in the biome

project and how much they remember because they make real-life connections:

> They get so involved…they get to actually see, "OK, an a-biotic feature is a rock.
> I'm not just saying an a-biotic feature is a rock. I'm now putting that rock in my
> biome." So they'll come out and say, "Oooh, I found that out in my yard." So it
> connects their learning to everything that we're doing, not just the small
> picture…And what shocks you is that they do a really good job. Not that they just
> do a job, but that they do it really, really good. And what shocks you even more
> is like in the biome unit, I didn't say a word. I didn't teach anything in that. I let
> them do it own their own…they remember what an autotroph is or a heterotrophy
> is, on their own, and it just blows you away. You sit back and go, "Oh, my gosh!"

Participants in this study strongly agreed that a comprehensive, structured learning

environment is extremely beneficial for students with ASD. The content of instruction may have

look quite different in a preschool circle time than in a middle school science class, but teachers

at all grade levels have provided structure through the use of schedules, routines, visuals, clear

expectations, and highly engaging, hands-on, active learning opportunities.

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Adult-Mediated Interventions for Social and Communication Skills

A third major theme regarding parent and teacher perceptions of effective interventions for children with autism spectrum disorders was that of adult-mediated interventions to facilitate the development of social and communication skills. When asked what interventions they feel have been most helpful in developing social and communication skills in children with autism disorders, study participants placed the strongest emphasis on the value of peer-mediated interventions. That very strong theme is discussed next. However, study participants also described positive experiences with adult-mediated interventions such as modeling, prompting, and use of social stories to facilitate social and communication skills. In fact study participants described many situations in which adult-modeling, priming, and role play were combined with peer-modeling as teachers guided peers during interaction with ASD students. Adult-mediated and peer-mediated interventions were overlapping themes in this study because interviewees described an effective combination of both as the most common scenario in classroom settings. Two subcategories of adult-mediated interventions were described by interviewees as especially effective: (1) adult modeling, priming, and role play and (2) social stories.

Adult modeling, priming, and role play. Priming involves providing a child with prompts, cues, and opportunities to practice a target behavior immediately before it must be performed (Zanolli et al., 1996). During priming a teacher models a behavior for the child and gives verbal cues or prompts about how to perform that behavior. Modeling and prompting may be followed by opportunities to role play or act out expected behavior for various social situations. Adult modeling and priming can also be combined with reinforcement of appropriate responses (Zanolli et al., 1996). Study participants perceived priming with adult modeling and role play to be effective in facilitating communication and social skills in students with ASD at all age and grade levels from preschool to high school. Teachers also found adult-mediated interventions easy to implement in the child's everyday classroom environment in combination with naturalistic, incidental teaching methods.

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For example a preschool special education teacher used "incidental teaching" around a play table to facilitate social interaction with peers as she prompted children to share toys, thereby helping them learn to share independently:

> We do a lot of verbal prompts with our older kids, with social skills…We might say, "What do you need to do?" Or "Let's ask him. Why don't you ask him and see if he'll give it [a toy] to you?" We might prompt them to give them a substitute thing. We're actually seeing a lot of that without prompts now…like today for example. We had the puppets out. One of the children wanted another child's puppet, so he went and got another puppet and gave it to him and said his name and said, "Here." And so when that child put down the one puppet, he got the puppet he wanted. We're seeing a lot of that that they've learned.

Adult-mediated interventions continue to be important as children progress to higher grades. Sam's mother reported that he has never had any formal social skills training program, but he loves games like "Go Fish" and "he loves to play with other kids." When Sam was in elementary school his teacher often helped Sam and one or two other children play games like "Go Fish." The teacher sat with the group and prompted Sam's social interaction. Adult-guided play with peers worked well for Sam because it tapped his interest in games as a means of teaching him social and communication skills.

One elementary general education teacher described how he uses "teacher modeling, teacher redirection" to provide children with ASD as many opportunities as possible to practice and experience typical social interaction in the natural environment:

> It's like anything, you just need opportunities to practice. If communication is a problem, you have to give them opportunities to do that…And I think too you'll run into the whole piece where students who have autism have trouble with eye contact. They'll have trouble in terms of personal space issues…But the biggest thing is, I think for me, is to give them as many normal everyday interactions as you can get and as they can tolerate…You might have to point and pinpoint certain things you want to work on: "We're gonna work on eye contact today. We're gonna work on telling somebody, instead of getting mad and screaming in line, that we're gonna learn how to say, 'You're in my personal space. Would you give me some room? I'm starting to feel frustrated, Mr. ___.' " Learning how to use words …they have to be told how to do that. We don't just need to assume that they already know that. "Here's what you could say."

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Another elementary special education teacher laughed as she reported a humorous example of her experience with adult modeling, priming, and providing choices for an autistic student to expand her repertoire in simple social conversation:

> We would start, "Good morning, Barbara *(pseudonym)*. How are you today?"
> And she would come back with an odd answer, "Today is Johnny's Cash's
> birthday." So I started every morning, "Good morning, Barbara. How are you?
> Are you good today? Are you glad to be here today? Do you not feel good
> today?" So I started giving her some choices, and she would respond to one of
> those and choose something. And at first I thought she was stuck on "very good
> today," but I started getting some different answers. One morning she walked in
> and I said, "How are you today, Barbara?" "I started my period." Very bluntly.
> So that was again, though I had a room full of boys, that was still another big step
> for her that she relayed that information to me.

Middle school and high school general education and special education teachers were also enthusiastic about their experiences with adult modeling, prompting, and the use of role play with secondary level students with ASD. For example one special education teacher described how middle school teachers use incidental learning opportunities and teacher guidance to work on social skills with ASD students. The easy tie-in between adult priming and naturalistic teaching methods is clear from her example:

> Now when it comes to working on social skills, this is one of those things that is
> best developed informally through maybe a Scouts, chess club, natural occurring
> situations. And anytime you can have natural occurring situations, helping an
> individual process what's going on, how to take turns in conversation, how to
> make eye contact, that's what you want. Now the challenge, now the trick to that
> is there has to be some adult there at that time that can process that or that can re-
> direct, "Make your eye contact." …At middle level, every student has home-
> room, AA, a time together. And some places call it Advisor-Advisee. It is part of
> a middle school model. During that time there's activities. It could be team-
> building activities. It could be the contest for the "Decorate your door for
> Halloween," "Just say 'No' to drugs" sponsored by student council, those types of
> things. When you have a group of kids that are working toward the goal
> "Decorate the Door," "The Red Ribbon Week," those activities that typically
> happen. Those are natural occurring things with a goal, and you can facilitate
> during that time contact with other students. If that particular student has a talent
> such as drawing, you can engage that particular talent. That person could be your
> photographer to take pictures and be part of your group that way. So you can
> facilitate the interaction within those natural situations.

Two other middle school special education teachers agreed that they find it easiest to work on social skills with ASD students in the context of naturally occurring situations. Both teachers often use role-playing combined with adult modeling and priming to deal with problem situations when they occur. After giving the ASD student feedback about inappropriate behavior the teacher might ask, "How could we deal with this? That wasn't the right way to respond, so how could you respond differently?" After discussing possible choices with the student the teacher then allows the student to "try that again" and role-play other possible scenarios. One teacher described this as "the rewind technique." She gave a typical example:

> This goes back to last week – had a student get up and just jumped up out of his seat, out of his desk…The student jumped up, he was mad at a comment that another student made to him, and he knocked over the desk while he was at it, so he's making lots and lots of rumblings and gets the whole class going. And I said, "OK, let's rewind here." And that's always my cue, literally, let's rewind like we're rewinding a tape, and let's go back to what happened. "What started it? What happened?...Let's try this again. Pick some other choice. What would have been the more effective response to the comment this student made?"

After using the rewind technique and role playing this student displayed more mature and appropriate social interaction:

> [The student said] "Oh, I'm sorry. I'm sorry. OK, let me try this again." And to hear the "I'm sorry" is huge in expressing emotion…And very often it's just literally just a matter of "OK, I'm back in my desk. I'm going to stand up now and turn around and say, 'The thing that you said did not sit well with me.' " Those were the exact words: "Did not sit well with me."

Social stories. In addition to adult-mediated interventions such as modeling, priming, and role play, all three study groups also endorsed the effectiveness of social stories for teaching social skills to children with ASD in the preschool and elementary grades. Social stories are brief stories that describe a particular social situation and provide information about expected behavior in that situation, the viewpoint of others, and steps for implementing appropriate social skills (Gray, 2000; Gray & Garand, 1993). Social stories are designed to address autistic children's deficit in reading social cues and comprehending social situations from the perspectives of others. This deficit causes difficulty knowing what to do and how to act

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appropriately in various social situations (Machalicek et al., 2008). Teachers and parents in this study found social stories easy to implement and very effective for teaching social skills and appropriate social behavior.

A preschool special education teacher said she frequently writes social stories for children in the Early Childhood Intervention Program and shares them with parents for use at home. Among the documents this teacher shared with me were numerous examples of social stories she has written herself or gathered from other sources (e.g., Gray, 2000). Because she is also system-wide Autism Coordinator, she had also shared social stories with other teachers throughout the district to use with autistic children on topics such as keeping your clothes on, asking for help, what to do at recess, how to be a good friend, trying new foods, keeping hands to yourself, what to do when the teacher is talking, what to do when someone bumps into you, and how to greet someone.

The preschool teacher has bound several of her social stories in small books for students with pictures or photographs on each page. Among the documents this teacher shared with me was a social story she wrote addressing pinching behavior. It had photographs of the target child on each page so that he could visualize himself practicing alternative behaviors in situations when he normally would pinch peers. The social story went like this:

> No Pinching! I go to school at ____. I have lots of friends at school. Sometimes one of my friends cries loudly. Sometimes crying hurts my ears. Sometimes I pinch my friends when they cry. Pinching hurts! I cannot pinch my friends. When one of my friends cries, I will cover my ears or put on my earphones. I will move far away. Covering my ears and moving away is the right thing to do. Covering my ears and moving away makes my friends and teachers happy.

This teacher has also written social stories for getting a haircut, a situation in which many of her autistic children have meltdowns due to tactile hypersensitivity to the feel of wet hair and the buzz of the razor on the head. Right in the middle of my interview with this teacher, the father of one of her students came bounding into the classroom with his young son to proudly announce that the child had just gotten his first haircut without a meltdown and that his social story had worked! Naturally we paused our interview so that the teacher could chat with the

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parent and praise the little boy who showed off his new haircut. After the parent and child left, I

asked the teacher to tell me what it felt like to have this father and child come in just to share

their success in getting a haircut without a meltdown. She responded:

> Oh, it just makes me feel so good. Because I feel like…it depends on the kids,
> but sometimes steps are so small. It makes me feel good. It makes me real proud
> of him, because he is one that that's been an issue with since I've had him.

Parents who participated in this study have clearly appreciated the social stories this

teacher and others have written for them to use. In fact Brent's mother said that he still uses his

social story for haircuts. Troy's mother appreciated social stories teachers have used with Troy

on "sharing, taking turns, and also potty-ing" and "getting in each other's space."

Ross's mother described a social story that has been helpful in restaurants in keeping

Ross from "getting up, thinking he could get up and run around." She explained:

> We had a problem for awhile in restaurants where he would want to get up and
> run around. I don't know if she [the teacher] wrote it, but she gave us a book she
> had made that was a social story about what we do when we go to the restaurant,
> how we sit down and wait and eat. We read it to him. I really think it helped…
> We would read it some at home when we weren't going just so he was kind of
> familiar with it. But then before we were going we would try to read it, and in the
> car we would let him have it.

One elementary special education teacher described a social story she wrote for an

autistic child who was "a biter." One day as the teacher was walking holding the child's hand,

the little girl bit through the teacher's jacket. The teacher laughingly said, "So I have a little scar

to always remember her." The teacher wrote a social story for the child and even included

"pictures of me getting a shot, just to make her aware." The social story reportedly "worked

well," and the biting stopped.

By far the most amazing and moving account of using a social story with an autistic child

was shared with me by an elementary special education teacher. We were both in tears by the

time this interviewee finished her story, and it still touches me to think about it. Neither of us

could imagine that something like a simple social story could have possibly helped in a situation

as dire as this one, but it did. The teacher had an autistic student whose mother was dying with a

terminal illness. (The child has subsequently moved out of state and personal identifiers have been changed.) The child was cared for by her grandmother during her mother's last months. As a child with autism the little girl could not really understand what was happening, where or why her mother was going, or what would become of her. She began to act out with inappropriate behavior at school such as hair-pulling and foul language. This story is best told in the teacher's own words:

> With Sally *(pseudonym)* who lost her mother to _____, the mother had been sick and in hospice for several months. And the child was with grandmother, and they would go visit the mother. The child could tell you, "I need to go to the bathroom." "I need" this or that. But when you asked, "How do you feel?" or "What's bothering you?" she was unable to tell us that. There was hurting there, but she didn't know how to say, "I hurt. I'm sad. This bothers me." Instead we started getting foul language. We started getting hair-pulling, just smacking out, aggression. So we wrote a social story: "This is Mom. Mom's in the hospital. (She understood that.) I can go see Mom. Mom is sick." So we kind of through the process did it more, "I can go see Mom. Mom is sick, but the doctors are helping Mom to not hurt." Because we knew at that point that there was not going to be a healing, but it was just a matter of days, weeks. So the way we ended that social story was, "Grandmother is there, and Grandmother is good, and Grandmother is healthy. Grandmother is going to take care of you, and you go back to that safe place after you visit Mom."

> So that's the way we tried, because we felt like what we were getting with the aggression was that there was some fear coming out. Mom's going away. What's going to happen to me? And after we worked with her and read the social story several times with her, she told the Grandmother at night…we communicated daily and she [Grandmother] called, and she said, "Sally told me last night she didn't love me. She said, 'You're not my mom and I can't love you because my mom is not dead. But when my mom is dead, then I can love you.' " And I could not believe it, because really if you think that is pretty deep thinking for a child with autism. That's deep thinking for a child period. "I can't. I still love my mother, and as long as my mother's here, I'm going to continue to love her. But once she's gone, then I can love you." And she continued with that train of thought, and on the day that her mother did die, then she went back to that grandmother and said, "Now I can love you."

I asked the teacher what effect the social story had on the child's behavior at school such as the foul language and hair-pulling. She continued:

> It improved significantly. We kept the social story. We put it in a little folder. She kept it in her book bag. She would take it home, and the grandmother said she opened it and would read it every night right before she went to sleep…They

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had a doctor's appointment. She was just in this tizzy because she couldn't find her book bag. "Well you don't need your book bag. You're not going to school. You're going to the doctor." "No, I have to have my book bag." Well she carried the social story with her to the doctor. And when the doctor was talking to her and trying to basically tune in on emotions and how are you handling this, she pulled out her book to show him, "This is how I'm handling this. Here's what's going on." So that social story, even though at first I kept thinking, "I don't think this is going to work. We're dealing with a much deeper, more involved situation than this little story is going to help this child with." But I was wrong. I mean, it was just amazing to me what that little story, how far that carried that child. It was so amazing. Her mother died on _____, and she continued with that [social story book] even though her mother had passed away, through Christmas I guess. Once we returned from Christmas, I never asked. I didn't ask another question about the social story book, but I never saw it again. She didn't bring it back to school, and it was over.

After hearing this teacher's extraordinary experience, it does not surprise me that the National Autism Center (2009) has identified the use of social stories as an "Established Treatment" in increasing interpersonal skills and self-regulation in children with Autistic Disorder and Asperger's Syndrome. However, I do wonder how often in their review of the literature the researchers came across an account like this one of a child with autism being helped to cope with the loss of a parent and issues of death and dying by a simple social story.

Peer-Mediated Interventions for Social and Communication Skills

The effectiveness of peer-mediated interventions for facilitating social and communication skills in children with autism spectrum disorders was one of the strongest themes to emerge in the current study. All 21 interviewees whole-heartedly endorsed this theme. In particular parents, special education teachers, and general education teachers discussed the benefits of peers as partners, peers as trainers, and peers as tutors in facilitating reciprocal social interaction, play skills, language, and social skills development among children with ASD.

The research literature on peer-mediated interventions can be grouped into three major categories: (a) peers as partners that involves placing typically developing children in close proximity with children with autism but no special training or adult prompting for the peers; (b) peers as trainers that involves adults giving peers specific teaching, guidance, or prompts for how

to prompt and reinforce social behavior among children with autism; and (c) peers as tutors for children with autism or co-tutors along with autistic children in academic-focused sessions (Machalicek et al., 2008; Weiss & Harris, 2001). Participants in this study described positive experiences with all three types of peer-mediated interventions.

Peers as partners (*in vivo* modeling). Peer-mediated interventions that rely upon peers as partners involve placing typically developing children in close proximity with children with autism disorders, thereby providing naturally occurring opportunities for social interaction (Machalicek et al., 2008; Weiss & Harris, 2001). Typical peers provide *in vivo* models of age-appropriate social, communication, and play skills in their everyday interaction with their classmates with autism. This type of peer-mediated intervention was frequently described by study participants as effective in increasing social and communication skills among children with ASD due to the power and influence of peers as models.

One elementary general education teacher reflected upon the benefits of peer modeling in an inclusion classroom:

> Well, again I believe inclusion with social skills, anything that deals with social, I
> believe kids being around kids is the main thing. They watch them. They want to
> be around them more than me sitting there modeling or reading a book about it, or
> a computer program, or anything like that, is if they actually see a kid sitting in
> the chair doing work, they're going to want to mimic that behavior.

A middle school special education teacher remarked, "At middle level peers are powerful because that's who, peers talk to peers. The adults – they're not popular at that point. They're not as cool. So peers are very powerful, and you want positive role models."

An elementary special education teacher observed the powerful influence of modeling by typical peers for increasing social and language skills among severely disabled autistic children in a self-contained program:

> They model their typical peers. And if they do something inappropriate, when
> their peer tells them they shouldn't do that, it seems to mean more to them than
> when I say it. Like I have one young man that curses, and he does it to see what
> kind of reaction he'll get from people. And he has some boys, two boys, they're

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as big as him, they're his buddies, and they will tell him, "Bill *(pseudonym)*, you're not supposed to use that word." And he'll get real quiet, and he won't do it again when *they* tell him.

One elementary special education teacher put peer modeling at the top of her list of effective interventions for children with ASD. She described the "huge gains" she has observed in children with autism as they model typical peers, who often become best buddies:

> I put them with peers that are nondisabled or with learning disabilities but average intellectual ability. And I see *huge* gains in social and language in these children just because they're able to watch how someone else handles this situation. And the bond is wonderful that is made with a peer. Not just someone to take care of me. I'm going to venture out into the world outside this classroom with my buddy. But they watch, and they watch that some things are funny, and that it's appropriate sometimes to laugh out loud, and it's appropriate sometimes to be sad or to be angry. They see all of these emotions and how to talk with someone and they hear. Last year Sally *(pseudonym)* kept using "BFF." And she would come back from lunch, and there would be a couple of different ones would walk with her in the group. She would come in, "That's my BFF"…I know PECS is wonderful. I've been in that training. But based on my own personal experience as a teacher, being with their peers is the biggest.

Brent's mother confirmed the strong influence that typical peers have had on her son as models for social and language skills development. Through a "reverse inclusion" procedure Brent's preschool Early Childhood Intervention Program class spends part of the day with typical peers from another preschool class. Brent also goes to daycare with typically developing children after school. His mother stated, "So between that time that he spends with them [typical peers] at school and at daycare, it was just a great combination because he sees other children and kind of models them."

When I asked her what had been particularly helpful in developing Troy's language and social skills, his mother replied, "I think being with others and seeing normal, well, let's not say 'normal' but typical kids." Gordon's mother also described the benefits of interaction with regular education students in developing Gordon's social skills. If he starts doing something that is a problem in the classroom, his peers tell him, "You need to do this; stop doing this," and Gordon often complies. His mother has overheard Gordon at home re-enacting social interaction and play skills modeled by typical peers at school:

At home he would play act a lot. He was himself, but he would talk and be another person, and it was always a person in the regular ed classroom. He would play what they had done that day or the day before. And he would say exactly what that regular ed person said to him, the student in regular education.

Sam's parents said that "other children" have made "a huge difference" in helping to develop his communication skills and social skills, simply because "he likes to be around them" and "really try to chat with them." Although Sam primarily participates in a self-contained special education program, he attends general education inclusion classes for related arts. His mother has really appreciated the fact that typical peers have been such friendly, accepting role models for Sam in middle school:

He has spent more time with [typical peers] when he's in PE and art and all that. They've been really good about having those typically developing kids spend time around him. And I've noticed when he goes into the building, if I'm there you hear everyone, all those children, anyone that sees him will say, "Hey, Sam, how are you?" And he loves that. Loves, loves it… And I know he probably makes them crazy, those kids, but it makes such a big difference…And that was one concern that I had because he went to all these elementary schools, and then he went to the middle school that he's zoned for. And so I was afraid that there would be a lot of kids that just weren't used to him, didn't know him, but it was not a problem at all.

Karen's father said she has acquired many social and language skills by modeling and mimicking her brother, a cousin, peers, and even movies and songs. Like many children with Asperger's Disorder, Karen has normal language development, but she has difficulty with the pragmatics of language, reading social cues, and carrying on social conversations. Her father explained how Karen has acquired social conversation skills by modeling her peers:

She's a great mimic, and she remembers things. They'll watch a movie. She can pull lines out of a movie. And they kid and joke. And I started noticing her picking up, after she got out of grade school into middle school, she started picking up and she could chat and carry on a conversation. I think she was just mimicking them…and she will hear somebody say something, and then she can repeat it and say it and try to use it in the same setting.

Peers as trainers. Study participants did not describe any specific training programs for peers of children with ASD. However, teachers did describe numerous examples of ways they

facilitate peer modeling by providing specific prompts, cues, and guidance to typical peers during their social interaction, play, and cooperative learning with autistic children.

One special education teacher described how adults work with typical peers to provide guidance and prompts for reciprocal conversation and cooperative learning with autistic classmates:

> One thing that I think is helpful is if there's another adult in the classroom, so that that adult and the student with autism and just typical kids can sit down at a table and work on things together. Then that adult can be the person that helps facilitate that. And that can either be an inclusion special ed teacher, or that could be the attendant if the kid has a one-on-one attendant. But that small group working on projects within the classroom, cooperative learning groups, those help that. It could be modeling, or repeating what a peer has said. "Oh, Johnny has said that this weekend he is…What are you going to do? Why don't you tell Johnny that?"

Another special education teacher described how she trained a small group of children to model simple conversational skills with an autistic classmate in an elementary resource room:

> I worked with a certain group of kids: "When she comes in, I want you to quickly go to her, ask her how she is." And we would model some of those social things. And then Sally *(pseudonym)* would in turn after awhile say, "Fine, thank you. How are you?" Some of those appropriate things to say.

Sally's peers also played an important role in helping her to avoid inappropriate language. Her teacher laughingly related a rather hilarious example. To fully understand the humor in this situation, one must imagine Sally with a dead-pan face, speaking in the robotic, monotone voice that is characteristic of many children with autism and simply not "getting" the social cues in the situation but willing to allow her peers to help her out:

> With inappropriate behaviors, last year with Sally *(pseudonym)* using the foul language…she came in and said, "Damn it to hell. I'm not going to art today." *(laughter)* I was shocked. After I felt like I picked myself up out of the floor, I said, "Excuse me." "Damn it to hell. I'm not going to art today." And that was the beginning of the foul language that we started moving through. And I had to stop, "OK, do I want to address the foul language, or do I want to address that she doesn't want to go to art? Which one of these do I address?" So I chose the foul language, and I said, "Sally, your friends don't want to hear you use words like that." And she turned around and looked at all of them, "You all don't want me to say 'Damn it to hell?' What about 'shit'?" So she is going to go through the list of what she knew to see if any of those were going to be appropriate that they wanted to hear…Of course they all laughed. They quickly turned so they could

laugh and her not know it. But that was important for her, for her friends, because she had some really good friends in here…They would say, "Just say you don't want to go to art." "Just say, 'I don't want to go to art.' " And they would model for her what to say.

A peer model does not have to be a typical peer from an inclusion classroom. For example Ross's mother said that Ross and a friend in his preschool special education class "really like each other and hang out, and they have a good time... he and his little buddy love each other." Playing with this buddy has stimulated Ross's social interaction and play skills. Troy's mother said his aide developed a buddy system for Troy and another student who would "just look over him and kind of guide him and help him." The adult provided direction and guidance for the peer as he engaged in play or academic work with Troy.

One middle school special education teacher described how adult-guided peer-modeling has "honestly been one of the most effective pieces of instruction that I've provided this year" to increase social and communication skills among students with ASD in a resource room setting. She provides time at the end of every class for students to engage in dialogue and conversation with each other while the teacher watches, listens, and intervenes to help them with what is "very often broken language." She added, "I'm modeling, I'm listening, I'm taking in their data, and then I'm throwing it back to them." As the year progressed the teacher was able to step back and let the peers model more because students were "correcting each other" and "finishing sentences for each other now." She concluded, "Their peers are their best teachers right now...they feel like they're teaching each other now. I'm backing off as the adult. It's tremendous. They're all coming together and kind of helping each other."

A high school general education teacher described a peer buddy network she developed to provide social support for a secondary student with ASD. This particular student required a one-on-one assistant to accompany him to and from classes, the bathroom, and lunch. This teacher was already doing group work in the classroom and recognized that peer modeling was helping to foster Frank's *(pseudonym)* social skills. To further increase opportunities for social interaction with peers and allow the aide to pull back, the teacher sent Frank out of the room one

day and developed a circle of friends to take turns walking with him from lunch to class. She explained how the peer network benefitted both Frank and his classmates:

> So what I did was we sent Frank out, and his aide took him somewhere, and then I told the class the situation, and then people volunteered while he was out. So when he came back I told him, "Hey, Frank there are a lot of people that want to walk back to lunch with you." So on every Monday we would pick all through the week who it was going to be. And it would be, "I'll do it. I'll do it." So it looked natural. So I wasn't assigning, "You go." He felt his friends were picking, were choosing to be with him. And the kids loved him. In fact that class bought him a T-shirt and they all signed it. They loved him, and there was no problem…And I learned how to deal with things that always made it seem in a positive light just like that. "OK, who wants to walk with, come back with Frank?" And "You can't keep these girls away!" And it was always pretty girls. So that didn't hurt. And that would be the first thing on Monday, "Who is going to walk with me to lunch?" And we would pick for the whole week.

Peers as tutors. In research on peer tutoring typically developing peers provide tutoring or assistance to children with autism in some academic area. The underlying assumption of using peers as tutors is that the child with autism will develop social skills during academic tutoring or cooperative learning groups because social interaction is involved (Machalicek et al., 2008). Participants in this study described the important role that peers often play as tutors for children with ASD in cooperative learning situations.

One of the most popular and effective instructional strategies used by teachers in schools today is that of cooperative learning whereby children work collaboratively in small groups using a variety of learning activities to improve their understanding of a subject (Marzano et al., 2005). Teachers in this study observed that cooperative learning groups provide students with ASD particularly rich opportunities to develop social skills when they are grouped with nondisabled peers for academic activities. Typical peers often provide direct tutoring and informal assistance to autistic children during cooperative learning tasks thereby stimulating acquisition of social and academic skills in their autistic classmates.

For example one middle school general education teacher discussed how he facilitates cooperative group learning in his science classroom by consciously pairing autistic students with peers with whom they are comfortable.

> I try to pair the kids up, the autistic kids with peers that I knew they were comfortable with. An autistic kid with his peer, if they're comfortable with them, it's like a best friend. They believe them. It's the gospel when they tell them. And so when they get together, they have that collaboration of "Hey, I'll do this if you'll do that."

> You can see in my room, I don't have desks. I have five tables. I have seven lab stations. Kids don't do stuff on their own…they work together collaboratively on a lot of stuff. We're doing a chapter review today, and I let them work together. Most sixth graders love the autistic kids. They're not mean. They're not vindictive. They just are who they are. So kids love them. So they're willing to work with them, and most autistic kids love science. The bugs and the planets, they really eat that up. So they have a lot to give back in the group.

Karen's father observed that she likes learning activities when teachers have students "help each other." He stated, "She really likes doing that, working together." He also observed that Karen likes tutoring her peers as much as she likes being tutored.   He said, "She loves teaching. I guess students can teach each other better sometimes if one of them understands something."

An elementary special education teacher who teaches a self-contained special education class for students (K-3) with multiple disabilities and severe delays (including severe autism) described a very successful peer tutoring system that she has implemented using typical fourth and fifth grade students as peer tutors for children in her class. This teacher works with the general education fourth and fifth grade teachers to train and supervise the peer tutors. These fourth and fifth grade students work with individual special needs children once or twice a week on simple academic and adaptive skills. The special education teacher perceived peer tutoring to be extremely helpful in increasing her students' social and communication skills. She also described benefits for the peer tutors:

> I use the peer tutors for their Portfolios, and that works real well. The typically developing children love doing it. We come in here, and we go to their classrooms. We've done it both ways, and I try what works best for the teachers,

the regular ed teachers…I think it's really great for their social skills, and it's really good for their communication. I'm not sure so much that it's gonna make a huge difference in their cognitive skills. But the point really for me is not for them to make a big cognitive jump. It's to have been with their friends…Those kids [the peer tutors] love it. They love it. Yeah, sometimes to the point like, "Gosh, he went yesterday He's already done this. How come I'm not getting to go?" Yeah, they love doing it. And they're always saying, "I want to go down to Mrs. ____'s class." And the kids are very comfortable just coming in here.

Inclusion with a Balance of Direct Services

Consistent with their strong perceptions of the effectiveness of peer-mediated interventions, study participants in all three groups also endorsed the importance of inclusion of students with ASD in general education settings to provide access to modeling by typical peers. Many parents, special education teachers, and general education teachers specifically said they believe inclusion opportunities are an "essential" component of effective educational programs for children with autism spectrum disorders. However, interviewees in all three groups also perceived a need to maintain a balance between inclusion and direct special education services for children with ASD. Although participants in this study were proponents of maximizing opportunities for inclusion, they did not generally favor a full inclusion model. Instead all three groups emphasized that the appropriate amount of inclusion for individual children with ASD varies depending upon the severity of the child's autism and individual needs.

All parent interviewees affirmed the value of at least part-time inclusion in general education settings to provide their children with opportunities to model typical peers. For example Gordon's mother described how he has benefitted from inclusion opportunities that began in the Early Childhood Intervention Program. She stated:

I would say another thing that helped him, they [the ECIP program] did the inclusion where they had the special ed kids and the regular ed kids together, and I really do think that helped him. Also, in the afternoons after preschool he would go [in extended day care] with the typically developing peers, and I think that really helped him.

Ross's mother said in the coming school year, "We're going to start him out completely in the kindergarten, and I like that." When I asked her what she sees as the advantages of a

general education inclusion setting for Ross, his mother replied, "Well, just seeing what all the other kids do. I don't always see that he's really studying them, but I think he takes in more of the environment than I think, and just for the social skills."

Troy's mother voiced similar feelings about the benefits that inclusion has afforded Troy. She said, "I think it plays a good, important role for him. Also I think he feels a part, because he likes friends. He'll say, 'I'm going to see my friends.' He wants friends, and so that's important to him." Troy's mother also discussed the need for a balance between inclusion and more direct services. For example during the past year Troy began to struggle in math in the general education setting because the math curriculum was very language intensive. His mother explained:

> As math has changed in the system and it's more writing, like why this problem is, or how do you solve this problem, that has been a challenge this year. Because with a child with autism, sometimes they can't express – they know how to get that problem, but they may not know how to express how they got it.

Troy's educational program was modified to increase his instructional time in a resource setting using a less language intensive approach in math. Troy's mother remarked that it had been "a big challenge this year" finding that balance between inclusion and direct resource room services. She concluded, "So you've kind of got to balance all that and see how your child responds, and it may be a trial run."

All eight special education teachers endorsed the value of inclusion for children with ASD to the maximum extent possible based on individual need. For example a preschool special education teacher explained the benefits of what she called "reverse inclusion" in the preschool Early Childhood Intervention Program:

> Basically what we do is four of my kids will go into a class of typically developing children. And usually seven or eight of theirs come to mine because their class is a little bit bigger. And we just do four because they're having to handle four kids, and then seven or eight of theirs will come into my class. We switch off kids. Sometimes, especially this year, it's been social skills and trying to get them to come in and interact…Sometimes we do an activity all together…That's a thirty minute switch-off, and then we also do our outdoor playtime together. On the playground, in the gym…we might go on a nature walk

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together. We might do a big activity together, and all our school-wide activities are together. I just think it's so good for our kids. I think it's good for the other kids too. I just think it's so good. I love it.

One elementary special education teacher who provides direct services in a resource room setting remarked that peers are her "biggest card to play," so she constantly strives to prepare autistic children to enter inclusion classrooms. She explained:

> So that's where I set my goals now with a student with autism. Are they ready? Have they been out before? No, we're going to work on that. We're going to set out little goals. We're going to set our small steps, and we're going to try to get there…but there needs to be a part of the day where they're either going to the regular kids or the regular kids are coming to them, because that is so important. That's what I've experienced, to help them learn those social skills, to help them learn those language skills, to help them understand, like the BFF. That was great. She [*Sally*] picked up on a socially accepted thing, and she would never have picked up on that in a self-contained program.

This teacher gave another example involving an autistic student who progressed from a self-contained special education class where she had no exposure to typical peers to full inclusion for academic classes and winning honors in a district-wide spelling bee. The progress of this particular student provides a particularly astonishing example of the benefits of inclusion for a child with autism:

> The first student that I had, Barbara *(pseudonym)*, had never been out of a self-contained program, had never been to lunch with peers without disabilities, had never been to the library, art, PE, any of those things. And engaging her with those peers and as we moved along, I realized quickly math was a strong point for her. She could really, really do well with math. So I thought, "You know what, I want to try her in the classroom and see and send in one of my assistants with her." So we did that. And I had to put a lot more tools in my tool box at that point because things started popping up that we weren't prepared for. But by the end of the school year that young lady was fully included in all academic classes. Her home base was still with me. She needed that homeroom time to get unpacked, to get her day organized, to know exactly what the schedule was going to be, things like that. And she won the spelling be at our school and went to the system-wide spelling bee. If I'm not mistaken I think there were twelve students left when she had to sit down. That was just amazing.

One middle school special education teacher described the important role that inclusion plays at her school in facilitating social skills and hands-on learning opportunities for students with ASD along with a push toward greater independence in preparation for high school:

> The students who are in inclusion classes…the benefit is the social…There's a lot of hands-on learning as well as the social interaction with peers which is so important in the inclusion. But the other piece of the inclusion is that it's pushing their boundaries a little bit. And they need to have their boundaries pushed, within certain boundaries, especially at this age. We've got to start thinking about ultimately in three years they're going to high school. And that is always out there, that thought process with everything that we're doing now starting in sixth grade is the fact that in three years, short years, they're in high school and pretty much on their own…Had a discussion today about a student that we were thinking, "Does this student really possibly need to go back to self-contained, or does he need to stay within this resource inclusion?" And we answered our own question. Getting him ready is huge. It's huge. I do fully believe that.

All six general education teachers reported positive benefits of at least part-time inclusion in general education settings for children with ASD to maximize opportunities to model typical peers, particularly in communication and social skills. For example one elementary general education teacher exclaimed, "I'm a big huge fan of inclusion. And that's my biggest thing." She elaborated:

> Inclusion I think helps kids with autism with their communication skills more than any program you can purchase by incorporating any of those kinds of things. Having a child in your classroom all day long with other kids whose verbal skills are functioning at average or above average levels just teaches them, and you don't have to do anything. The kids help teach the child.

Another general education teacher described the need for a balance between inclusion and more direct services:

> Inclusion is great as long as the child is safe, as long as the teacher can instruct. It is by far the best way for that child to get the interactions that they need and to see good interactions and sometimes to have interactions that are like, "Hey, they shouldn't have done this to me, how do I handle it?" But I think inclusion is important. I think you've got to have the right amount of pull-out to balance that, if anything just to give them a little bit of a break, that they're not all the time under the microscope all the time trying to get things done.

Study participants in all three groups voiced consistently positive perceptions of inclusion as an effective intervention for children with autism disorders and the need for a balance of inclusion and direct support services. However, study participants in all three groups voiced strong feelings that adequate support staff must be in place to facilitate inclusion in order for this intervention to work smoothly and effectively for students with autism disorders.

Adequate Support Staff to Facilitate Inclusion

The "least restrictive environment" provision of the 1997 and 2004 reauthorizations of the Individuals with Disabilities Education Act (IDEA) mandates that children with disabilities have the opportunity to be educated with nondisabled peers to the maximum extent appropriate. Supplementary aids and services must be provided as needed to enable students with disabilities to achieve educational goals in the general education setting to the greatest extent possible (IDEA, 2004). The requirements of IDEA have resulted in a nation-wide trend toward greater inclusion of all children with disabilities including those with autism spectrum disorders in general education classrooms. Because of the nature of their disability and associated challenging behaviors, children with ASD often require a higher level of support, individual assistance, and adult supervision to function successfully in a general education classroom (Simpson et al., 2003).

Simpson et al. (2003) specified in their Autism Spectrum Disorder Inclusion Collaboration Model that the availability of appropriately trained support personnel is essential to the successful inclusion of students with ASD in general education settings. However, these researchers concluded, "It is not appropriate for paraeducators to exclusively and constantly be assigned to a student with ASD for the purpose of translating teachers' instructions and implementing all programs" (Simpson et al., 2003, p. 120). Although there will be times when the student with ASD needs paraeducator assistance to focus and practice new skills, the student should be allowed to work independently when possible while the paraeducator circulates and supports other students in the classroom as needed (Simpson et al., 2003).

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The critical role that paraprofessionals play. The need for adequate support staff to facilitate inclusion emerged as a major theme among all three groups in the current study. In particular all three groups emphasized the critical role that one-on-one assistants and other paraeducators play in this regard. For the most part interviewees agreed with the inclusion model proposed by Simpson et al. (2003) whereby paraprofessionals should be available to assist children with ASD in inclusion settings while also remaining free to assist other children in the class as needed.

Troy's mother reported that he has a part-time one-on-one aide whom he shares with another child when he goes out into general education classes. Troy spends part of his day in a resource room setting and part of the day in an inclusion classroom and related arts classes. Troy's mother said that a one-on-one assistant has been essential in helping Troy with "academics, like math or reading; you about had to have that one-on-one to kind of coach him." The assistant reportedly helps Troy focus on his work, and if Troy has a meltdown she removes him from the class briefly so that he is not a disruption to others. I asked Troy's mother is there has been any downside to the one-one one aide or if the assistant has ever been a barrier to Troy's interaction with the other children or the classroom teacher in any way. She replied:

> No…she is just kind of in there in case he gets out of line or to help him with his work or something. [She will] pull back, yes. To have that equal balance and everything. And that's good because you don't want him to be dependent on her. And so she does, I'm very pleased, she does give him space also to make friends with the teacher and all…He's right with the class, and she's just kind of right there to be next to him in case…I have been happy with that…she's kind but yet she's firm...to let him know that he has to do his work.

Sam's mother reported that he has never had a one-on-one aide, but teaching assistants have been essential to help with "direct instruction… keeping him on-task, and sometimes calming him down." Sam's mother said he does not learn well in a group because "he is so distracted by others…Sam is just completely drawn. It's very difficult for him to focus on any task." Teaching assistants are also essential "to help him walk to the restroom, walk to any class, walk to lunch. He has to have an adult with him for safety." Sam's mother explained how

pleased she has been with his paraeducators and said, "He bonded with those women…he loved them. He called me by their names sometimes. So they have been very special people to him. We keep in touch with these ladies. They keep up with him, and it's very important."

All six general education teacher interviewees agreed that it is essential for them to have adequate support staff to facilitate inclusion of children with ASD in their classrooms. One elementary general education teacher described the help that a teaching assistant provided to her and an autistic student in an inclusion setting:

> I also had a teaching assistant that would come in for so many hours a day that would help. They weren't there all the time, but I gave them a place to sit next to him [the autistic child] to be able to work with him and guide him through things. That really freed me up to be able to include him in a whole class scenario. If we were doing math games or something like that where we were doing partner work and I needed to get around to the rest of the class, having a teaching assistant in there made it easier for me to help him work with other kids on a concept.

This teacher said that the teaching assistant was responsive to her as lead teacher, followed her instruction, and did not impede her relationship with the child in any way. She did not observe that the child became too dependent on the assistant, and she did not think he could have functioned in the inclusion setting without this support.

General education teachers agreed that not all children with ASD need a one-on-one assistant. However, one elementary teacher said there are cases "where I don't think we could have done without them." This teacher explained:

> In general I prefer to have students without an assistant with them. I mean really, they've got to be a part of the classroom. If they've got somebody sitting with them the entire time, that can cause some issues. And plus they've got to know they can do it. But in this case this student had a lot of issues being able to sit still. This was the student I was talking about in terms of the scissors…I mean she would literally walk through the room and if she found something in a desk …[there were] safety issues. And running was another issue with this student that she would actually exit the room, not angrily, just get up like "I'm done. I've done all I can do today. I'm out the door." For this student just getting them in the regular ed classroom was a huge step…But without the assistant the problem would be, if you didn't have the assistant in this case, you would spend all of your time with that student and no teaching would occur. So in this case it was a safety issue and just needing to get instruction done.

Special education teachers voiced similar views to those of parents and teachers. They agreed that not every child needs a one-one-one assistant but that a teaching assistant in the classroom is often essential to facilitate inclusion. One special education teacher voiced typical views regarding the critical role that assistants play in inclusion classrooms:

> I think we need more [assistants]…I don't think it's needed for everybody, and I don't necessarily think it has to be one-on-one. I just think there needs to be more assistants in the room when you have a child with autism in the room…Because a lot of the problem is with focus. So if you can teach a child to focus I think they can learn so much more. And I think that's frustrating to the teachers…to facilitate inclusion, to get that focus.

The teacher's relationship with the paraprofessional. Study participants clearly perceived that paraprofessionals provide valuable assistance to general education teachers in inclusion classrooms. However, study results also suggested that a positive experience for the general education teacher, the autistic child, and the paraprofessional is heavily dependent on the nature of the working relationship between the general education teacher and the assistant. Two general education teachers in this study reported diametrically opposite experiences with one-on-one assistants that beautifully illustrate this point.

One middle school teacher had an autistic student who "really needed" a one-on-one aide in the general classroom because of the severity of his autism and inattention. I asked this teacher if the aide was a barrier to him or his relationship with the child in any way. He replied:

> No, because I really think the key to teaching is having effective relationships, and that goes to everybody, not just the kid but the assistant. So at the end of every school day I would get with that person and say, "OK, this is what I'm doing today. OK, let me give you a copy of it." So they'll have an understanding of what's going on that day. So they were part of the learning process and not just someone to direct it…Now there are times that I'll go back and I'll tell the assistant, "Just walk away. Give him five minutes. Let's see how well he does." Sometimes it's good; sometimes it's not. But again I get back to that trial and error with autistic kids…because autistic kids will become very dependent on someone that helps.

By contrast an elementary general education teacher said that she did not have a good experience with a one-on-one assistant of an autistic child in her class. When I asked this teacher

how she felt about the presence of the ancillary assistant, she described the tension that resulted

from lack of clear communication about their respective roles. She explained:

> I think it was detrimental. It was very interruptive because not only did Johnny
> *(pseudonym)* exist in his own universe, so did that teaching assistant. And
> whatever was a priority for Johnny at that moment behaviorally or academically,
> it came first and everything else had to fit in and flow around that…If there was a
> point of contention that needed to be clarified or straightened out [with Johnny],
> that would be done verbally over my instruction, small group instruction, another
> child, what have you…They were in their space, and their space came first. This
> classroom setting didn't come first. This classroom schedule didn't come first.

This teacher was frustrated because she did not feel free to direct her own classroom, and the

teaching assistant did not follow her lead. I asked her, "What would a good situation look like

for you? No assistant? An assistant who works with other children in the class? Did you need

the extra pair of hands with Johnny? Could you have dispensed with her altogether?" The

teacher responded:

> No, I don't think that with a child as involved as Johnny was that you could
> dispense with the aide altogether, because primarily for him I think it was an
> auditory issue. And there would be something that would happen that would
> spark and set off and upset, and he would have a meltdown and he needed to be
> removed…But until that challenge erupted, I believe he would have really
> benefitted if that assistant had been seen as more of a participant in the whole
> class rather than just "by my side and at my elbow." I think it was very confusing
> for the other children as well. They did not understand her role because if she
> wasn't actively engaged with him, then she wasn't doing anything. And they
> didn't see her as a resource for them. They didn't see her as someone who was a
> participant in the room. But from time to time she would take it upon herself to
> behaviorally redirect them. And so they were confused as to, "Should I listen to
> this person or not?"

The contrasting experience of these two general education teachers highlights the

importance of establishing clear boundaries, expectations, and roles for ancillary assistants. The

middle school teacher was clearly the ASD student's primary teacher, and the aide followed his

lead as they collaborated daily about lesson plans. The aide also followed the teacher's

instruction to "walk away" and help other students when possible. This teacher and his aide

enjoyed the kind of working relationship favored by Simpson et al. (2003) in their Autism

Spectrum Disorder Inclusion Collaboration Model.   The opposite result occurred in the

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elementary teacher's classroom where Johnny and his one-on-one aide functioned in the "bubble" of their own world, and the child became overly dependent on the aide. This situation impeded the teacher's relationship with Johnny and his access to learning opportunities with his peers. It reportedly confused the other children, sometimes disrupted the class, and prevented the teacher from feeling in control in her own classroom.

Situations when adequate support is lacking. Most study participants were satisfied with the level of paraeducator staff support available to children with ASD and their teachers. However, divergent views were voiced by one parent and three secondary level special education teachers who described situations when they felt adequate support staff was lacking.

Gordon has never had a one-on-one aide, but when he was in first and second grade his classroom teacher had a teaching assistant who worked with him. His mother said, "That was very effective because the assistant could bring his attention back to where it needed to be." The assistant was not tied to Gordon and could "work with others if need be." Gordon's educational program in first and second grade fit the model proposed by Simpson et al. (2003) in their Autism Spectrum Disorder Inclusion Collaboration Model. By contrast Gordon currently participates part time in a general education class with about 25 children and no teaching assistant. His mother stated that Gordon "has a horrible time with attention." She would like for him to have that "extra person" in the classroom to work with him and "pull back when he doesn't need that person." She described Gordon's attention problems as follows:

> It's all the way from completing schoolwork, doing it too fast, not paying
> attention to what he's doing, to not being focused enough to bring homework
> home and schoolbooks home…I work with him at home, and I know he can do
> fourth grade math work. And I just wonder why he is not in the regular ed
> classroom to do that. But in order to do that, he's going to have to have that extra
> person bringing his attention back. I know that in the special ed [resource]
> classroom they're not working to his ability. I think that they're working to the
> ability of the majority of the students. I think he is capable of doing more…I do
> think that it is essential for him to have that person in there bringing his attention
> back to what the teacher's doing. I think that he could be included more in the
> general class and get more out of general class if there was that person.

A special education teacher agreed with Gordon's mother that sometimes there is a need for an "extra set of hands in the classroom that for many kids is a one-on-one attendant." This teacher emphasized that "having enough personnel" is essential because "if we think language development happens best in natural settings, one is looking at inclusive settings. It takes more personnel to staff inclusion than to staff a self-contained classroom." She added:

> Now I think that can be tapered off. I do not think it has to be as kids get older the same person. In fact…I do not think anybody should be an attendant for any child longer than two years because you need a different set of eyes to look at that child. And parents become more dependent on the attendant than communicating with the teacher. There's that type of thing. But if you have enough assistants within the school, then as long as there is another adult that understands that child's need, they can help facilitate that child within the classroom. It could be a [teaching] assistant, not an attendant per se.

Lack of adequate staff to facilitate inclusion is not just a problem that occasionally occurs at the elementary level. Two middle school special education teachers and one high school general education teacher perceived a need for more personnel to facilitate inclusion in the secondary grades. Secondary level ASD students may have as many as eight different teachers in a school year. Because special education teachers are often tied up in resource classes, there are not always enough teachers or assistants available to go into every general education class where students may need inclusion assistance. As one high school special education teacher remarked, "There are so many classes out there that need somebody in there, and they're not going to have that. I don't see us having the time to adequately staff it."

A Functional Approach to Problem Behaviors

All three study participant groups strongly endorsed the theme that a functional approach to problem behaviors is highly effective in decreasing, eliminating, and proactively preventing challenging behaviors among children with autism spectrum disorders at all ages and grade levels. Parents and teachers described a variety of proactive and positive interventions based on principles of applied behavior analysis and the development of positive behavior supports (PBS) to reduce, eliminate, or prevent problem behaviors. In particular they endorsed two positive

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behavioral approaches: (1) antecedent interventions that focus on identifying the situations or triggers that make problem behaviors more likely to occur, modifying the environment to eliminate or reduce various triggers, and preventing problem behaviors before they occur; and (2) interventions using positive reinforcement to strengthen and increase desired behaviors while decreasing or eliminating problem behaviors.

Antecedent interventions. Antecedent interventions have the purpose of preventing the occurrence of problem behaviors before they occur by eliminating triggers or modifying events that typically precede the occurrence of the behavior (Luiselli, 2008). Antecedent interventions that involve modifying the structure of the physical environment and providing visual cues and schedules as an effective means of preventing problem behaviors have already been described in relationship to another strong theme (see A Structured Learning Environment). Study participants described the effectiveness of a wide variety of other antecedent interventions such as identifying and modifying triggers for problem behaviors, providing choices, modifying work requirements, and providing breaks or "time away" from instruction.

One elementary general education teacher summarized the importance of identifying triggers as a means of preventing or reducing problem behaviors:

> In terms of reducing inappropriate behavior, I think a lot of times it's the classic –
> a teacher that we had here before that used to work behavior used to always say,
> "The one thing that you really need to look for is, can you find a trigger for this
> that's causing this?" Antecedents is the correct word…definitely spotting
> antecedents.

Parents and teachers have found it especially helpful to identify and reduce sensory triggers in the environment that can cause problem behaviors among children with ASD because they are hypersensitive to visual, auditory, or other stimuli. For example one elementary general education teacher stated that "learning what kind of sensory issues can or will be triggers for that child and knowing how to weed those out" has been helpful in an inclusion setting in preventing meltdowns and other problem behaviors in her ASD students. She stated that "pulling those

autistic children out into small lunch groups if at all possible, rather than having to tolerate that big, noisy cafeteria all the time" has been effective in preventing sensory overload.

Sam's mother reported that loud noises such as fire drills are a trigger for him. A proactive intervention for Sam has been the use of headphones in loud settings. His mother said, "We are just this year over fire drills…Just this year, actually the last fire drill, we managed to do it without the headphones." Sam's father added that teachers still "warn him" ahead of time and "tell him when there's going to be a fire drill."

Troy's mother described similar experiences, saying "Troy also is sensory" and hypersensitive to loud noises. She added, "He does better now…but when he was younger he would cry, scream. He didn't know. But now as he's gotten older some things don't bother him. But he learned to put his hands over his ears." Like Sam, Troy has to be prepared for fire alarms ahead of time, and he has worn headphones to block out loud noise in the gym or during fire drills. Challenging behaviors such as screaming, aggression, and "running out of the room" have improved as Troy has become more verbal. Even so Troy's mother sometimes finds it hard to identify the triggers for his problem behaviors. Her feelings in this regard are typical of those expressed by other parents:

> And that was another thing that was kind of hard to learn. Because you're trying to figure out too a lot of things, not just in the classroom but life. Is this a behavior thing, or is he overloaded with something? Or is this…determine what is the trigger. Find out what's the reason…And you just have to say, "Thank you for the good days and thank you for the bad days. But just bless the good days." You have to keep that positive and just try to encourage them. Because…some days you get like, "Oh, this was negative" and you're thinking, "Oh, what's going on?" You're trying to figure out what's causing this or what's going on.

In addition to sensory triggers study participants also reflected upon ways academic demands can trigger problem behaviors. One elementary special education teacher has found it very effective to make changes in task requirements or learning arrangements:

> We use modeling of course. And we try when there's a behavioral issue to figure out why it's going on. Looking for the triggers. Are we asking something that's not reasonable at this point in time to ask of this child? And if we decide that it's just too much to ask of them right now, we'll drop back and modify. So whether

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it's a modified work period, or where they're sitting in the room, or who they're sitting next to, or what they're looking at.

Both elementary and secondary level teachers reported using a functional approach to challenging behaviors by conducting functional behavior assessments on students with ASD, looking triggers for problem behaviors, and developing positive behavior support plans to prevent such behaviors before they occur. At the secondary level this approach becomes more, not less, important. One middle school teacher explained:

> We are finding more and more with all of our students that a behavior contract from the get-go is important, as soon as we see the first challenging behavior arise. And it's usually in sixth grade not long after they've spent some time here. And when I say not long, usually within the first month…And pretty quickly we have updated their FBAs, pulled all of the teachers in immediately, updated the FBAs, and developed behavior plans. That not only doesn't stop with the teachers, doesn't stop with the parents, but we're developing plans that students are involved in now. They have their own contract.

In this teacher's experience the most common problem behavior among secondary level students with ASD is "meltdowns," and the most common antecedent trigger is too much work or work that is too hard. An effective behavioral approach to preventing meltdowns involves modifying task requirements:

> First and foremost the meltdowns are the most frequent behaviors we deal with. And meltdowns in the form of a shut-down: "I cannot do this. I'm not going to do this." And just pulling into themselves and a lot of crying, a lot of screaming. And it is a shut-down. It's very much a shut-down mode. It's not so much exhibited at this level as a screaming because I just need to scream, but there's usually an antecedent that goes with it, and it's usually academics. Regardless of whether it's too difficult, too much, the academics will promote a shut-down faster than change does. Now change is difficult, as we've mentioned. But I don't usually see melt-downs because of change. It's academics. Too much or too hard. We've got some very bright students where too hard probably doesn't play into it, but too much will.

Providing breaks or "time away" from classroom instruction is another antecedent intervention parents and teachers described as highly effective in preventing problem behaviors among students with ASD at all age levels. In fact this behavioral intervention was one of the approaches most commonly cited by all three participant groups.

One elementary special education teacher has used a cushion or a rug in her room stocked with books and toys as a "time away" place for children with ASD in a resource room setting:

> When they get upset and they start having their behavior issues, I just simply look at them and say, "Do you need time away?" I call it time away. And that works real, real nice. And they'll just go back, and there'll be books, and there'll be some stuffed animals.

Sam's mother said when he was in elementary school "he had just a special bean bag where he could go" in his classroom. Sam's teachers could tell when he was getting tense. "They would let him stop, go sit for a few minutes, talk it out, because he talks, talks, talks, chatters, or sings. Just to get it out of his system and then he can go when he's feeling calmer." At other times Sam "was allowed to just sit with the headphones at the computer to calm down." Time on the computer is still a good method of providing Sam with a break or "time away" from other instruction.

An elementary general education teacher perceived "time away" to be very easy to implement in a general education classroom with an autistic child and highly effective in preventing problem behaviors:

> We've set up areas in the classroom that are his areas…he's got carpet that is a monkey carpet. So when he needs to go and not be sitting, he knows where he's allowed to go and be sprawled out on the floor and be able to not have to sit in a chair like everybody else for those times…He can flap over there. He can flop out on the floor and lay, which is something that he needs to do...I think it helps with behaviors because he's not acting out. He's not frustrated. Very, very little behaviors out of him.

Time away does not have to occur within the classroom. For students who are highly disruptive or who need a break from classroom pressures time away can occur with another staff member such as a school counselor. For example one special education teacher described a behavior plan for a middle school student with Asperger's Disorder that included a "pass" he could use "if he became agitated" to leave any general education class to go to the counseling center. The interviewee provided me with a copy of the behavior plan (with personal identifiers removed) confirming the effective use of "time away" and a self-monitoring chart in reducing

and eliminating disruptive behavior. The middle school special education teacher described this student's positive behavior support plan:

> This particular student had trouble with social cues, had trouble with understanding directions, had troubles with understanding what good behavior looked like, what it sounded like, what it should be. One of the most effective tools for this individual was a daily chart. This chart had to be in each class, and this chart had to be kept by both the student and the teacher, and the student would circle his behavior. But there was a guide below. This is what good behavior looks like: Sitting in your seat; not interrupting the teacher; being quiet; raising your hand to talk; not using the F-word or the S-word or the D-word. …The other thing that had to occur is this child, when he began to get out of control, needed a release. And we made sure that there was a hall pass in each individual classroom, related arts room, every place this child would be. And it was attached in the same place. We chose the end of the teacher's desk on a suction cup hook. He could grab that pass and go immediately to the counseling center. He could volunteer or the teacher could say, "Get your pass" if he became agitated, if he became frustrated. He never abused this. He would take the pass and go to the counseling center…The counseling center knew that he needed to see a counselor immediately. If a counselor wasn't available, he needed to sit in a place and chill out a little while.

Two other middle school special education teachers described similar behavior intervention plans that include use of a "free pass" to go to the guidance office when students with ASD need a break from the classroom for any reason. Before disruptive behavior escalates students can voluntarily remove themselves from class, go to a counselor, calm down, and then return. One interviewee observed that each student with ASD has a preferred contact person. One may relate well to a resource teacher while another "responds well to a counselor and will talk to nobody else but a counselor." This particular student has learned to self-regulate "to the point where she'll say, 'OK, I've realized that I'm having a meltdown right now, and I'm going to the guidance office.' "

At the same middle school some ASD students simply "remove themselves to a corner within the room" or just outside the door. One teacher observed:

> The nice thing about our school is every classroom has a nice alcove right outside of it which is a nonthreatening area for the students…I've found a lot of these students like those little alcoves we have right outside the door as their little time out area, and they think of that as their secure spot.

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This teacher gave a fascinating example of using time away in this alcove to effectively reduce outbursts and increase self-regulation in a seventh grade student with autism:

> She recently in a class had an outburst, and she turned around and she looked at me and she said, "OK, I know that I am out of line now. It's time for me to take control of my own actions. I'm going to step outside the door, and I will come back in when I am ready." I never said a word. And we dialogued this last year over and over and over again: "When I need to cool down and come off of my meltdown, I'm going to remove myself from the room." But she didn't do it last year on her own. So it's independently generalized now, not only what she's verbalizing but the action. She's self-regulating…When she stops and thinks about what it is that she needs to do to take care of what we have worked on over and over and over again for a year and a half, it's there. About a week ago that happened, and she knocked on the door from the outside, and she did her "Come here, come here." I went to the door and she said, "I'm not ready to come in, but I am ready to continue working. Would you get my book for me, please?"

A high school general education teacher reported that she has such a close relationship with one student with autism that his other teachers send him to her classroom for a break whenever he becomes overly stressed and needs a time away. This teacher has become his "go to person" when he is upset, and her classroom has been his "safe place" to calm down. The teacher has told other staff, "I don't care what I'm doing, when it comes to Frank *(pseudonym)* I stop what I'm doing." She added, "Even now if he gets really upset they'll [other teachers] bring him to me, and I can calm him down. That's where we've come."

Interventions using positive reinforcement and other supports. In addition to antecedent interventions all three study groups perceived the use of positive reinforcement and other behavioral supports to be very effective in decreasing problem behaviors and increasing desired behaviors in children with ASD at all ages.

Based on information gathered from functional behavior assessments teachers frequently develop individualized positive behavior support (PBS) plans for children with ASD. Among the documents I gathered from teachers were behavior plans they had implemented with autistic children (with personal identifiers removed). These documents fit the profile of a positive behavior support plan in that they were designed to reduce or eliminate triggers for problem

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behavior, teach alternative skills to replace the problem behaviors, and reinforce desired behaviors (Dunlap et al., 2008). The use of positive reinforcement and rewards was viewed by study participants as an effective component of such plans especially when used in conjunction with the types of antecedent interventions that have already been described.

Gordon's mother gave a typical example:

As far as helping him to control behaviors, he could earn things, rewards. I think that probably helped him…and he still like to earn them. He likes to earn games, video games. That's the big thing. He also likes to earn time on TV…even when he was in preschool…there was a computer game that he liked, and he would work for that.

Troy's mother reported that rewards were effective with him for potty training when he was in preschool and more recently to reinforce "just working as hard as he can" and completing work at school. Troy likes to earn "a special day, going somewhere" or "something he's been wanting, a toy or something like that." If he has two or three good weeks at school the family may "do something special" with him.

A preschool special education teacher described using "an immediate reward system" in the Early Childhood Intervention Program:

Like if I'm doing circle and I've got one that's turned around talking to Ms. ___, looking at something, I might give all the other kids that "participate in the circle so well" an M & M or something like that. So we do a lot of that. And of course with the potty-ing we do all this praise and dancing and "Wahoo" and singing and going and telling half the school.

This preschool teacher also uses an "if-then" behavioral contingency to reinforce work completion and reduce challenging behaviors. For example after completing a task the child might receive praise, a food treat, or time to play with a favorite toy. The teacher combines positive reinforcement of desired behavior with use of a brief time out following occurrences of serious problem behaviors such as hitting or biting. To help the child understand the reason for a time out the teacher gives the child a piece of shower board to hold while sitting in the time out chair. The shower board has a Velcro strip on which the teacher places two pictures showing the "if-then" contingency:

We use it with discipline a lot and we use "if-then." "If you hit your friend, then you sit." We have a visual, and we use the shower board because it's a little stiffer. And we hand it to them right when they do what they're not supposed to do. They go to Time Out. We take the board, "If you hit your friend, then you sit," and we hand them the board and walk away…They have a visual. They can hold it and see while they're sitting there if they happen to forget.

Other special education teachers reported using a wide variety of positive reinforcements, ranging from stickers, M & Ms, and Skittles with younger children to free time on the computer, soft drinks, and music with secondary level students. One elementary special education teacher fostered home-school collaboration by putting stickers on each autistic child's daily behavior chart and sending that home for parents to review. She told parents, "On Friday if he has so many stickers, let him do something he wants."

General education teachers also reported effective use of positive reinforcements in inclusion settings to reinforce desired behavior and decrease problem behavior. For example one elementary general education teacher used an "if-then" behavioral contingency with positive reinforcement in an inclusion setting to increase work completion in a child with ASD:

You show them what their job is to do. If they have to write a story or read a book or whatever, they have to work, and then after they work so many minutes, they can play. So his work time or on-task time wouldn't have been expected to be the same as the regular ed child. Once he met my expectation and he knew he was done, then he could choose an activity that he enjoyed. For the first grade a lot of it was computer. He liked to be on a computer. In second grade it got to be more drawing on a dry erase board. I would go out and buy markers to keep him in markers…those were the things that he felt rewarded if he did what was asked.

Another elementary general education teacher reported similar positive experiences in an inclusion setting using positive reinforcement with an autistic child to facilitate sitting in a chair for a certain amount of time, not roaming around the classroom, and attention to task. A "goodie box" has proven extremely effective in helping this particular student to be fully included in a regular classroom without disrupting his own learning or that of others:

The one particular child I have now loves flashlights, but it can also be a hindrance because all he wants to do is the flashlight and not do what he's supposed to do. So I have a box set up on his desk that has, it's a little drawer, and inside there are the goodies that we're working for. So if he does what he's

supposed to do, then he can get in the "goodie box" and play with one of those items for a short period of time until the timer goes off or until we move on to the next activity. And then it goes back in the box and the drawer is shut, and he can't see it. He knows it's in there – I mean he's a bright little kid – but it has become a habit. You do this, you get to choose something, whether it's the stringy ball or a flashlight or play with the Play Doh or whatever. But then it goes back, closes, and it's gone. So with him that has worked unbelievably well because he wants those items. So he'll work for them.

One elementary special education teacher described a token economy system she has developed for use with all her students including those with ASD in a resource room setting. She has found this system to be highly effective in reinforcing desired behaviors such as completing work and following classroom rules and decreasing problem behaviors. The students earn poker chips to spend in a classroom "store" for a wide variety of rewards. The system also involves fines (loss of chips) that must be paid to peers for behaviors that impose on peers' space. The teacher elaborated:

> I spent so many years teaching trying to explain to my students, "If I don't get my work, I don't get paid. And this is my job, and this is your job to do your work." But with them not seeing the "what's in it for me" return, they weren't making that connection. So I decided to give them that. I pay them in "money" [poker chips]. They earn money for coming to work. They earn money for each job they get finished, like a commission. If they do an exceptional job on something, they get paid more, like a bonus. But I tie it back into the real world. They also pay fines…Some students do not like to keep their area neat. They like to spread the wealth and live off other people's desks. And I tell them, "This is your house. You're renting it from me, and if you want to live in their space, then you're going to have to pay them rent." And instead of just paying the teacher back, they're going to have to pay a peer. So that works too...I use poker chips. The whites are quarters. The reds are nickels. Blues are dimes. And then I just made up bills: ones, twos, fives, and twenties. And they can buy things….anything I can get to put in the store, and they can go shopping. I also have the Capri Sun pouch drinks… A homework pass. Pencils. Erasers. It's also like a school store. "Hey, I don't have a pencil." "Get your money out and you can buy one from me or you can rent one." And I explain to them that they can earn it and spend it or earn it and save it for bigger things down the road.

For secondary level students pencils and erasers have lost their reward value, so special education teachers at that level use other incentives. Free time on the computer remains a popular choice for some students with ASD. However, one middle school special education

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teacher reported that she has discovered an even more powerful reinforcement for adolescents: the opportunity to download and listen to music. She explained:

> What is the number one reward for students in middle school right now? I'm answering this question so differently than I would have five years ago. Music. Music. When you have pulled yourself together, you've completed your work, whatever the situation is. I've been doing enough research myself and looking at some of the brain research that is showing that we have got to connect our tweens and our early teenagers to the one thing that is most important in their lives, and that is music…Just the opportunity to have time away with headphones on and listening to some music is tremendous, more so now than just having some free computer time…That's been a typical, typical consequence in the past. I'm seeing a change. The music is more and more and more important to them…Now here's what I've started doing because quite honestly it's a school rule that they're not supposed to have IPods here…we have started compiling music in our room. We are downloading music on the computers. We are downloading music on CDs. We're burning music. It's pretty cool.

Interviewees reported occasional use of negative consequences for behavior as part of their behavioral package including use of "time out" in preschool and elementary settings and use of the In-School Suspension (ISS) room for a "time out" in secondary settings. District records indicate that the school system offers in-service training every year in "safe restraint" methods for appropriate school staff. This training is required for all teachers who work with special needs students who may require restraint for their own safety or that of others. One general education teacher stated, "There are times when students have to be restrained if they really lose it, and with students that are severely autistic that can happen sometimes." However, study participants perceived their approach to problem behavior in children with ASD to be most effective when antecedent interventions, positive reinforcement, and positive behavior supports have been combined in a manner designed to prevent problem behavior before it occurs.

Alternative and Augmentative Communication Interventions

Augmentative and alternative communication (AAC) interventions can be useful components of educational programs for children with autism who have little or no functional speech. In particular there is a body of evidence in the research for the effectiveness of two

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AAC approaches: (1) the use of manual signs and gestures (National Research Council, 2001; Schlosser & Wendt, 2008a) and (2) the Picture Exchange Communication System (PECS) (Bondy & Frost, 1994; Frost & Bondy, 2002; Schlosser & Wendt, 2008a).

Consistent with the research literature interviewees in all three study groups perceived the use of manual signs and gestures and the Picture Exchange Communication System (PECS) (Frost & Bondy, 2002) to be helpful and effective in facilitating communication skills in young children with autism spectrum disorders when their communication skills are still emerging and therefore quite limited. AAC interventions such as PECS were also reported helpful with some secondary level ASD students whose oral speech is limited due to severe autism and related cognitive impairment. However, use of AAC interventions is reportedly rare at the secondary level because most students with ASD have acquired functional speech by then.

Manual signs and gestures. Study participants reported using a variety of simple manual signs and gestures as a code for spoken language to facilitate communication with young children with ASD. A preschool special education teacher described using manual signs in the Early Childhood Intervention Program with both verbal and nonverbal children:

> We do a lot of signing. In fact one of our kids loves signing. We use the ones
> like "stop" and "wait" and "eat" and "drink" and "water," just the real basic ones,
> "potty," "stand up"…So if we're singing songs sometimes we'll get the signs for
> the song. And we do vocabulary a lot. Next week we're starting "spring" and
> we'll do "tree" and "flower"…I love it. I love it. And they use them. It's funny.
> Like I said the one child just wants to sign for everything. He is verbal. He is
> autistic; he's not Asperger's. I'd call him high functioning autism. He likes to
> sign and use words. He just thinks it's fun. As far as like "stop" you'll see them
> doing it [sign for "stop"] to each other, or say "no" [sign for "no"].

An elementary general education teacher described a system of "sign language" that she implemented with an autistic student. For example she simply put one finger to her lips for "quiet" and two fingers in the palm of her hand for "sit down." For another autistic child who had difficulty with personal space (sometimes getting too close to a peer or becoming upset

when a peer was too close to him) she used "wrapping arms around self" as a cue for him to be aware of personal boundaries. She elaborated:

> And he could give that [sign] to the other child when that child was exceeding personal boundaries and he was uncomfortable. And then I would give it to him when I saw him doing it because the other child was not good at monitoring this and getting it to stop. That other child would allow it to go too far, and then both of them were uncomfortable and unhappy.

Gordon's mother said that he learned to use simple manual signs when he was in the preschool ECIP program for things like "eat," "potty," and "drink." Even after Gordon was acquiring language, he still used signs to communicate with nonverbal peers in the preschool class. Gordon's mother felt this facilitated his social interaction with peers.

Similarly, Ross's mother described how helpful learning some simple signs was for him in facilitating communication with others at home and at school when he first started the ECIP program and had little oral speech:

> If he gets upset at home sometimes and he'll want his orange sippy cup, he'll do the sign language for "orange." Which took us forever to figure out that's what he was doing because we didn't know the sign language. And I asked Ms. Jones *(pseudonym)* one day if they do that in class a lot, and she said, "Yeah." When she's saying, "Welcome to the class" or whatever she's saying to him, she'll do the sign language motions…He used to do, when he first came, he would do [the sign for] "more" and "all done" or "all finished" when he was done...Of course he used most of those when he first started. He doesn't use as many now.

Picture Exchange Communication System (PECS). Study participants in all three groups also reported effective results with use of the Picture Exchange Communication System (PECS) (Frost & Bondy, 2002), a structured instructional system that facilitates communication through the exchange of graphic picture symbols. PECS uses behavioral principles to teach children functional communication using black-and-white or color pictures. The pictures are kept on a PECS board with Velcro that the child learns to use to create a "sentence" by selecting and combining picture cards (e.g., "I want" card plus "milk" card) then giving the sentence strip to a teacher or parent in exchange for the desired object.

Study participants shared with me copies of handouts from PECS Basic Training sessions they have attended (at district expense) and a copy of *The Picture Exchange Communication System Training Manual* (Frost & Bondy, 2002) that describes the six phases of PECS instruction. The manual explains how teachers begin with teaching the child to exchange a picture symbol for a nearby desired object, then progress to teaching the child to take the picture symbol to someone not immediately nearby to gain the desired object. Next they teach the child to recognize an "I want" symbol and combine that symbol with pictures of desired objects on a blank sentence strip, then exchange the sentence strip with someone else to get the desired object. Finally, they teach the child to respond to direct questions (e.g., "What do you want?") using the picture symbols (Frost & Bondy, 2002). Several teachers showed me copies of PECS picture cards they have made for children with autism disorders.

Study participants in all three groups endorsed the effectiveness of PECS in facilitating communication skills among children with ASD during the preschool and elementary years when they are still developing oral speech. For example a preschool special education teacher stated, "As far as the PECS there are some students that have gone pretty much the whole way, through all the levels, but then they don't use it. Most of them have learned to use words in place of it." She and the speech therapist have made PECS notebooks for home use with copies of the same pictures being used at school "so the parent could use the same system at home." This teacher has found PECS effective in facilitating communication skills especially in conjunction with speech-language therapy, although not all nonverbal autistic children have been ready for this approach. She explained:

> There were kids that really did learn language. They learned to talk, and then they didn't need it [PECS] and they pretty much stopped. Right now with the three that I have that are the most autistic that are nonverbal, one of them is really doing well with it. He gets impatient sometimes. He is using PECS, but he's only on the second level. The other two do not have a clue. They're not there. They just do better with objects right now.

Three elementary special education teachers and two elementary general education teachers also reported positive experiences using PECS with autistic students who had limited verbal communication skills. One special education teacher stated:

> I think PECS is really good. I've taken it [the training] three times actually. I do think it's really good. We had a little boy last year, we don't have him this year, but we started using PECS with him. He's now in a different program. And he was doing very well. He went from Level 1-1, and at the end of the school year he was just starting in Level 2. So he did pretty well.

The teacher explained that this child had no language, "none whatsoever," when he first entered her class. By the time he reached Level 2 he could make a choice by presenting a picture to an adult. The teacher described another student who was using PECS with success:

> I have a little boy now that he will get his PECS notebook and bring it to you and tell you what he wants, which is wonderful. He knows where it is, and he knows what's in it, and he'll make his "I want such and such" and he'll bring it go you.

Sam used PECS in preschool through first grade. His mother said, "He did just wonderfully with it." The teacher made a copy of some of the pictures for her to use at home. She recalled having pictures for playground, mealtime, TV, games, sleep, bathroom, and drawing. After Sam developed language, he no longer needed to use a picture exchange system, but it was helpful in the early years.

Troy's mother reported that during his preschool and early elementary years "we did the PECS, and that was very helpful." She appreciated that his preschool teacher developed a set of picture cards for her to use at home that were the same as those used at school. She perceived this communication system especially helpful in teaching Troy simple adaptive skills:

> Like especially "going potty" and to "wash your hands" and to help him…Troy is very active. To kind of teach him to "sit." That was very important too. And how to use utensils. He had sensory issues, touching stuff, especially foods, different kinds of foods. So also they helped him with living, to eat, and to do things with forks and spoons. We encouraged that at home too. But we were both doing it at home and also at school to encourage him.

Interviewees in all three groups agreed that AAC interventions can be dropped once students with ASD acquire enough oral language that they no longer need an alternative

communication system. Furthermore, interviewees in this study favored use of AAC interventions in conjunction with speech-language therapy, thus supporting the approach known in the research as "total" or "simultaneous" communication (Mirenda & Erickson, as cited in Schlosser & Wendt, 2008a, p. 361).

Sensory-Motor Interventions

Many children with autism spectrum disorders exhibit atypical sensory responses and stereotyped motor behaviors such as hypersensitivity to loud noises, certain foods, or certain textures in clothing; increased or reduced sensitivity to pain; finger flicking or unusual hand mannerisms; body rocking; rubbing, licking, or tasting surfaces; and preoccupation with sensory features of objects (National Research Council, 2001). Two groups in this study, parents and special education teachers, endorsed the effectiveness of sensory-motor interventions to decrease atypical sensory responses and increase calmness and focus in children with ASD.

Parents and special education teachers reported the following types of interventions to be helpful and effective especially among children at the preschool and elementary levels: occupational therapy; deep pressure; brushing; exercise or movement; and the use of toys for engaging or calming senses (e.g., squeegees, chewy necklaces, light-up toys, sand sticks). Several interviewees also mentioned the benefits of accommodations to reduce sensory input (e.g., providing headphones in noisy settings and dimming classroom lights). Only one general education teacher discussed any direct experience with sensory-motor interventions, although a few general education teachers joined parents and special education teachers in describing occupational therapy as beneficial for children with ASD in developing fine motor skills, motor coordination, and adaptive skills (e.g., tying shoes).

Perhaps because they had the most direct experience with the results, parents were the strongest supporters of sensory-motor interventions. For example Brent's mother reported that he is hypersensitive to certain foods, textures, and smells. Like many children with ASD Brent also exhibits weak fine motor skills. He has received school-based occupational therapy services

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once a week and additional outside occupational therapy once a week at parent expense. His mother is a strong believer in the value of occupational therapy and wishes that Brent could receive more at school. She reported that his sensory issues have been addressed both in therapy and in the preschool classroom through exercise and movement (e.g., bouncing on balls, spinning in a swing), exposure to textures (e.g., putting hands in shaving cream), deep pressure, use of brushing for a brief time, and a lot of work on fine motor skills. She elaborated:

> We've done the brushing, the "Will Barger" protocol. That seemed to help quite a bit…Anything like that when you do that with him it just seems to calm him, and he does really well with that. A lot of fine motor skills and things like that. They [OT therapists] have worked a lot on his pencil grasp. They've done a lot of the cutting and the coloring because he doesn't like to color. Now he will color. If you give him a shape, he will pretty much color over that shape. He's not like all over the paper, but it's just not inside the lines, because I think sometimes the pressure on the pencil grip is really hard. I know they've done this in the private OT, I don't know if they've done it in school – spinning. She'll put him in a swing, turn him around, let him do that. And she said he'd focus better, because he does. He likes deep body pressure. So the rougher you are…[At home] we've kind of done it unconventionally. We wrestle a lot and we jump on the couch, and he just likes it. So they've worked a lot with different therapies.

Troy's mother reported that interventions used with her son have included brushing, deep pressure by use of a weighted backpack, occupational therapy, and access to sensory toys like a squeegee. She remarked that having something to fiddle with in his hands while he is sitting down has helped him to stay calm and focused, "and then we also learned to maybe put something heavy in a book bag to walk to class, to kind of give him that impression." She added, "We also brushed him too. It was in kindergarten, first [grade], then we kind of quit." The brushing required careful home-school collaboration because it was done in both settings. Troy's mother explained, "Special ed teacher, then the OT, we just kind of all worked together. We had a schedule." Troy's mother reported benefits of brushing, deep pressure, exercise, movement, and sensory breaks for calming Troy and improving his focus:

> Yes, it [the brushing] did help. Seemed like it calmed Troy down on certain things that might be bothering him or to kind of help him to stay focused or anything like that. So that was very, it was helpful. It seemed like it just helped calm him. And then the deep pressure and maybe rubbing, just kind of calming.

…OT has a nice room. They have balls or a swing, maybe take him [there] or take him out for a walk for a minute. A break. Just to get him back on track. That was helpful…Because you can get him on the ball and bounce on the ball, then in a few minutes you can get him to do his work.

Gordon's mother reported that occupational therapy, a weighted backpack, and other sensory therapies have been helpful to Gordon. She explained:

The first few years he was in elementary school he had the occupational therapist that worked with him in preschool. She knew him. She knew what he needed, sensory-wise and fine motor-wise. And even though he may have mastered his fine motor goals now with the new occupational therapist, the developmental doctor seems to think that there are some sensory issues that they've just kind of left to the wayside.

Gordon's mother said that school staff have suggested discontinuing Gordon's occupational therapy, but she feels Gordon still needs this therapy to address sensory issues such as making noises, chattering, and chewing on his clothes.

Ross's mother observed, "He doesn't like textures, like food textures. He's just in the past six months started eating meat…He just doesn't like the texture. And then noises, if it's a real loud environment we have headphones that he will wear." Sam's mother reported that he has continued to benefit from occupational therapy for work on fine motor coordination and adaptive skills. Sam's parents had to "fight" to retain OT services during the past school year for Sam. The therapist wanted to drop his services, but his parents felt that he had not yet mastered all of the goals listed on his IEP as therapy goals. After an agreement was made to resume OT services, Sam finally mastered the goal of learning to tie his shoes, much to the delight of his parents.

Special education teachers endorsed the benefits of various sensory-motor interventions and therapies for students with ASD at all ages. Techniques such as brushing, weighted backpacks, bouncing on trampolines, and putting hands in various textures have more often been used with preschool and elementary children with ASD. However, special education teachers also reported benefits of sensory breaks, exercise and movement, and access to sensory toys (e.g., squeegees for calming) for secondary level students with ASD.

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A preschool special education teacher explained that sensory-motor activities are used daily in the special education Early Childhood Intervention Program. This teacher has attended training seminars on sensory-motor interventions for young children with autism disorders. She reported that she is a firm believer in the benefits of sensory activities, sensory toys, and exercise and movement for calming children with ASD and decreasing challenging behaviors. She has also used sensory activities such as putting hands in shaving cream or other textures to decrease some children's tactile hypersensitivities. She elaborated:

> This week we're finger painting with green shaving cream. Every Friday we do the sensory table and Play Doh. Last Friday we put gold coins on the sensory table in the rice…We put Easter grass on the sensory table. It's everywhere. It's the biggest mess. But they love that. We put bugs in it, and then they can match the bugs or sort the bugs or search for the bugs. They like that…
>
> As far as jumping, we jump. That's one of the things I can do with the lower more autistic ones. We do a lot of jumping. I can just say "Jump" and if I start pulling up on the hands, they know just what I want them to do. I think it's calming to them. I have one student that if you squeeze him real tight, he loves it. It's calming to him. We do arm squeezes. I have one student that wants the light touch, so we just barely touch him. That's what he likes. It's calming to him. I just think there are different things that calm us. We do a lot of rolling…Every time we go to the sink we crawl because that helps with the pressure on the joints. It helps with coordination…It's calming.

This teacher described a variety of sensory toys she has found beneficial in addressing children's tactile, auditory, and oral sensitivities. She lets children play with a "glitter wand that we call the 'magic wand' because it's so calming to them." Some children seem to benefit from twirling beads, manipulating squeegees, or chewing on teething rings. The preschool teacher also perceived benefits of exercise and movement in decreasing problem behaviors and improving attention:

> Like today for instance, we took one child out and just walked around the track several times…Some of them we swing. We let them swing on their stomach. It's against all the playground rules, but we have one student that really calms him to swing on his stomach. In the gym there's a wedge and we roll them down. We do "Jack and Jill went up the hill," and then we let them tumble down the hill…A lot of times we use that as a preventative. We did have a trampoline in here, but the kids were just getting a little to used to it, and they were using it for dangerous things *(laughter)*. So we put it out and it's in the gym. But we will pull it back in

before the end of the year and make where it's new again, and they'll use it right. But honestly, when I first put the trampoline in here two years ago, with that group of kids I noticed a huge difference almost immediately. If they went from one activity to another, they went on the trampoline and did three or four jumps and then went to the next activity…After that physical movement then they could settle more and focus more.

One elementary special education teacher described the benefits of taking her students with ASD to the occupational therapy room for sensory breaks, exercise, and movement:

At times they tend to want to have soft things on them, or they just want to be free of things that are binding them. So that's when you want to take them into the OT room and do a lot of bouncing on the ball, a lot of compresses, letting them crawl through the small little tunnel, and I've done a lot of that…And so when it's not being used by OT people, then I take them in for say 10 or 15 minutes just to get the wiggles out.

Another elementary special education teacher described the benefits of sensory interventions she laces throughout the day in a self-contained special education class for students with severe delays including those with autism. The district sent her to a sensory integration training in Georgia several years ago. She exclaimed, "It was one of the best seminars, workshops, I've ever been to of all the ones I've gone to. It was wonderful. I use that stuff all the time, constantly, all the time, almost every single day without fail." She added:

A lot of these kids have sensory issues…They have no idea where their head is in relationship to their body. They try to walk through an area that's this big, not realizing they can't get through it, and they don't know where they are. So I'm a big believer in that. So we use fidgets all the time with them…You try to find something that the child likes to handle or chew or have on or around them. We use all kinds of fidgets with them, and that makes a big difference. It really helps. It can be something to chew on, something to have in your hand, something to sit on, something on your lap, weighted things…We do a lot of brushing. We have one boy that brushing really does, not always, but some of the times it's amazing how much the brushing will help him. It seems to help their attention. It will help their sitting behavior. Sit longer. It'll quiet them down. Calming and quieting and just being able to focus on what it is you're asking them to do.

Another special education teacher who has taught at elementary and secondary levels in resource and inclusion settings reported benefits of sensory interventions for her ASD students including "young children as well as older children." She stated, "Many kids do not understand

edges, personal space, boundaries. Also, many kids I've seen, they need the tactile to understand what's going on, the pressure points, the brushing, those types of things, wearing weighted vests." She summarized the benefits of brushing and weighted vests in terms of "more focus, calmer, able to behave more appropriately, not as much movement, flapping, that type of thing; being able to process the information coming in through their senses a little better."

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Perceptions of Barriers and Challenges Experienced

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Seven themes emerged regarding the barriers and challenges that parents of children with autism spectrum disorders, special education teachers, and general education teachers have experienced in meeting the educational needs of children with ASD. Six themes were strongly endorsed by all three participant groups as follows: (1) lack of training and knowledge; (2) lack of time; (3) challenges caused by characteristics of ASD itself; (4) problematic teacher attitudes; (5) problematic parent attitudes; and (6) transition issues. Two groups, special education teachers and parents, also endorsed a seventh theme: (7) need for additional services and therapies.

Lack of Training and Knowledge

One of the strongest themes to emerge in interviews with all participant groups was the need for more training and knowledge for all who endeavor to meet the educational needs of children with ASD. In the past decade there has been a dramatic increase in the number of children with ASD throughout the school district. Keeping up with the demand for training has become increasingly acute due to rising numbers and increased emphasis on inclusion. A middle school student in a full inclusion program has four different academic teachers each year along with related arts teachers. By high school a student with ASD who participates in general education classes may have as many as eight different academic teachers in a school year. The need for training and knowledge about educating students with ASD is great not just for teachers but also for teaching assistants and all support staff.

More training is essential for everyone. All three participant groups agreed that training is an essential ingredient of effective educational programs for children with ASD, and lack of training and knowledge is a major factor hampering many teachers in meeting the needs of students with ASD. One elementary general education teacher remarked, "Training is essential." A preschool special education teacher concurred saying, "Training is huge...I think the need for knowledge is huge because the numbers are going up so fast."

When asked what she considers essential for effective educational programs for children with ASD, Sam's mother responded:

> Training, training, training. We did have a couple of teachers that you could tell had not been accustomed to children with autism. Especially early on they were more accustomed to disabilities like Down Syndrome...and it was difficult for them to see this child that looked like a typically developing child and then had these behaviors. And even at the beginning of one year we had one teacher that just thought he was being defiant. He was just being a kid with autism. And it was really hard...It was very difficult. Very difficult. She was frustrated. I can understand that, but we were too. We were.

A middle school general education teacher who has enjoyed success in working with ASD students humbly admitted, "I have not had...the training is not adequate." He explained, "Even though I feel comfortable with the sixth grade curriculum, it's still a challenge at times because I don't have all the answers." When I asked if he would like to see more training for general education teachers, he responded, "Absolutely. I think that would be great. I really do. I would be the first one in line for that."

A high school general education teacher would readily join the middle school sixth grade teacher in line. When I asked what she thinks hampers teachers most in meeting the needs of students with ASD, this teacher replied, "I think lack of experience, lack of knowledge, lack of training." Although she has enjoyed a highly rewarding and positive interaction with an ASD student for the past 5 years, teaching him everything from basic English to ACT English, she still insisted that she would "like to have more opportunities to be educated…especially now we have so many special ed kids in our regular ed classes, and I'm not a certified special ed teacher, and to think that I am is ridiculous."

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A middle school special education teacher felt that teachers are hampered most by "lack of understanding, lack of methodology, lack of knowing what makes a learning environment successful." Another special education teacher agreed that "teacher training is a big need," even for a veteran teacher like herself. She described herself as "very limited in where I am with my experience with autism." When I asked if that was frustrating for her, she replied:

> Very frustrating. I had this conversation with another colleague in this school system not long ago, that those of us who have been in special education over the last 20 to 30 years are probably feeling more at a disadvantage now…those of us who have been through undergraduate and graduate programs several years ago, it [the training] wasn't there…and it's been very frustrating."

Interviewees also observed that the need for additional training extends beyond general education or special education teachers to all school staff who work with autistic children. One elementary general education teacher commented:

> I think that people in our building that are dealing with our kids with special needs should be trained. Our art teachers, our music teachers, our librarians, even assistants who work in the cafeteria that are, you know, those types of people who are giving them direction and teaching them things should have training on how to deal with kids.

Sam's parents made a similar observation about the need for training support staff based on a bad experience their son had on the bus one day. Sam had asked his teacher if he could be "number one" on the bus. Sam's mother explained:

> She [the teacher] thought he [Sam] meant number one *on* the bus, but he meant number one being *off* the bus. And she said, "Sure. If you'll hurry up and get your work done, you'll go first." Well he got his work done thinking that he was going to be the first one dropped off...When he went past his drop-off, then he just fell apart. Oh he gave the bus driver a fit. "You need to turn around. You need to turn around." And by the time the bus got to his stop, Sam's in tears. And the bus driver is, he's a little upset because Sam gave him a fit on the bus.

Sam's mother emphasized that the bus driver "is wonderful" and "as sweet as can be," and "Sam loves him." However, Sam's father identified the heart of the problem as he said, "He's not trained, so he doesn't know how to deal with the problem."

Troy's mother agreed that training is essential for support personnel:

> It's very important because like in kindergarten he [Troy] had an aide, but she didn't have a clue. So whenever he had a meltdown or anything, well she didn't know what to do. And so then that makes it hard on that teacher that's trying to teach all the kids.

A general education teacher wisely observed that the school system needs to "have sort of a long view" with regard to training and support for those who are going to be working with children with ASD because they are "going to be in this setting for a number of years" moving from grade to grade, teacher to teacher, and the next teacher may not have enjoyed the same level of training as a previous one. Another general education teacher concurred:

> I think every teacher…needs to have this kind of training because you don't know when a child [with autism] is going to walk through your doors. You're not guaranteed to have that every year, but you don't know what year that child walks through your doors.

Need for on-going, job-embedded training. If the school system is going to take "a long view" and provide training for any and all teachers a child with ASD may encounter as the child progress from preschool through high school, then clearly teachers require professional development opportunities that are on-going. Both general education and special education study participants robustly voiced this point.

When I asked what further training would "look like" for them, some respondents said they would like more in-service training opportunities. However, many observed that in-service workshops on teaching children with ASD are not that helpful especially when they simply cover the features of autism rather than addressing the specific problems a teacher has with a particular child at that time. For example the Vanderbilt Treatment and Research Institute for Autism Spectrum Disorders (TRIAD) offers a variety of workshops for parents and educators throughout the year on issues related to educating and parenting children with autism disorders. Several teachers and one parent who participated in this study have been to TRIAD workshops. Some found them "helpful." Others did not.

One special education teacher described an all-day TRIAD workshop:

> It was informative. There were a few little things you could take from it to apply, but a lot of it was more about what autism is…not so much hands-on things that I could use in working with the kids. There were a few things. They gave you some suggestions. But the majority of the workshop was giving you a lead-in to autism and telling you what it is about.

Interviewees discussed two major reasons why "one time" in-service workshops are not as helpful as on-going, job-embedded professional development training. First, the rapid growth of information and vast amount of research on best practices for educational interventions for children with ASD makes one-time workshops and teachers' prior training quickly outdated. Second, teachers voiced a need as adult learners for practical, relevant, on-the-job training that provides opportunities for brainstorming, feedback, and collaboration with others.

The research literature on best practices for working with children with autism spectrum disorders is so vast and growing so rapidly that it is virtually impossible for educators to remain abreast of the field. One special education teacher ruefully observed how hard it is to "keep up" because "we're learning more about autism every day." She commented:

> Every time I get on the Internet, just on the MSN website, it seems like once a week there's some article there about autism. There is so much information there I feel that we get bogged down in the basics of autism instead of moving on. A teacher says, "Well, I was trained five years ago. I went to a workshop on autism. I know everything there is to know about autism." If you've not picked up a book or read an article in five years, no you're not trained in autism because there's so much research available. New stuff that's available and things that can help.

A general education teacher made a clever comparison to the rapid depreciation of a new car as she summarized the need for on-going training for all teachers:

> But I believe if we're looking at ourselves as general education folks that are going to continue serving these children, somewhere along the line we've all got to have some better training, and I think that includes our special ed folks. Because if you're not in a place where you're receiving on-going, continual training, whatever you have received in your training program, it's sort of like driving a car off the lot. It's out of date as soon as you exit the doors. And I don't think that we have that mind-set…But these kids just have such a special place in the universe, and they are becoming more and more a part of our universe…They're coming into my class, and I need to know what to do.

The fact that the car depreciates so rapidly as knowledge in the field expands and changes is not the only problem. Teachers also said they desire training that is practical, problem-centered, and immediately applicable in specific situations they face with individual autistic children. One high school special education teacher remarked, "Don't tell me how to stop a kid from head-banging if I don't have a head-banger. I don't have time to waste on that."

Teachers' sentiments are consistent with the research of Knowles (1990) on adult learners. Knowles reported that immediate utility is important to adult learners, who anticipate how they will use learning to improve their performance. Furthermore, adult learners want to collaborate and share with others as they learn, and they appreciate periodic feedback at various times as they master new skills (Knowles, 1990). This kind of collaboration, feedback, and sharing is only possible when professional develop training is on-going and job-embedded. One elementary special education teacher explained the need for practical, job-embedded training:

> The stuff that they [teachers] have on their plate anyway is enormous, so I think if we, especially as a system, if we could find a way to get as much valuable information to these teachers in an easy way or in a quick way, I think they would benefit more. I don't think they want to go to a workshop and spend the first half of the day learning about what part of the brain is not working properly. They want to know, "Hey, I have this kid on my class role. What am I going to do when school starts?" That's what they want to know.

Sources of training for study participants. Initially the interview data and documents gathered appeared somewhat contradictory with regard to the issue of lack of training and knowledge as a major barrier to effective educational interventions for children with ASD. I gathered several documents that confirmed the district has provided many training opportunities for teachers, teaching assistants, and other school staff on educational interventions for children with ASD. For example teachers are regularly informed about workshops offered by the Vanderbilt Treatment and Research Institute for Autism Spectrum Disorders (TRIAD) on issues related to educating children with autism disorders. The district has sponsored TRIAD workshops on-site and has sent interested special education and general education teachers to TRIAD workshops off-site. The district has also sponsored workshops on-site, most recently in

2009, to train special education teachers in use of the Picture Exchange Communication System (PECS), an augmentative communication system that is designed for students with limited or no speech (Frost & Bondy, 2002). Some special education teachers have been provided training in various developmental approaches to working with autistic children and in the use of applied behavior analysis with discrete trials. The school system has sent several special education teachers and general education teachers to professional development workshops sponsored by TEACCH (Treatment and Education of Autistic and Related Communication Handicapped Children) in neighboring North Carolina, where this comprehensive intervention program for persons with ASD was first developed for state-wide use (Lord & Schopler, 1994).

Within the past 9 years the Autism Coordinator has led several on-site professional development workshops (generally 2 to 3 hours in length) for general education teachers, special education teachers, administrators, and other school staff. The documents I collected included handouts from in-service workshops on autism disorders offered by the Autism Coordinator in 2006, 2007, and 2008 to all interested teachers; an in-service offered in 2009 to assistant principals; and an in-service provided in 2009 to all teaching assistants system-wide as part of their required training. Teacher participants also provided me with access to handouts from training workshops they attended through TRIAD and TEACCH, handouts from PECS Basic Training sessions they have attended, and *The Picture Exchange Communication System Training Manual* (Frost & Bondy, 2002).

Documents gathered clearly revealed that school staff have had access to training opportunities on a regular basis, and that the school system has been generous in bringing training to staff on-site and paying for staff to attend training opportunities elsewhere. Why then did study participants strongly perceive lack of training and knowledge to be a major barrier in meeting the educational needs of children with autism disorders? One reason may be that given the explosive growth in the number of children with ASD currently moving through the school system and an increasing emphasis on inclusion, it has been difficult for the district to keep up with the needs of all teachers for training, particularly those in general education settings.

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However, I suspected there were additional reasons for the emergence of this strong theme. Because I was curious about where study participants received their own training and their perceptions of its adequacy, I asked interviewees how they themselves had obtained training and knowledge about educating children with ASD. I also gave them opportunities to share their perceptions regarding the adequacy of those sources and to describe what other types of training might be helpful within the district for parents and educators. Table 4 provides a summary of sources of training and knowledge reported by special education (SE), general education (GE), and parent (P) study participants and the total number of study participants who reported accessing each source of training/knowledge.

Table 4

Sources Of Training And Knowledge For Study Participants About Educating Children With ASD

College courses	Experience	Workshops on specific interventions				District in-service	Books, Internet	Autism Coord-inator	Parents
		TEACCH	TRIAD	PECS	Other				
1 SE	5 SEs	3 SEs	4 SEs	3 SEs	4 SEs	7 SEs	2 SEs	4 SEs	2 SEs
1 P	5 GEs	1 GE	2 GEs	1 GE	1 GE	2 GEs	4 GEs	3 GEs	1 GE
	1 P		1 P			1 P	5 Ps	4 Ps	4 Ps
2	11	4	7	4	5	10	11	11	7

Several extremely interesting findings emerged from these data. First, it was interesting to me that all teachers except one special education teacher described their college or university teacher training classes as not helpful or just minimally touching on how to teach children with autism in a "light and breezy" way. One special education teacher's rueful comments were typical: "Sadly, I received no training in college. No training. Not in my undergraduate work, and certainly not in my master's program. I had not received any formal training in autism." There were only two exceptions. One special education teacher recently took two "very beneficial" summer school classes at East Tennessee State University on teaching children with autism. When Troy was around age 2, his mother took a class called "More Than Words"

through the speech-language department at East Tennessee State University. She found the class beneficial in "learning all about autism and sensory integration" and helping Troy learn to say words. It appears that excellent courses are available at a nearby university, but study participants with many years of teaching experience did not typically have those kinds of courses as part of their teacher training.

Seven of eight special education teachers and four of six general education teachers have attended at least one or more workshops on specific interventions usually at district expense. Their clear favorites were TEACCH and PECS training workshops that were given positive reviews by all who attended them. For example one special education teacher said, "I went to the PECS training, and hands-down I have yet to attend or be a part of any workshop more beneficial than PECS. That was an outstanding workshop." The preschool special education teacher who is also part-time Autism Coordinator is very well-trained, having attended TEACCH, TRIAD, PECS, and sensory integration training. She has also been trained in Applied Behavioral Analysis (ABA) with discrete trials and a developmental approach called Floor Time. She described her week-long TEACCH training as "my best training, that was my favorite training." Another special education teacher described her TEACCH training as follows:

> It was wonderful. We were there for a whole week. Actually I had two other people that went along: two special ed teachers and two general ed teachers. We went and spent a whole week, and we actually got to see so many hands-on approaches. TEACCH actually had the different workshops, and you would pick one and you'd go, and it would be children that were unable to perhaps speak. And they would show you how they work with them. So that was very helpful…We were able to observe teachers teaching in these different environment…And I love that approach.

Seven of eight special education teachers, two general education teachers, and one parent have attended district in-service workshops. The difficulty with "one time" training workshops was beautifully summarized by one elementary general education teacher who said:

> TRIAD…was good quality. I got a lot of good insights and beginnings of understanding, but I don't know that I've really been able to take those beginnings and take them on. Then the district provided some opportunities that were done in-house, if you will. And again that touched on a lot of different things. But

once you've received a training as a general ed teacher and then you come back into your setting, and you're dealing with children with a broad range of needs, and you're trying to pull all that information into your classroom and make it pertinent and relevant, I would have to say good training takes a lot more follow-up. And there needs to be a support system in place in order to say, "Are you trying this approach? Are you trying this approach and how did that work, or how did the opposing idea work?"

One extremely interesting finding was that 10 out of 14 teachers reported that their number one source of training and knowledge has been on-the-job experience. One general education teacher observed, "Really and truly, I think experience is in some ways maybe the best teacher in some cases, because each child is so different." A special education teacher described her on-the-job training in a resource room setting this way:

When I received my first student I had had no training. And that student Barbara *(pseudonym)* was a very involved young lady. And I guess you could say I had the "OJT." I had the "on-the-job training." From that point that entire school year I did not receive any formal training in autism. However, she provided me with a lot of tricks and tools, and she filled my tool box really well just by having her. She had been in a self-contained program since the age of three and had never been out of a self-contained program even to go to a related arts class…So when I received her, which was my first year in a self-contained program and her first year here coming from a younger self-contained program, you could say I was "tried by fire."

Where do parents of children with ASD most often turn for knowledge and training? Learning by experience is part of everyday life for parents of children with ASD, so only Sam's mother thought of mentioning this obvious source. The number one source of information reported by parents in this study is what Ross's mother humorously referred to as "*Google* University." Five of six parents said they regularly turn to the Internet as a source of information about autism and how to work with their children. Parents also turn to other parents for knowledge and support. Sam's parents previously attended a parent support group, and they currently participate with Sam and other parents of children with ASD in soccer for special needs children. Gordon's mother has found it helpful to spend time with one other parent of a child with autism. Troy's mother and Brent's mother attend parent support groups in nearby cities for families of children with autism disorders. However, there is not a parent support group for

families of children with ASD in the local community, and this has been a source of some frustration for some parents.

Parents and teachers viewed the Autism Coordinator as a valuable source of knowledge and training, and several expressed a strong desire to see the position of Autism Coordinator restored to a full-time job. Troy's mother described how helpful the Autism Coordinator was in providing training for teachers and an ancillary assistant when Troy had to transition from one elementary school to another. Sam's mother said if she could change anything about existing educational programs and services for children with ASD, "There would be more than one Autism Specialist…there would be more than one of her," and the position would by full-time. One elementary special education agreed with Sam's mother as she said:

> With Barbara, my first student, I was able to depend on that Autism Coordinator when I hit a brick wall or none of my tools were working. What had worked last week was no longer working, so what now? I could count on her, if I needed her, to come out and she would observe, would observe me, would observe the child, would give me hints and helpful ideas. And with that being out of the picture, I was able to see the benefits of having it...I want the Autism Coordinator back [full-time]. I'll just be up front and honest there…And I know funding is an issue. Money everywhere is an issue. But I know what a saving grace that was for me. Even last year when I didn't have her, there were a few times that had she been in the system, she'd have had that 911 call, "I need help."

The Autism Coordinator described how much she loves teaching the preschool special education class and how torn she is between teaching and finding time to consult with teachers in the field. She has some time to collaborate with teachers about solutions to challenging behaviors and to help set up visual schedules and behavior plans. She explained:

> Sometimes I just go in and I observe. I'm a huge believer in somebody getting a different perspective. I'm a huge believer because sometimes you cannot see what is going on…Sometimes I just do that, and then I might offer a few suggestions. And sometimes they make a big difference.

Although the interviewee said that she would not want to leave her preschool teaching position and she cannot do both full-time, she believes the school district would benefit greatly from having someone in the position of Autism Coordinator full-time. She feels this would be invaluable because "the numbers are just so high [and] they just keep going up and up."

Even with the advantages that many of them have had to attend assorted in-service opportunities, study participants still perceived a need for on-going, job-embedded training for themselves and others with opportunities for modeling, feedback, and support. One elementary special education teacher eloquently summarized the role that a full-time Autism Coordinator might play in facilitating on-going, job-embedded training for school staff:

> I can see even with autism on the rise in this country, I think we could have a full time position in this system alone, coming to me saying, "OK, Ms. Ruth *(pseudonym)*, you have this child in this classroom. List the concerns or problems you're having right now." And helping me come up with some things to develop, behavior plans to develop, lesson plans to develop, any ideas that I could come up with. And her do that all over the system and come back and say, "OK, how is it working? Do we need to tweak it? What do we need to do at this point?" And I think that would be the best training we could have.

Lack of Time

In addition to lack of training and knowledge all three participant groups also reported that lack of time is a major barrier educators face in meeting the needs of children with autism spectrum disorders. In particular interviewees perceived teacher case loads and excessive paperwork as two major reasons why teachers often lack sufficient time to address the needs of the individual child with ASD. Adding to the time crunch teachers experience are pressures of preparing children for state-mandated tests and pressures of balancing the needs of the individual versus the needs of the group.

High case loads were cited by interviewees as a major reason for time pressure. This barrier appears to extend from preschool through high school, getting worse each step along the way. When asked what barriers and challenges she has faced, a preschool special education teacher responded, "I think class numbers…that's definitely one of the barriers. The numbers are higher this year; it's been harder. This has been my hardest year because of the numbers." For an effective preschool early childhood intervention program, children with ASD need a great deal of intensive, one-on-one instruction. So even having 11 children in a class most of whom

have ASD can be a barrier to effective early intervention. The preschool special educator described her case load pressures as follows:

> Our numbers are just so high. I would love it if we had, like I have eleven in my class, say if we had eight or six. We could get a lot more structured learning in the day. Because a lot of the skills you have to really break down with different kids. This one you might be breaking down let's say an adaptive skill, like brushing teeth. We might be working on one completing the whole process. We might be working with one just getting the toothpaste undone. Just different things you're working on, because you have to break down skills so much, if you can work individually with them more. Especially with the social skills. They just don't know social skills. They don't pick up things like other kids do, so you have to teach a lot of small parts of the big skill. You could do that much better.

Case load pressures increase in elementary and middle school due to the trend toward more inclusion for children with ASD in general education classrooms. Parents of children with ASD want their children included in the regular classroom as much as possible, but they are also aware of the pressures that general education teachers face in balancing the needs of the group and the needs of their child. For example Gordon's mother reported that he keeps forgetting to bring home materials for homework in science and social studies. When I asked her how this problem has been handled by school staff, she replied, "Well, I realize that the teacher has 24 other students in the classroom…I know that the teacher is busy, and I do think that there should be another person." Gordon's mother is very involved in helping him with homework, and she finds it very frustrating not to get the work. She added, "I've sent letters, 'Please have Gordon bring this home.' And I realize a teacher…cannot focus on this one student."

Troy's mother agreed with Gordon's mother. She stated, "I know it's hard, you've got 20 some kids, 18, 19, it's hard to just concentrate on that one child. You can't really." Sam's mother concurred that "numbers can be a problem, numbers in a classroom," even in a self-contained class like the one Sam participates in for the greater part of his school day.

One elementary special education teacher described the time pressures that she experiences not just due to case loads but also because planning for students with autism disorders requires more time and attention than for some other disabilities. She summarized:

Students with autism are time-intensive for your personnel. You've got to spend time with parents. You've got to spend time with teachers. You've got to spend time creating materials, and one of the things that we have to think about is how much time it takes to make these things happen. Sometimes educators know what to do but can't do it because the hours in the day have run out. Not enough time.

By middle school and high school teacher case loads increase along with the number of teachers with whom ASD students interact in the course of a day or school year. One middle special education school teacher described time pressures caused by "limitations with scheduling because of the fact that there are seven classes in a day." She has to collaborate with as many as seven or eight general education teachers whom each autistic student may have. She also desired for more time to conference with ASD students about their behavior plans:

But a question that some of my colleagues and I have had in talking about this is: "Would we have more generalization of the positive behaviors quicker if we were in a position, put ourselves in a position to be able to conference with them [the students] about this more frequently?" And there's no answer to that right now. I think our heart of hearts knows "Yes." But the reality of what we work with within the time constraints within our middle school scheduling – sometimes we're going from seven different groups within a day's time.

Karen's father expressed concern that Karen has so many teachers in high school that he is not able to communicate with all of them. He laughingly observed that due to limited communication skills Karen "doesn't tell you *anything* that's going on with her." In fact if he could change anything about educational program and services for students with autism disorders, Karen's father would like smaller class sizes "like elementary [with] the same people and super small classes, only 10 or 15 people." He added, "I know we've totally gotten away from the one classroom thing, but that might not have been such a bad idea especially for autistic children." One of his biggest concerns is that Karen may "get lost" in the crowd at the high school. He concluded, "All of it is just the bigger you get, the more people get lost, and the more trouble it is to keep up with everybody."

Special education teachers also reported time pressures due to excessive paperwork related to federal and state special education mandates. One elementary special education teacher voiced typical comments:

At our school we are at now basically 20% special ed. And when you have so many children with so many needs academically, if you only focused on the academic needs, we are pressed to meet IEP hours and goals. But then…you're not just dealing with academics. You're also dealing emotional, all of the hats that a teacher wears in a day. And I think you could easily double those hats with a special ed situation. No, we're not equipped. The paperwork alone on twenty percent of six hundred students at a school is a full time job there.

Another elementary special education teacher who teaches a self-contained class described how frustrated she feels when paperwork takes time away from teaching:

And of course they get their report cards. They get eight report cards a year, and then I have two different report cards, so they get sixteen report cards a year. It's all those progress reports and then the Portfolios…It's killing me. I was talking to someone yesterday. I went to an observation on a child with another teacher that has been in special ed a long time, and it's not the kids at all. It's the paperwork. It has changed so much in just the last five years. And what really upsets me at times is, I'll be doing something with the kids, and I have to stop because somebody either emails me or brings something to the door that they want done right then and there. And I have to stop what I'm doing with the kids and address that piece of paperwork right then…You have to do it right then, and that takes time away from the kids. And that's not right.

General education teachers face a different kind of time pressure due to state-mandated testing. For example an elementary special education interview noted that test scores cause pressure for general education teachers along with fear that "the student who might have a special need will bring down their test scores." She stated, "I think it's a problem in Tennessee, really, the emphasis on test scores…I think that's a huge barrier."

One middle school teacher described the pressure of meeting state standards:

It's just the nature of education. There's just so many things being thrown at these teachers that they have to do that who has time? The time factor. Who has time? I mean, you've got so much to accomplish. You've go to accomplish all these standards. I don't have time for this kid to be disruptive in my class. I don't have time to deal with their social cues. And pretty soon if your paychecks are depending on your scores, then I don't have time for this.

Elaborating further, this respondent wryly observed that the fact that teachers are being held accountable for test scores "could be a whole another interview." A general education class typically has 28 or 30 students, and the teacher has to help those students master curriculum goals and get them ready for state-mandated TCAP tests. I asked her, "Who, then, becomes

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more important? The rest of the class or the student with special needs?" She responded candidly, "The rest of the class," then added:

> I'm also supposed to have that autistic kid performing on a proficient level on top of all of that. I think that's a huge barrier. I think there's positive there too, but I think yes, it becomes a huge barrier and a huge stressor for the classroom environment.

Challenges Caused by Characteristics of ASD Itself

Challenges caused by characteristics of autism spectrum disorder itself emerged as a third strong theme described by all three participant groups as a major barrier to meeting the educational needs of children with ASD. One major feature of autism spectrum disorder is its diversity. Interviewees in all three groups discussed ways the diversity of the spectrum hampers them in meeting the educational needs of these children. Parents, special education teachers, and general education teachers also challenges in meeting the educational needs of children due to behaviors that are typical among children with ASD such as noise-making, inattention, meltdowns, limited communication skills, and handwriting problems.

Diversity of the spectrum. All three participants groups discussed ways in the diversity of the autism spectrum itself can hamper parents and teachers in meeting the needs of children with ASD. As one general education teacher observed, "Each autistic kid's different." Another general education teacher agreed saying, "Because autism has such wide ranges to it, sometimes it's just tough to kind of really realize what you're dealing with, with that student."

Sam's parents talked about the need for knowledge, training, and awareness that surpasses stereotypes. For example Sam's father talked about how frustrating it is when "people will say, 'You have an autistic kid? I've seen *Rain Man'*" (Johnson & Levinson, 1988). Gordon's mother also described the difficulties educators and parents face due to individual differences. She observed:

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There are so many spectrums or levels of autism. It's just hard to say, well this program fits this child, but it doesn't fit this child. There are so many children now with autism that I think it's hard to find that one program that fits.

A middle school special education teacher discussed how difficult it has been to educate herself about teaching children with autism disorders because of the diversity of the spectrum. She described her personal frustration:

It's been very frustrating. It's very difficult, very difficult. Especially as we learn that the autism spectrum is huge. It makes me think about my initial perceptions when I was first learning about ADHD and found out that ADHD has so many chasms. And that's the way I think of autism. There's not one student I've ever encountered that mimics another student.

Several special education teachers talked about the challenges they have faced not only due to the diversity of the autism spectrum but also because many children with ASD have co-occurring disabilities that make planning effective educational interventions for them even more complex. One special education teacher explained:

The fact that the diversity – the label actually means very little due to the diversity of the disability. Every child is more unique than many other disabilities because the disability is so broad…and the fact of the many co-existing conditions that come with it. And you're dealing, I mean a student with autism that also has mental retardation is very different than a student with autism that's gifted or a student with autism that has normal intelligence. It's a whole different thing. And I think for many years educators thought that students with autism were cognitively challenged, and it's language and sensory challenged more so.

Another special education teacher voiced similar thoughts. This particular educator teaches a self-contained special education class for students with severe delays. She has several students in her class who have Autistic Disorder and co-occurring mental retardation. Some also have serious health problems. She remarked:

The kids are all so different. Individual differences. And of course, the children I have are not just autistic, they're also MR. Very delayed and some health issues, some health problems. And boy that really makes a difference there too. It really complicates it, it really does… I'd say that more than anything the mental retardation, when it goes with it, is really a big issue…And several of them over the years have had some really severe health issues. That's tough.

It is not surprising that the teaching methods and educational interventions for autistic children in this special education teacher's class look rather different from those being implemented by a high school general education teacher in a class where Karen is progressing toward her general education diploma. The challenge for teachers is to gain sufficient training and knowledge so that they are prepared to meet the needs of any autistic child who comes through their doors. Gordon's mother and Sam's father are correct. There is no one-size-fits-all program, and not all children with autism disorders act like Dustin Hoffman's character in the movie *Rain Man* (Johnson & Levinson, 1988). Parents and educators face a complex challenge as they endeavor to meet the needs of such an incredibly diverse population of students.

Noises, sensory issues, attention problems, and meltdowns. Participants in all three study groups reported significant challenges and barriers in meeting the educational needs of children with ASD due to noise-making behavior, sensory issues, attention problems, and temper tantrums. Such behaviors are common characteristics of autism spectrum disorder itself (*DSM-IV-TR,* 2000) and can cause significant disruptions to the child's own learning and that of others.

For example Gordon's mother described the difficulties that Gordon had transitioning from a preschool special education class to a regular kindergarten class because "he's very vocal, and he just makes noises all the time." She explained:

> He'd be making noise. He would be moving around on the rug. And I don't
> think he would sit at the table and work when it was time to work…So it wasn't
> long before we had an IEP meeting and they wanted to put him in the extended
> resource. They wanted to put him there all day.

Troy had similar difficulties going out into a general education kindergarten class when he was younger because he would "scream, disrupt the class, get up, wander off." His mother said, "That was kind of hard, because in kindergarten I guess they expect more of you, to sit still and to listen. And listening was very hard, to stay focused and still." Even though a teaching assistant went with Troy into the kindergarten classroom, he never stayed long before having to be removed because of the disruption caused by his screaming and attention problems.

Ross's mother commented, "I think the only challenging stuff that he has at school, although he's doing better from what I hear, is like vocal stimulations, yelling, and then he likes to run and crash into stuff…just the wall." When I asked her to describe his yelling, she replied, "Its like a scream."

Sam's mother observed how difficult it is for a child with autism to filter out sensory overload and the impact this had on Sam's behavior in the early grades:

> I think, you know, we've got sensory overload in that little head. And you cannot imagine how bad that is. I would love to spend two minutes in that head. I probably wouldn't be able to handle it. So what they're dealing with – all the sights, sounds – everything that they're dealing with, to expect them at four and five years old to behave and act like everyone else. My word, that's a tall order.

Sam's father commented that as Sam is maturing he is learning to handle his auditory and visual sensitivities, but when he was younger "he didn't know how to do that."

One elementary general education teacher described Bruce *(pseudonym)*, a classic example of a noise-maker whom she taught in first and second grades in an inclusion classroom. This teacher used picture cues (e.g., a "quiet" sign) with some success to prompt Bruce not to disrupt. Even so his noise-making presented a challenge for her:

> He was a singer and he liked to sing. He liked to sing. If he wanted something, he'd holler my name over and over and over and over. And I had to show him the "quiet" sign, or I'd show him the "Raise your hand" sign. He had to learn that if he wanted my attention, he had to try to get it the right way. So those kinds of things would be difficult.

Another general education teacher described challenges she experienced due to auditory sensitivities in one of her students with ASD. She mentioned how careful she had to be about her voice level with this child who exhibited problem behaviors in reaction to any loud noise in the classroom or related arts classes:

> And your tone of voice, your level of voice. What stubborn Sally Mae over here needs in order to get her motivated and moving along was easily too harsh a tone and too loud a voice for Johnny *(pseudonym)* in particular. I've always used a lot of music to open activities, to close activities, to signal a certain amount of time for cleaning up and putting materials away, and I had to be *extremely* careful with Johnny because a song could just set him off. And you did not know which song it was going to be…It was always something you had to be careful about…And I

never felt comfortable with his participation in music class for that reason. And he had an extremely difficult time with a foreign language class that we had that used a lot of music, and there was a lot of very active loud music. And it was known that this child had auditory sensitivity.

Students with autism disorders do not just exhibit auditory or visual sensitivities and vocalizations that can disrupt a class. Stereotypical behaviors can also be problematic especially in inclusion settings. A high school general education teacher described what a challenge it was for her to get used to the stereotypical behaviors that Frank (*pseudonym)* displayed in her class. She said, "Frank had a lot of physical clapping of hands or rocking in his seat or just very deliberate movements…very deliberate. Types very hard. Writes very hard." Other students who had been with Frank throughout his school years "didn't react a lot," but for her "at first it was just getting adjusted." When I asked her if it was noisy when she was trying to teach, this very upbeat teacher laughingly replied, "Yeah sometimes, but we got to where, you know, it was just like the air conditioner running."

In addition to sensory issues and stereotypical behaviors many children with ASD are prone to temper tantrums or what teachers commonly refer to as "meltdowns." Study participants observed that meltdowns are especially likely to occur when children with ASD experience sensory overload, difficulty communicating their needs, task overload, or other challenges in handling environmental demands. For example an elementary special education resource teacher described the challenges ASD students present due to self-stimulatory behaviors and meltdowns when she takes them into inclusion classrooms:

> If I take them into a class, a general ed classroom with their peers, and perhaps they are listening, they may not. They're definitely not on the [academic] level, but they need that socialization. They need to be within that classroom. But they might have self-stimming problems. It could be chewing their sleeve. It could be banging their head. It could be just putting their hands over their ears or flapping. Those are some of the most common ones that I've had to deal with…When they have an outburst or they don't understand what's going on, then they're going to have a meltdown. And sometimes that meltdown can be screaming, falling on the floor, throwing something.

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As she talked about the barriers she has experienced in meeting the educational needs of children with ASD, one general education teacher said that temper outbursts have been the most difficult challenge for her. She reflected:

> Well, probably the hardest one was probably the fit throwing or the anger issues. You know, when they get frustrated. And especially when I had fifth grade. I mean, those are big kids. My first grader I can pick up like a football and take care of getting him from point A to point B. But the fifth grader, I couldn't really do that very well. So that was probably the most challenging part, was trying to get him calmed down.

Another general education elementary teacher agreed that temper outbursts have presented the biggest barrier for him in an inclusion setting. He astutely remarked:

> Sometimes, I will tell you the biggest thing is, if you have a student who gets highly angry, it takes awhile to get that leveled off. And those for me, that's almost the biggest barrier. I mean the rest of it, honestly, is just teaching school.

Limited communication skills and writing problems. Autism spectrum disorder involves significant, qualitative impairment in communication skills (*DSM-IV-TR*, 2000). Many children with ASD, even those with Asperger's Disorder, exhibit fine motor delays and related writing problems (*DSM-IV-TR*, 2000*)*. Teachers and parents in this study reported significant challenges in meeting the educational needs of children with ASD due to limited communication skills and difficulties with writing that are common characteristics of ASD itself.

Brent's mother observed the critical link that often occurs between an autistic child's temper outbursts and limited communication skills as she described the frequent meltdowns Brent displayed when he first entered preschool:

> I think it was due to lack of communication. Something didn't go his way, or he didn't like it or didn't want it, or he wanted something, he would just fall apart, just fall out into the floor. He did that I believe quite a bit at first.

After 3 years in his preschool program Brent is using more language. His mother noted that acquisition of language has resulted in far fewer meltdowns.

An elementary general education teacher voiced similar perceptions of a link between limited communication skills and anger outbursts:

> In a lot of ways too, and you know this from your research, that's their way of expressing themselves. If you have trouble expressing yourself, and you're not reading social cues and that kind of business, it's tough to say, "Stress is…I'm worn out. You're wearing me out." Instead it's just, "Grrrr!"

Sam's mother observed that he had meltdowns at a younger age when he was unable to communicate his needs. For example when Sam was in first grade, he took two small cards on the bus and dropped one of them. His mother said, "He could not tell the person that got him off the bus, 'I've lost one of them.' He couldn't communicate that, so he just fell apart." Sam's mother added that he does not have full-blown meltdowns anymore, but he "still gets upset if he can't get it, if he can't explain something."

Gordon's mother gave a poignant description of the anguish and heartbreak a mother feels when her child with autism disorder attempts to untangle the confusing world of language and finds it simply overwhelming:

> I've seen this as Gordon's gotten older, he does understand that he's different, and that is hard for him. I saw a sign the other day that said something about, "I'm different. I'm autistic, but I do wish I could be like you." And it's true. I do think that he wishes he could be like the other children. He knows he's different. He knows that he doesn't understand. One day, and this has been a few years ago, I told him to do something, and I heard him. He'd gone into the laundry room, and he said, "I don't understand. I just don't understand. I don't understand the things that you tell me." And that was hard, hearing your little boy say, "I don't understand the things that you tell me. I wish I could understand."

Gordon's own words say it all. It is unimaginable how frustrating a language-rich classroom environment must be for Gordon when instruction is coming at him in constant verbal streams and teachers and peers attempt to engage him in complex social conversation. No wonder Gordon hums, sings, and makes constant noises – anything to block out the steady stream of language he simply cannot understand.

Many children with autism disorders also display motor delays that cause difficulties with handwriting and resistance to completing written work. This too can be a barrier for parents and

educators. One elementary general education teacher stated that "trying to get anything written" from an ASD student is "an extreme challenge." Another general education teacher agreed that handwriting issues are often a major barrier for ASD students:

> A lot of times we have fine motor issues with a lot of my students that I've dealt with. And I'm talking like big time fine motor, like just trying to keep it in the lines…the problem is with these fine motor issues, sometimes that can actually be the trigger that we were talking about before: "I am tired of writing." And if you think about it, if we were writing with our left hand all the time how tired we would be after writing three or four lines, and that's where they are…That is really an area, if I had to say was an area that for me that is a commonality in who I've dealt with, is really a strong dislike for writing.

The problem does not resolve for older students. A secondary general education teacher said that his greatest struggle has been getting his autistic students to write in their "scientist notebooks." Although this teacher uses multiple teaching methods and a variety of highly engaging activities his ASD students love, they do have to write daily. As the teacher said, "I do quite a bit in the scientist notebooks. That's the new catch thing in science now, because we're incorporating a lot of language arts. But…I don't know how to get them involved in it." He elaborated further:

> It's difficult because autistic kids are not usually, they don't communicate in written language very well. Writing is a challenge. And so we keep [at] the back of the notebook, we have definitions. The 70 or 80 definitions we have in sixth grade, they put back there. And I tell them it's their Bible. But it's very difficult to get them [to write] unless you stand over them. And I cannot stand standing over a kid. It makes them miserable in my class, and it just disrupts everything. So it's difficult with that…Everything is done within that book: the starter, the notes that we take, the definitions.

As he talked about his own need for more knowledge and training, this gifted science teacher longingly expressed a desire to learn more about how to address writing problems among ASD students. He said, "If someone could teach me the written part of it, I would love that." This teacher is not alone. Research participants in all three groups expressed a need for more knowledge and training in how to address challenges in educating children with ASD due to the characteristics of the disorder itself such as sensory behaviors, inattention, meltdowns, limited communication skills, and writing problems.

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Problematic Teacher Attitudes

Study participants in all three groups perceived teachers in general within the school system to be caring, positive, accepting, and willing to meet the educational needs of children with autism spectrum disorders. More on that topic is explored in the data analysis section on perceptions of relationships among parents and teachers. However, a fourth theme emerged among all three study groups regarding problematic teacher attitudes in inclusion settings that sometimes pose a barrier to meeting the educational needs of children with ASD. In particular interviewees described problematic teachers attitudes that sometimes occur in inclusion settings. Such attitudes include lack of acceptance of the child with autism, inflexibility, a "one-size-fits-all" teaching mentality, and unwillingness to differentiate instruction.

The preschool special education teacher said that in her role as Autism Coordinator she has seen " both ends" with regard to teachers who accept children with autism disorders and "want them" and those who do not. She observed, "Some [teachers] were so good, I'd praise them all the time, I just was so happy. And then others just didn't want to. It's definitely a barrier, 'I can't take care of that.' A lot of prejudices." When I asked her to describe what she meant by "prejudices," she described teachers with the following attitude:

> Well, why should he be in this classroom? He needs to be in a special ed
> classroom. Not wanting to give them a chance. Having to show them the legal,
> what the law says about it…"I didn't sign up for this."

One elementary general education teacher agreed that some of her colleagues resist receiving children with autism disorders in their classrooms:

> I'm not saying all gen ed teachers, some gen ed teachers are not for inclusion.
> They think at times it can be disruptive. And when I was wearing my "SPED"
> [special education] hat, it was hard to get my kids in inclusion settings because I
> was having to sell how great this is. And all they could think of was all the work
> they're going to have to do, which they already are spent, you know. So that's a
> barrier that I see a lot.

This teacher explained how difficult it is for some teachers to accept the child's limitations and accommodate for behaviors that cannot be changed. She observed, "A lot of teachers expect

kids with autism to come in, sit down, do the work independently, and not fidget, and that's not

gonna happen…You can't change those things."

Many study participants reflected upon the barrier that a "one-size-fits-all" mentality

poses in meeting the educational needs of children with ASD. Several interviewees perceived a

need for general education teachers who are flexible, willing to differentiate instruction, and

open to using a variety of teaching methods. One middle school special education teacher

observed that some general education teachers are more open and flexible in working with

students with autism disorders while others are not. She said, "I think that that's fear. A little bit

of fear. 'This takes me out of my comfort zone, and this is how I run my class, and this child's

not fitting in my classroom management structure.' That one-size-fits-all." The unwillingness

of some teachers to differentiate instruction or make accommodations for students with ASD not

only stems from fear but also from the time factor. As this teacher remarked, "It takes time. It

does take time. It takes a lot of energy. Middle school is, as you well know, it's an exhausting

place to work."

An elementary general education teacher reported similar feelings saying, "I went to a

training, and they're talking about all students will learn, and my question kept being, 'But do all

students have to learn the same thing? Or the same way?' " Another general education teacher

made similar observations about the one-size-fits-all mentality some of her colleagues imposed

on a high school student with autism. She said, "Sometimes I know that people, teachers,

expected him to, because he is very bright, they expected him to be like every other student.

Same amount of work, same amount, didn't modify as much, and kind of overwhelmed him

sometimes."

A high school general education teacher summarized beautifully the type of teacher with

whom ASD students need to be matched in order to avoid these kinds of problematic teacher

attitudes. Such teachers cannot be "my way or the highway" personalities. She reflected:

> But I believe, just like there are people that we just connect with…I think that
> they need to put them with teachers that are going to be flexible. I don't mean
> this to be a negative. You need to purposefully match these kids…I think

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somebody that's not really rigid…It can't be somebody that is just tunnel vision and rigid and, "This is the way we're going to do this." There is a difference between structure and…I don't want to sound like I'm being negative to people. I think they need somebody that is sympathetic, caring – not that most teachers aren't – and willing to take extra time. Most teachers are in it because they love kids. And you've got to be ready to go with them, and not "You're going to fit in my mold." I've got to fit in his. That's what I meant by the rigidness.

An elementary general education teacher gave an eloquent summary of the need for flexibility in designing individual programs to meet the needs of children with autism disorders rather than expecting them to fit into one mold on an educational assembly line:

I think we do need to be aware that we've got to be flexible on their behalf. And oh, oh how I wish that they were not expected to be flexible on our behalf! Regular ed has its structure and its setting and its schedule, and "You will meet that schedule and that setting, or you're not successful."…I just don't get that. I really feel that our responsibility as educators is to look at the needs of the children and develop from there rather than saying, "Here's the program, and you'll meet it."

When I asked this teacher what would be different if she could change anything about educational programs and services for children with autism disorders, she responded, "Building the program to meet them rather than asking them to meet the already structured program."

So what have been the experiences of parents with regard to problematic teachers attitudes? Although bad experiences have been the exception rather than the rule for parent interviewees, three of six families in this study reported at least one negative experience with problematic teacher attitudes. Sam's and Gordon's stories are the most touching examples.

Sam's story must be prefaced with his parents' general perception that overall they have had a very positive experience with the school system, and they have greatly appreciated the caring, love, and acceptance of Sam's teachers. His father described teachers as "loving him like Sam was their own kid." He added, "There's a general love, a true love that a lot of these teachers and aides have for these kids…they really care about them a whole lot here." However, Sam did have one negative experience with a teacher who simply lacked knowledge and training in how to work with autistic children. His mother elaborated:

We did have a couple of teachers that you could tell had not been accustomed to children with autism…And even at the beginning of one year we had one teacher that just thought he was being defiant…He was just being a kid with autism. And it was really hard…It was very difficult. Very difficult. She was frustrated. I can understand that, but we were too. We were.

I asked Sam's parents if they did anything to try to change the situation. His mother said every time they got a note about Sam's problem behavior, they tried to explain how this was just part of his autism disorder:

> And of course we explained, every time I'd get a note saying things like, "Sam won't listen to me" or "Sam keeps getting into stuff," well, yeah, [I'd say] he's gonna do that. And so any time she thought he was being belligerent or defiant, then I'd have to explain, "You know, it's not on purpose, I promise."

I asked Sam's mother to describe what it feels like as a parent when you know your child is not doing something on purpose but a teacher believes he is just being stubborn or defiant. She responded with deep emotion:

> It hurts. It hurts. This is your baby. This is your baby that you have loved and think is the sweetest, most perfect little Sam that could ever…I mean, he is Sam. That's the way, that's who he is. And it hurts. It really, we had rough afternoons when we'd get some of those notes or phone calls. It was very difficult.

Sam's mother not only felt like crying but "did cry," and those "first 3 months were pretty rough." What caused the breakthrough, the change in this teacher's attitude toward Sam? His mother said that a common love of music formed the basis for a growing bond between the teacher and Sam. This radical transformation culminated in a "video moment" with Sam sitting on the teacher's lap in elf costume singing away in the annual school Christmas program:

> Finally she discovered that he had a love of music, and they clicked…She had a music background. And she just fell in love with him then, and it was all about Sam…He sings all the time…I mean, we have to have a "no singing" sign for the desk. But she discovered that. And I remember at Christmas going to the Christmas program. And we really thought she just hated the child at the beginning of the year. Not "hated," but just didn't want him in her classroom for sure. There he sat in her lap in his little elf costume. And she just was so happy. She just had this little person in her lap singing away with her, in the teacher's lap. And she was just in heaven. And it was so sweet. It was love. Oh, we've got it on video!

As difficult as this experience was for Sam's parents, his story had a happy ending by mid-year. Sadly Gordon's heart-rending experience in kindergarten lasted much longer. Prior to kindergarten Gordon participated for 3 years in a self-contained special education Early Childhood Intervention Program. His mother perceived this program to be very effective, and she said that his teachers in preschool and elementary school have generally been caring and supportive. A significant exception occurred when Gordon transitioned from the preschool program to a general education kindergarten class. His mother said, "Kindergarten, in my opinion, should be the best year of your whole school experience for the child and for the parent," but for Gordon and her it was the total opposite. She hoped for a regular kindergarten placement for Gordon, but things did not work out as planned. She noted, "I think the teacher, from what I saw, was overwhelmed with the students and then Gordon…he's very vocal, and he just makes noises all the time." This teacher apparently lacked knowledge and training in working with autistic children, and she simply did not now how to handle Gordon's constant noise-making, his attention problems, or his difficulties completing his work.

Gordon's mother described a subsequent IEP meeting when "they wanted to put him in the extended resource…all day." She described the death of her dream for Gordon to be in a regular kindergarten class and her perception of negative teacher attitudes:

> I knew that he was a smart boy. I knew he was capable of learning. I knew that he just needed a chance…I remember during the meeting, I heard horror stories of things that he had done, and I just had a hard time believing that was my child. I remember one thing, and I'll never forget, the kindergarten teaching saying that she was told that he had come out of the bathroom with his clothes off, all of his clothes off. Well, Gordon is a very modest child and has always been very modest, and I knew that he would not have done that…And I wish that I had been on my toes enough to say, "I want to see the video, and I want to know which teacher told you that." I was mad. I was mad.

When I asked Gordon's mother if she felt pressure to put him in the resource class, she replied:

> I wanted what was best for him. I knew that the way she [the kindergarten teacher] was talking, him being in her classroom all day long was not the best for him because he was not going to learn. She was opposed to him being in there, and I didn't want… my child in somebody's room where he wasn't wanted.

The story did not end there. Although Gordon was moved to an extended resource program for half of the school day, he continued to participate in the regular kindergarten class and related arts classes during the remainder of the day. His mother said that problematic teacher attitudes continued in the general education setting:

> If you say "No talking," this child doesn't understand "No talking." Or if you say "Do this," sometimes it's going to take a few minutes for it to process. And I really don't think…Gordon's not a *bad* boy. He wasn't a *bad* boy, and a lot of the times that's how it came across. Sometimes I thought that they thought, some of the people that would work with him thought that he was a bad boy…It is awful. It's awful because you know your child, and you know your child is a good boy. And you want the best for your child as a parent, and it's hard when they don't understand. I could have told them all day, "He's a good boy. He's not doing this on purpose." But you run into the situation of, "Well, you're the parent, and you're not going to think your child does anything wrong."

Gordon's mother perceived that Gordon was "pushed away" and not fully accepted as a member of the kindergarten class. For example she said that the kindergarten teacher did not want him to participate in the end-of-year music program with her class because she did not think he could behave. Yet when Gordon's mother asked his special education teacher if he could join in practicing for the program, this teacher agreed to let him practice and even sent an assistant with him. However, the kindergarten teacher remained "very negative" and told Gordon's mother, "Well, we just don't think he's going to be able to stay in there." Gordon's mother played the advocate role as she strongly asserted, "He is going to be in this program. He can do this. He loves music. He loves to sing." In fact Gordon did well in the music program, and this did not surprise his mother at all.

The most hurtful evidence that Gordon was not fully accepted as a part of his kindergarten class came at the end of the year. His mother recalled the painful memory:

> At the end of the year I had gotten a picture. His kindergarten teacher had given everybody a collage of pictures, and at Christmas they had made little sweatshirts with reindeer, and all the children had one except for Gordon. Apparently a parent had come in to help and Gordon was not in the classroom. And I remember when they went on a field trip, the kindergarten class went on a field trip, and Gordon couldn't go because it was during the time that he was in extended resource. And that's just…you try so hard for your child to be with those peers. I really saw the teacher trying to push him out.

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Happily, Gordon had a wonderful experience for the next 2 years in elementary school in an inclusion classroom with a general education teacher whom the school district sent for training in the TEACCH method for working with children with autism disorders. This general education teacher looped with Gordon for 2 years to provide continued benefit of her training. She had a teaching assistant in the classroom and the support of the Autism Coordinator. The training and support this teacher enjoyed apparently made a vast difference. In contrast to kindergarten Gordon was fully identified with the class "from the beginning to the end" and included in all their activities. Gordon and his mother also enjoyed what she described as a very strong, positive relationship with a caring, accepting teacher. The moral of Gordon's story may be that when one major barrier is removed for teachers, namely that of lack of training and knowledge, other barriers such as problematic teacher attitudes and challenges due to characteristics of the disorder are subsequently reduced or eliminated.

Problematic Parent Attitudes

All three study groups described experiences with problematic parent attitudes that have sometimes posed a challenge for them in meeting the educational needs of children with ASD. However, teachers and parents reported different types of experiences that represent divergent subcategories within this theme. In particular special education teachers and general education teachers described two types of problematic parent attitudes: unrealistic expectations and overprotection. Not surprisingly parent study participants did not view themselves as having such attitudes, but they did relate experiences with other parents whose attitudes were hurtful to them due to intolerance or lack of understanding of autism.

Unrealistic expectations and overprotection. Study participants in the special education and general education teacher groups described their relationships with parents of children with ASD in general as positive, collaborative, and supportive. However, a theme emerged among both teacher groups regarding problematic parent attitudes that have sometimes

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posed a barrier for them in meeting the educational needs of children with ASD. Teachers described two extremes they have found challenging: parents with unrealistic expectations that are too high and overprotective parents whose expectations are too low. Sometimes the challenge for teachers involves helping parents come to terms with the nature of the disability. There is a fine balance involved as parents struggle with accepting their child's disability while not underestimating the child's potential.

One secondary special education teacher described her perceptions of the two extremes between parents with unrealistic expectations and those who are overprotective as follows:

> Sometimes I have seen the parent be a challenge – their expectations of what you can deliver versus what can actually happen…One might be that they want their child in the regular ed class regardless, and that's their child's right, and that's where they should be whether that disrupts everything that's going on. So there have been issues where that expectation is very demanding. And then you have the expectations that might be the opposite. They don't want their child to be out there in the regular class or in the inclusion class because they can't handle that, or that's not what they want. That's not appropriate for them. Their expectations of the school system may be that they need a one-on-one situation, or they need to be in this small group setting and that's it.

An elementary general education teacher related similar thoughts as she said, "It can go either way…Sometimes you have parents who want so little asked of their child that you're not moving that child forward enough, and then other parents who just are going to push the child beyond the limits."

Fear was often mentioned as an underlying problem for overprotective parents. For example a high school special education teacher observed, "It's like they're so scared to push them [students with ASD], and they need to be stretched." She described a student in one of her special education classes who demonstrated the ability to be in harder classes, but when teachers tried to tell his parents, "This kid can be so much more than what you're giving him credit for," the parents were afraid to "push him" by placing him in more rigorous classes. The teacher concluded, "It's a big barrier for him because he really could be something more."

An elementary teacher also talked about parents' fears as she described the barrier she has sometimes faced due to "parents not letting go." She gave the following example:

With Barbara *(pseudonym)*, the first student I had… Mom was thrilled to death: "I'm really excited, and I'm glad you think she can go in a classroom. Yeah, let's see where this is going to take us." Then you had Dad who was scared to death to let little girl go and wanted her under that wing. During his week he would walk her to the classroom and would wait until she was completely unpacked and at her desk before he would leave. Yet I finally was able to get Mom to stop at the steps because I could see her, she could see me. Just let her come on herself. And I can see their fear. I understand their fear… I understand. You want to protect them and you want to be there, but you have to nudge them on too.

Parents who have unrealistically high expectations for their autistic child also pose challenges for teachers. Unrealistic expectations can stem from denial, from lack of understanding of the nature of the disorder itself, or simply from lack of clarity about a child's limitations at a particular point in time. For example a special education teacher of a self-contained program for children with severe delays described the challenges she has faced helping the parents of children with severe autism come to terms with the nature of the children's disability and their limitations. This teacher has had to be very sensitive in helping parents deal with the death of dreams. She explained:

Sometimes with their parents, like you're sitting in an M-Team. And you've got all this data and all these age equivalencies and all these goals that you've written, and the parent will say something that's just so outside the realm of possibility. And you're just like, "Oh my goodness." I mean dreams die really hard. And nobody wants to sit there and look at a parent and say, "Your child's never gonna do such and such."

When I asked if parents ever put pressure on her to deliver more than is possible, she said:

I have had parents put a lot of pressure on me, yeah…like sometimes I've had parents make really unreasonable requests. I had a mother once, this was several years back, she told me she wanted me to teach her child the ABCs. ABC meant nothing to this child. It was so inappropriate. I might have been able to do it, I doubt it, but even if I could have done it, it would have been totally useless. Just useless, because the child was pretty low functioning. So they'll say things like that, and I always try to kind of redirect it to something more appropriate. And I say, "Well, how about if I teach him to recognize his first name in print, and then he can find his locker or his book bag?" And she was fine with that.

Another special education teacher described her relationships with parents overall as very good, but she too observed that parents sometimes place pressure on teachers to meet unrealistic expectations. She gave the following example from a secondary school setting:

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I have had one situation where the particular parents were not dealing well at home, were not willing to do some things that we suggested at school. It was not a good situation. The child was totally out of control, at school, at home, and parents wanting their child to be everything out in the mainstream, general ed class, and not accepting that at this point in time we've got to get this child to a behavior management class…He couldn't handle it [the general education class]. At that point in time something was going on that he wasn't handling it. It wasn't happening. And this child needed to, we needed to drop back. And that was a hard thing for parents…Realistic expectations.

Intolerance and lack of understanding by other parents. Not surprisingly parents who participated in this study did not perceive themselves as having problematic attitudes due to unrealistic expectations or feelings of overprotection. However, parent interviewees did relate experiences with other parents whose attitudes have been problematic for them due to intolerance or lack of understanding of autism.

For example Ross's mother stated, "One of my biggest frustrations, I guess, is people that don't know anything about it [autism] but think they know everything about it." She described situations "like at church" when other people are trying to be encouraging by saying something nice about Ross, but it comes across as condescending. She explained:

I think people assume autism means he's stupid or something, because people will come up to me and say, "Oh, Ross did this or did that." And it will be something that he's been able to do for a long time…Well he's not stupid. He is ___ years old. He can do that.

Ross's mother described another scenario that is typical of that experienced by many parents of children with autism disorders. This situation almost always occurs in a public setting when the autistic child is merely displaying typical autistic behaviors, the parent is trying to cope, and other adults give the parent the "evil eye" as if to say, "Why can't you control your child?" or "What is wrong with you that you are such a terrible parent?" Even parents of typical children have had this experience in the check-out line at the grocery store as their toddler had a tantrum over a candy bar. One can only imagine how much worse it must be for parents of children with ASD to cope with rude and intolerant adults on a regular basis, as when Ross's mother went to get ice cream with her son one night:

The other frustration, my biggest one probably and my mom's, is people who stare…We went to get ice cream one night and Ross, love his heart, he could not decide where he wanted to sit. So he wanted to sit in the high chair and then the little chair, and then he wanted *(his sibling)* to sit with him. So we were just playing musical chairs amongst our seats. This little girl was just staring at him and asking her parents questions. And I kind of wish I'd said something, but I was kind of tired and grumpy, so I thought it might not be nice if I say something. But I guess when he's just acting a little abnormal out in public…Sometimes my mom will say stuff because it will just make her mad…She'll just say, "It's not nice to stare." Sometimes she'll say, "He has autism." And sometimes I want to say that, but sometimes I think it's none of their business really. I don't have to tell them. One time I got on *Facebook* and for my status I put something like, "I'm going to go buy Ross one of those shirts that says, 'I have autism.' " No, I forget what his shirt was going to say, but I said, "I'm going to get one that says, 'My kid has autism. What's wrong with yours?' " Some smart-aleck shirt just so people would know. Because people just look and look and look, and that's always bothered me.

Dealing with the lack of acceptance, lack of understanding, and intolerant attitudes of other adults is an on-going dilemma for parents of children with autism disorders because, as Ross's mother said, "You want to explain it to people because you want them to know, but sometimes you get tired of explaining it to them and you don't care." However, when I asked Ross's mother if she had ever encountered similar experiences in the school setting from other parents, she responded, "No." In fact, she described only positive experiences with parents, teachers, and other children whom she has encountered in Ross's preschool setting. She further remarked, "I think here other parents know that the special ed preschools are here." Perhaps this knowledge contributes to a more accepting and tolerant atmosphere in the school setting.

Troy's mother has not encountered any negative feedback from other parents in Troy's elementary school either. She stated, "I haven't really had any of that, I haven't. Like I said, I've been very blessed. And usually the kids love Troy. And usually really the kids are more accepting than some grownups." However, like Ross's mother Troy's mother described how difficult it is in public settings when she encounters lack of acceptance by other parents who wonder, "Why is this child screaming? Why is he throwing a fit?"

Gordon's mother reiterated the need for more parental awareness and acceptance of children with autism. Unlike other parents in this study she has experienced negative attitudes

from other parents within the school setting, not just without. When I asked her to describe the barriers and challenges she has faced in meeting Gordon's educational needs, she responded:

> I guess it would be, and I really don't see this as much now as I did in the past, would be people in general, I'm talking about parents, not understanding the needs of all children. I remember, and this was in kindergarten, a parent had made the comment, "Well I've heard that Gordon can be up doing this. Why can't my child be up doing this or doing that?" The teacher told me about it, and I'm just like, "Explain that he doesn't develop like this child does." I said, "I will talk to the parent." I guess parental awareness.

Another hurtful experience occurred in kindergarten when another parent did not want her child to play with Gordon. The teacher passed along the parent's complaint in an email to Gordon's mother and subsequently separated the children. Gordon's mother recalled her own reaction saying, "I just cried because I just thought, 'How could you not want your child to play with another child?' I guess if the child was being mean to this child or harm being done…[but] there were no safety issues."

Near the end of the interview I asked Gordon's mother what she would like for me to emphasize in the report based on study findings. She implored me to emphasize that parents of typically developing children need to be more understanding and accepting of children with autism, more sensitive to their feelings, and more aware of their potential. She summarized:

> Children with autism are capable and a lot of the times they're more capable than we give them credit for. They do have feelings, and a lot of times we don't see those feelings. We think that they are, well "They don't know so why include them?" But they are very aware of how people feel about them…And too I guess people with typically developing children don't understand the parents of autistic children. A lot of the times people see Gordon act in a certain way and think that it's because I let him act that way. Well a lot of times he acts that way because he can't help it. And it's not fair to me to say, "Don't do that. Stop doing that," when that's who he is.

Gordon's mother would be overjoyed to join Ross's mother in the ice cream parlor and no longer have people staring at them with accusatory glances that project blame and guilt for behaviors that are totally beyond their control as parents. Just like any other parent, parents of children with autism disorders long for other adults to simply accept their children for "who they are."

Transition Issues

Because resistance to environmental change or change in daily routines is a characteristic feature of autism spectrum disorder (*DSM-IV-TR*, 2000; National Research Council, 2001), children with ASD are faced with unique challenges as they transition among classes and teachers and from one school level to the next. Researchers (e.g., Iovannone et al., 2003) have observed that facilitating transitions and change is an essential feature of effective educational programs for students with autism spectrum disorders.

A sixth theme emerged among all three study groups regarding challenges they have faced with facilitating smooth transitions for children with ASD from one school level to the next, i.e. from preschool to elementary to middle to high school. One special education teacher observed:

> It's essential to provide appropriate transitions: preschool to elementary school, elementary school to middle, middle to high school. Because anytime schedules change, students with autism, Asperger's, anywhere on that scale, have challenges with that schedule because of the change. It's not only a different routine, it's a *huge* change in routine. So I think it's essential to have appropriate transition, and that can be complicated.

For children with autism spectrum disorders and their parents, the first major transition occurs as they enter the district's preschool special education Early Childhood Intervention Program. Four of six parents who participated in this study received some services such as speech-language therapy and occupational therapy through Tennessee Early Intervention System (TEIS) prior to their children entering the district's preschool early intervention program at age 3. TEIS services were provided under Part C of Individuals with Disabilities Education Act (2004), which mandates that children from birth to age 3 who have a disability are eligible to receive appropriate developmental, therapeutic, and family support services under an Individual Family Services Plan (IFSP).

Gordon, Troy, Ross, and Brent each transitioned at age 3 to the district's preschool Early Childhood Intervention Program. Because TEIS services are primarily provided in the home, this step can be a frightening one for parents. Brent's mother initially visited another preschool

special education program in another school district where she had a negative reaction. She described her visit to the other system:

> I didn't care for the people. I didn't feel welcome. I didn't feel the environment was…I just wasn't pleased with it. I didn't like the facility that they had. And I had just not heard good things about that special education program…I didn't know that much about what his class would be like. I was never shown the classroom. We had our little meeting in what was like a therapy room. And I was never shown his classroom as to what it looked like. And that was one of the first things when we came to this school system that we met in the classroom. He [Brent] got to come. He came with me, and he played.

Brent's mother felt warmly welcomed by school staff in this school system as she and Brent were shown the class and given an idea of what to expect, "Here's what we do." Her experience suggest that a smooth transition to preschool can be facilitated by things as simple as inviting a child to attend a transition meeting with the parent, meeting in the classroom so the parent and child can see what it looks like, and giving the parent examples of what the child will be doing in the program. Brent's mother moved to the current school district so that he could attend the preschool program where she gained a positive impression through a warm welcome.

Gordon's mother reported that he stayed an extra year in the preschool program before progressing to kindergarten. She found the extra year very beneficial and strongly recommended that to other parents. Ross and Brent have also remained an extra year in the preschool early intervention program. This is a step that the district often takes for children with autism disorders to facilitate readiness for kindergarten and a smoother transition to elementary school.

Even with the extra year in preschool the transition to kindergarten and elementary school presents a big challenge for children with ASD. The negative experience Gordon and his mother had with his transition to kindergarten has already been described (see Problematic Teacher Attitudes). Gordon's transition problems in kindergarten appeared to stem in large part from negative teacher attitudes, lack of training on her part, and difficulty addressing disruptive behaviors Gordon displayed in the classroom. When the district provided his first-second grade teacher with adequate training, a part-time assistant in the classroom, and consultation services with the Autism Coordinator, Gordon had an entirely different transition experience.

Ross's mother said she hopes for a successful transition as Ross moves from preschool to kindergarten. She has already attended an IEP meeting to make plans, but she remains worried. She explained her fears about the transition:

> It scares me to death. We call his [preschool] program his little bubble that we want to keep him in, protected. So we're nervous about him going…Like we were hoping he might get an aide for kindergarten to be with him all the time. I guess it goes back to me not always giving him enough credit, but sometimes I think he's not going to sit in class and get his paper out and color this if somebody's not just constantly telling him…And I worry about kindergarten, about him doing well in the class, and I also worry about if he's too disruptive in class and other children not getting the experience they need because of that. I'm kind of aware of both sides of it.

When I asked her what she has found helpful in facilitating effective transitions from elementary to middle school, a special education teacher who has taught at both the middle school and elementary levels observed:

> It means visits from elementary to middle school. Go and sit in on a science and social studies class one week. Go and have lunch and math in a class the next week. Go after school with your parents to a ball game at that particular school. Getting to know the building. Getting the opportunity to sit in the classroom that you will be sitting in come during the fall. And also if that particular school has any type of summer program, the library is open for check-out. Go to the library, check out books. You're walking through the door. This is now your school. And you get an opportunity to see people there. You see the teachers there, even though it may be in an informal way. You can take your schedule and find all your classes ahead of time. Also a technique I have seen is when you begin your visits, start taking pictures and that way at home the parent can put those in an album and say, "Hey, when you go to middle school, you'll be seeing Mrs. Jones who will be teaching…whatever."

Even though these kinds of techniques are regularly used as children with ASD transition from elementary school to middle school, that step still presents a vast challenge for them. One middle school special education teacher observed that the transition from elementary to middle school involves "moving into a totally different domain" because students typically have more teachers and class changes in the course of a school day than they had in elementary school. She observed "change is their biggest issue, and across the board as I look at all of my students [with ASD] that is the number one issue." Whereas elementary students with ASD may have one or

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two general education teachers and a resource teacher whom they see daily, in middle school

they may transition among seven or eight teachers and classes in a day. Within each of those

eight classes, there are variations in teacher personalities, rules, expectations, and teaching styles.

All this means a vast amount of adaption to change for students with autism disorders.

Another middle school special education teacher reported that an essential component of

planning for children with autism disorders in the middle grades involves getting them ready for

the next major transition to high school from "day one," not just during their eighth grade year.

She reflected:

> But more and more and more we realize as soon as students [with ASD] are
> coming out of elementary school, often with a little more specialized formalized
> program, or not, but very often from more self-contained settings. And they move
> into the biggest transition they'll ever go through in their life moving from the
> confines of elementary school to middle school. We begin day one. I used to
> think of sixth grade as an extension of fifth grade; it's just another elementary.
> No, it's the beginning of getting them ready for high school.

This teacher described ways in which middle grade teachers use behavior plans and conferencing

with ASD student to facilitate increased self-direction, self-regulation, and independence in

preparation for the transition to high school. She gave two examples, one where this went well

and one where it did not. She said one student with ASD "was a wreck, quite honestly" by the

time he left middle school, and he "had a tough, tough transition into high school." She added:

> I'm beating up on myself a bit for not having done a better job with transitioning
> him to high school, without taking him or finding the time in the rest of our busy
> day to take him to the high school, to literally let him walk the halls, to literally let
> him find his way around that big menacing place and to see some of the teachers
> he really would have before he walked into the school the first day. And that
> didn't happen.

The middle school educator described another student who had what she considered a more

typical, positive experience:

> I'm thinking of a little girl named Nancy (*pseudonym*) who is now in high school.
> And thinking about her transition meeting to high school…This little girl was
> quickly becoming a success story, so much so that we had her in the spring play at
> the end of the year last year. Flat monotone, yet expressive in her own way.
> Starting to exhibit body language. And it hit all of us at that point, my goodness,

when we go to her meeting at the high school, let's talk about theatre, getting her involved in the dramatics. She had come that far. We go to the meeting a couple of weeks later and we're sitting there, and we're talking about what wonderful theatrical potential she might just have. And the mother just said, "Oh no, that wouldn't be possible. I'm not going to let her run into the possibility of embarrassing herself or failing." And the little girl was sitting there with her… she turned around and she looked at her mother, and she said, "It's my turn to make my decisions about me." That spoke volumes. That spoke volumes. I checked up on her just a couple of days ago, and she is having a bang-up year.

I asked if the student got into drama, and the teacher said, "She did," then added:

She told her mother recently that she wanted to take German so she could develop a German accent for the stage. And her mother said again, "Oh no, that's going to be too hard. You don't need to take German." And she said, "My choice!" My thought was, "Job well done for the whole process." And I've used that as a summary because that speaks to where we want to be by the time our students leave middle school – at the point where they are really able to take care of themselves.

Although middle school teachers reported making excellent strides in preparing students such as Nancy for the transition to high school, nevertheless significant transition issues remain at the high school level. One general education high school teacher observed, "I think there needs to be better communication between eighth grade and ninth." She added, "Specifically if I'm going to have a student as a freshman, I would like to get some background and get some knowledge about it before they come in the first day." A high school special education teacher agreed with her colleague as she mused:

I wish they [ASD students] all came with a little tag that told us all the information about it...I wish we had more time at the end of the year to go to each teacher and say, "Tell me what worked, or what didn't work." Why should I spend two months out of four and a half figuring out this kid? What works and what doesn't? And we don't have that. I would love to do that for all special ed.

When I asked her what hinders communication with prior teachers, this teacher said that transition IEP meetings for upcoming ninth grade special education students are held in the spring of their eighth grade year, and only one special education teacher from the high school attends each student's transition meeting. Unfortunately this may not be the special education

teacher whom the ASD student has in ninth grade because teachers' class assignments are not made until just before school starts in August.

Karen's father described her difficulty transitioning to high school:

She had a hard time originally. Yeah, she still has…she can't even make it to the school bus. I've got to pick her up every afternoon because she can't get from one end of the school to the other end lugging her two book bags and everything…And rather than put her through a big hassle every day, I'm coming from work, I just pick her up.

Looking ahead Karen's father said he would like more assistance with the next major transition Karen will make, that to college and adult life. He summarized his thoughts:

I guess I would like to see her be able to eventually function on her own and not have to depend on anybody for life or living. So if they could identify what she needs because she's talking about she wants to go to college…I'd like to have a little more feedback about how she could function, what classes she needs to take…find out where her strengths are and her weaknesses…find out what maybe she would be good at for later in life.

A middle school special education teacher could have been thinking of Karen when she observed that educators have to constantly be aware of the next steps that students with autism disorders need to take until the moment they leave high school. She wisely concluded:

Through this process and the learning environment, where they have 13 years to be within our confine, or more, we can't lose sight of the needs just because they're progressing. I think we have to be very cognizant of the fact that at any given time we're always going to need to step in.

Need for Additional Services and Therapies

A seventh divergent theme emerged among two participants groups, parents and special education teachers, who perceived a need for additional services and therapies for students with ASD in the school district. Parents perceived a need for more occupational therapy and speech-language therapy services for their children. Middle school special education teachers perceived a need for more occupational therapy and social skills training for students in the middle grades. Elementary special education teachers perceived a need to separate existing part-time and full-time resource programs in elementary schools. Some elementary special education teachers

would like to see a K-2 class for students with autism and other communication disorders developed as a transition program between the preschool early intervention program and elementary resource programs.

All seven parent interviewees felt that direct speech-language therapy has been very effective with their children in helping to develop their communication skills. Five of six children represented in this study have also received occupational therapy services that their parents perceived to be very helpful in addressing sensory problems and fine motor delays. Several parents felt that their children do not receive enough therapy. Motivated by worry that they may not be doing enough for their autistic children, some parents have felt pressure to go outside the system to pay for more therapy on their own.

For example Brent's mother stated:

I love his teacher. I love his program. I think it's great. It's done wonders for him, but I don't think there is enough of some of the therapy. I don't think there's enough speech. I don't think thirty minutes twice a week is enough for some children. And I don't think thirty minutes for occupational therapy is enough.

Brent's mother has gone outside the system at her own expense to obtain additional speech-language therapy and occupational therapy for Brent from private sources. Although this has put financial pressure on her as a working mother, she still worries about not doing enough:

And feeling like I'm not doing enough for him because I can't afford to take him and do this and put him in this. And not being able to go out and buy a lot of equipment to have here at home to work with him, you know, educational things and therapy stuff. It sometimes can make you feel emotionally like I'm not helping him. I'm not doing enough for him. I'm doing an injustice to him because I can't do everything.

Brent's mother said if she could change anything about existing educational programs for children with autism there would be more therapies. I asked her what "more therapies" would "look like" for her son. She replied:

I think for speech he would have three sessions a week. He would have two sessions of OT a week…They've done well with him at school, but I think had he not had that outside help, he would not have done as well. I don't want to take away from the school, from his teachers…Of course there's no way to measure had I not taken him, but I feel because that's what he had. He had speech three

times a week. He had OT twice a week. And then we've thrown in a little bit of some alternative therapies like the horse. Some people say you should try the music therapy, but you can't do everything and not all therapies are covered. They're expensive.

Ross's mother has also gone outside the system to purchase additional therapies for him at her own expense. Ross receives outside speech-language therapy once weekly, and a trained behavioral specialist comes once or twice weekly to the home to implement ABA (applied behavior analysis) therapy with him. When asked what she would change about existing programs and services, Ross's mother expressed a desire for more ABA therapy:

> In our system I wish they would employ somebody that did ABA because it is really expensive. And I think more kids would benefit from it. And I know Ms. Jones (*pseudonym*) does incorporate it into her program…I think it worked really well for Ross. Of course it's not like any of his therapies that he's ever had was the only one he was having at that time, so it's kind of hard to know what helped most…But from what I read on the Internet and message boards where you talk with other parents with autism, it seems to be kind of the gold standard of therapy.

None of the special education teacher participants mentioned a need for more speech-language therapy. However, three special education teachers perceived a need for more occupational therapy for secondary level students with ASD. In fact when I asked Sam's mother if she has ever had to "fight" for anything, she immediately replied, "OT." She said that Sam had occupational therapy all through elementary school, but in middle school there was an attempt to drop direct services. Sam's mother described her meeting with the OT therapist:

> She basically gave me a laundry list of things that weren't happening, the reasons why she couldn't work with him. Like "Well, we would like to do an obstacle course, but it's always raining." So none of the goals had been met, and she still wanted to dismiss. And I said, "I don't know how comfortable I am with that. I'm not comfortable with this." She said, "Well, how about I just put him on consult for the first six weeks of next year, and then we'll talk about it again?"

After the first 6 weeks of the next school year and another meeting with the occupational therapist, Sam's mother was able to get his therapy restored.

Based on her experience with students with autism disorders in the middle grades one special education teacher stated, "We need more sensory integration for our kids, more OT type of things, especially in middle school and secondary. We don't want to give up on that

secondary thing." When I asked her how more occupational therapy could benefit older students, this teacher elaborated that whereas younger children benefit from working on OT goals related to handwriting, fine motor skills, buttoning, and zipping, older students need to work on goals related to handwriting, personal space, emotional self-regulation, social relationships, and boundaries with the opposite sex.

Other special education teacher study participants reiterated the need for more social skills training for secondary level ASD students to assist them with issues such as boy-girl relationships, personal space, and appropriate social behavior. When I asked what she would change about existing programs and services for children with autism disorders in the school system, one middle school special education teacher responded:

> If I could change, and idealistically had the hours in the day, I would like to have an opportunity to have one class several times a week where we can do just strictly social skills training with just this population of students…That I think would be huge. I think that's one of the number one things that we could add to our repertoire is to give them some more social skills training. Get them involved in some service learning opportunities, getting them out in the community where we see them in a little bit different light than just trying to manage behaviors.

Another middle school special education teacher concurred as she expressed her desire for a middle grades social skills class that would address behavioral and social interaction skills in a practical manner with role-playing and other fun activities. Sam's mother would be the first to sign him up for the class. Sam's need for more social skills training is typical of that exhibited by many secondary age students with an autism disorder. His mother explained:

> He still needs so much help with the social skills. And if he had someone just coaching him once or twice a week…because we still have to deal with personal space and a whole lot of problems with that. He loves to get right in your face to tell you things. And he just doesn't know…And especially now that he's actually showing interest in forming relationships. He needs the coaching. He definitely needs it…He'll see a girl and say, "Hey," and he thinks it's totally appropriate to go give her a kiss on the cheek because that's what he does to me.

Elementary school special education teachers voiced a need to change the structure of existing elementary resource room programs. Elementary level resource programs serve students with all disabilities in a setting where some students attend part-time while others attend in what

amounts to a self-contained program. Several study participants mentioned the need to split

some existing elementary resource classes into separate self-contained and part-time programs.

Elementary special education teachers in this study perceived it challenging to meet the needs of

students with ASD in resource settings where as many as 40 or more students cycle through a

resource room during the school day, and some stay only an hour or two while others remain all

day. Elementary resource teachers said it is extremely difficult to implement appropriate

teaching methods for students with autism disorders when so many other students are cycling

through and often require other kinds of interventions.

Several elementary special education teachers also felt that it would be helpful to develop

a K-2 special education class for students with autism spectrum disorders and other

communication disorders so that intensive interventions that are appropriate for these children

could be continued in a smoother transition from the preschool early intervention program to the

early elementary grades.

Perceptions of Relationships among Parents and Teachers

The perceptions of parents of children with ASD, special education teachers, and general

education teachers regarding their experiences and relationships with one another in meeting the

educational needs of children with ASD were analyzed first by considering participants' views of

parent-teacher relationships.   Another level of analysis was conducted to address special

education and general education teachers' perceptions of their relationships with one another in

providing educational interventions for children with ASD.

Parent-Teacher Relationships

A number of researchers have identified family involvement as an essential component of

effective educational programs for children with autism spectrum disorders (e.g., Dawson &

Osterling, 1997; Dunlap et al., 2008; Hurth, Shaw et al., 1999; National Research Council,

2001). For example Dunlap et al. (2008) reported that family involvement has been associated

with increased student learning, greater generalization of acquired skills, greater acceptance of school programs by family members, and a higher level of trust in school professionals.

Consistent with the research literature participants in all three groups in this study perceived family involvement and positive parent-teacher relationships to be essential components of effective educational programs for children with autism spectrum disorders. Four major themes emerged among all three participant groups regarding factors they believe facilitate family involvement and positive parent-teacher relationships: (1) collaboration, teamwork, and support; (2) on-going communication; (3) IEP Team meetings and the IEP itself; and (4) positive teacher relationships with autistic children.

Collaboration, teamwork, and support. Study participants in all three groups reported positive perceptions of their relationships with one another based on experiences of collaboration, teamwork, and mutual support. Parents and teachers viewed themselves as equal partners fully included in collaborative decision-making processes rather than hostile adversaries. Each study group perceived themselves as bringing valuable knowledge and experience to the table; none reported being treated as secondary team players.

Parents consistently reported positive relationships with teachers based on being treated as "equal members of the team." Their experiences of teamwork and collaboration appeared to contribute to high levels of satisfaction with their children's educational programs. For example Troy's mother said that she has been very happy with his school program, that she has "been blessed with good teachers," and that she has enjoyed positive experiences as an equal member of the team. She said, "I think working together as a team, that teamwork is very important, to know what his levels are, and how to improve his goals, and how we're going to get to this goal, and all working together." She added, "We felt like everybody was on the same page, and so I think that was very successful with him."

Sam's mother voiced similar feelings as she reflected, "Of course for us personally, it's just been such a good experience. We have really been blessed. Because really, for this child in particular he has just had a wonderful school experience…That's really what it's felt like." Sam's father added, "We have really worked to try to develop relationships with the teachers because we really want them to be an advocate for our child too, and we have a tight relationship with them." Sam's parents reported feeling treated with fairness and respect as equal team members even when they had to advocate for something for Sam. Positive parent-teacher relationships have contributed to a very positive school experience for this family.

Brent's mother summarized beautifully what it has felt like for her as a parent to be fully accepted as an equal member of the team with any idea welcomed. When I asked her to describe her relationship with Brent's teacher, she remarked, "I think it was very good. She never thought any of my ideas or any of my concerns were…she never pooh poohed anything, like 'That's ridiculous,' or 'that's crazy,' or 'I don't see it.' "

Ross's mother said that she has been "extremely happy" with his educational program. She described her relationship with Ross's preschool special education teacher as "very positive" saying, "We love her! She is definitely his teacher and tells us stuff we need to do better, different, if it comes up, but she loves him, and we love her."

Gordon's mother viewed teamwork and support as essential for the success of his educational program. She remarked:

> I think the one thing that you need to have is everybody on board, from the administration to the teachers, assistants, and home…That means, "I'm going to back you up, and you're going to back me up," and everybody knowing what's going on.

After positive experiences during his preschool years, Gordon's mother did not enjoy a positive, collaborative relationship with his teacher during the rough patch of his kindergarten year. The situation reversed again in the following years as she enjoyed a collaborative and positive relationship with Gordon's general education teacher who was sent for special training by the school system to prepare her to work with autistic children.

Special education teachers perceived their relationships with parents of children with ASD to be somewhat "mixed" depending upon whether parents are involved in their children's educational programs or not. Special education teachers described very positive, collaborate relationships with parents who are involved. For parents who are not involved special education teachers continue sending newsletters, emails, teacher-made materials, and information about how to help students with class work, but there are a few parents who do not show an interest or respond. Special education teachers included family involvement and support among their "essentials" for effective educational programs for children with ASD, but they have not always been able to engage every family.

For example a preschool special education teacher stated that autistic children definitely benefit when parents are involved:

> It impacts them a lot, but I don't know if it's the involvement with the school or the involvement in their child's life or both. I'm not sure what that is, but I think if I can communicate with the parent, if we can be on the same page, it's huge.

However, this teacher also observed that some parents need time to adjust to the diagnosis before they can become involved. She explained, "Some of the parents, it's just too much for them right now. They just can't deal with it right now [because of] the newness of it." In the case of students who have been with her three years she said, "I'm very involved with their parents. It's going to be really hard for me to let them go."

An elementary special education teacher who teaches a self-contained class for children with severe delays described her relationships with parents of autistic children as "very good." However, she has to be very supportive with some parents who may cry in meetings because the diagnosis is new to them, they are "still coming to grips with it," and they are dealing with "lost hopes and dreams." This teacher described the supportive, caring role that she plays with parents who are emotionally fragile:

> I try to be careful about how I say things to them…I learned once a long while back, I try not to say anything negative…So if something's gone wrong and I need to say it, I'll say, "So and so had a hard time sitting today. We only made it

about seven minutes" instead of saying, "Your child can't sit in a chair." So I try to be very careful what I say to them. Some of the parents are really fragile.

Another special education teacher observed how important has been for her to be a good listener as a foundation for building positive parent-teacher relationships while at the same time helping parents to come to terms with the nature of their child's disability:

> I think I've had good relationships with parents. Number one, I listen, because no one knows that child better than that parent, because they've been with that child twenty-four seven. So when that parent is coming to an educator, they want that educator to listen, foremost to be a good listener. And two, I think one of the things we have to do is help our parents be realistic…There's not going to be an absolute perfect panacea. We have to help our parents realize if you have true autism…there's not a cure…you want that child to reach his or her greatest potential, but that child may always need some degree of care.

The theme of collaboration, teamwork, and support was also strongly endorsed by general education teachers, who reported positive relationships with the parents of their students with ASD. An elementary general education teacher remarked, "In general, I think minus one, I think I've had great relationships with those parents. As a matter of fact, parents that are just extremely appreciative." Another general education teacher said:

> I have not had an uncooperative or difficult parent. They have been very tolerant. They have been very accepting of the efforts that I have made and been very tolerant of my saying, "I've tried this, and it was just a disaster, and I'm sorry, and I won't do it again. I do learn from my mistakes."

One general education teacher reflected that a caring, accepting attitude has helped her to develop positive parent-teacher relationships:

> I have had really good experiences with my parents of kids with autism…One of my parents once said that they think I understand them, and I kind of think I do…I think that they know that I'm willing to work with their kids too, and that's really all a lot of them want is just somebody that's going to accept their child.

A high school general education teacher described an extremely positive, collaborative relationship she has built with the family of a student with ASD whom she has taught for several years. Parent involvement, mutual collaboration, teamwork, and support have been the foundation for her "dream team" experience with this particular student. She reflected:

I don't think he is typical, and I don't think his parents are typical. So I'm like the person that has the All-State player, and I'm trying to say, "This is how you coach kids," and I've got this dream team…because I've had such a great experience, and they've just been so wonderful all the way around.

Support is a two-way street. Special education and general education teachers in this study not only described ways they have provided support for parents but they also mentioned "support" and "trust" as something they want most from parents in return. When asked what she wants want most from parents, one special education teacher responded:

Support. Trust. With Barbara *(pseudonym)* I wanted the parents to trust me, yet at the same time they were giving me their daughter with autism, and I'd never had a student with autism. So asking for their trust was a big thing to ask.

Another special education teacher voiced similar feelings saying she wants parents "to be involved and to trust my techniques… it's very important that they trust their child with you, because trust is a big thing."

Three general education teachers specifically mentioned "support" as something they want most from parents. One general education teacher said he loves hearing parents say, "We're here to work with you. Listen, we know it's gonna be tough. We're here to work with you." He exclaimed, "Those are the words I really like hearing!" A secondary school general education teacher described what parent support means to her:

Be supportive, help me, but I don't want you to tell me, "You need to do this," and "You need to do that" or "He can't do this. He can't."…Just be patient with me. You've had 14 years with a child. I've had 14 days. Help me, but also give me room to fail and to succeed. I've go to learn too because the classroom is totally different. And I will learn it. I will learn it quickly, but I need that time and patience.

Another general education teacher eloquently summarized how collaboration, teamwork, and support facilitate positive parent-teacher relationships. When asked what she wants most from parents, she replied, "I think just the cooperation between home and school. That was really all I could ask for, is just being able to cooperate and coordinate together. It is just the cooperation between school and home. If I can come to you with a problem, and you can come to me with a problem, we can work together on a solution."

On-going communication. The importance of on-going communication between parents and teachers emerged as a second theme that was strongly endorsed by all three study groups. Parents, special education teachers, and general education teachers perceived on-going communication to be a major factor facilitating positive parent-teacher relationships and an essential component of effective educational programs for children with ASD. In fact parent and teacher perceptions of the benefits of on-going communication was one of the strongest themes to emerge in the current study.

Parent interviewees perceived their relationships with teachers to be positive, strong, and collaborative in large part due to regular, on-going communication with teachers that they have enjoyed through a variety of means such as email, phone calls, and school-home notes. Furthermore on-going communication appears to have contributed to high levels of parent involvement and satisfaction with their children's educational programs. Parent participants unanimously perceived on-going communication between home and school to be an essential feature of effective educational programs for children with autism disorders and invaluable in the case of their own children.

Special education and general education teachers strongly agreed that on-going communication with parents is an essential component of effective educational programs for children with ASD. Like parents teachers unanimously perceived on-going communication to be extremely helpful in facilitating family involvement and positive parent-teacher relationships.

Troy's mother voiced typical parent perceptions as she remarked that communication "every day" is an essential part of Troy's program. In his case a one-on-one aide and the special education teacher fill out a daily school-home notebook with a description of Troy's day. This daily communication system has not only facilitated a strong collaborative relationship between home and school, but it has also lessened the need for more IEP meetings because issues have been addressed on a regular basis. Troy's mother explained:

> It's just a notebook. And they'll just write the date, and they'll say, "Troy had
> such and such a day. He was focused good, listened good, worked with others.
> [or] He didn't have a good day. He didn't focus." That gives me an idea so then I

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know. And I just tell the general education teachers too to write me a note if there's anything that happened in gen ed class…And that's why I think this year we haven't had as many IEP meetings, but this system worked. We did this last year too, and so that way I know each and every day what's going on, what to expect and how to address something.

Sam's mother reported that parent relationships with his teachers are "very good" in large part due to frequent, on-going communication through email, telephone calls, and being "friends on *Facebook.*" Sam's parents both felt that day-to-day communication is an essential part of an effective educational program for him. His mother remarked:

> I can't imagine any parent not having a relationship with the teacher…she can call me or email me and tell me something that's happened at school, that maybe he did wrong or that he did right. And we can reward him or punish as needed.

Sam's father added:

> It's like in the morning, if he's kind of in a funky mood, when I'm walking him to the bus I'll tell his assistant who's on the bus with him already, "Hey, look out for Sam today." She knows what I mean, and she'll report back to me the next day, "Hey, everything was good," or "Well, we had a little bit of a rough day."

Ross's and Brent's mothers both strongly appreciated the on-going communication they have enjoyed with their children's preschool special education teachers through a combination of email, phone calls, and a folder that comes home daily with a description of the child's day. The teacher also sends home a class newsletter every few weeks with ideas for things that parents can do at home to support new learning. Ross's mother elaborated:

> With Ms. Jones *(pseudonym)* I just send emails or notes in his backpack back and forth. They have a little daily progress thing they send home, so if there's issues or something, she'll write on the bottom. Sometimes I'll just write back on that and send it back. It's good. And sometimes I just call the class…If I'm picking Ross up at daycare after his class, sometimes I'll stick my head in if they're still working and talk to them.

Like many parents of children with ASD, Ross's mother not only wanted "to know what they're doing and what you need to do, to know what's going on," she desired that information so that she could truly be involved in her child's education on a day-to-day basis. She is a typical parent in wanting to collaborate with teachers as a member of the team. Because

generalization of behavior from one setting to another is so difficult for many children with ASD, parents like Ross's mother also want communication to be genuine and honest so that they can follow-up at home in addressing behavior. Ross's mother explained, "I like that because they're really honest, like 'Boy, Ross was wild today.' Because I don't want to pick him up at school and it all be sugar-coated. You've got to have honest communication."

Brent's mother voiced similar feelings and especially appreciated being regularly informed about Brent's accomplishments:

> The teaching assistant came over and said, "I want you to see this. Brent ate yogurt today." And she filmed it with her phone. Or I'll get an email that said, "I've just got to tell you this. This is what he's done today."

For the parent of a child with autism a small step such as eating yogurt can be a major milestone. Celebrating the small triumphs through on-going communication with parents is another way that teachers in this school system have fostered positive parent perceptions and collegial relationships with families.

Karen's father too expressed strong appreciation of regular, on-going communication with Karen's teachers. However, unlike other parent participants Karen's father has been disappointed since she has entered high school in the frequency and quality of communication with her teachers. When she was in middle school, Karen's father received regular feedback from her team of general education teachers about how she was progressing, any difficulties she was having, and work that she had missed. In high school Karen has as many as eight different general education teachers every year. Because only one or two teachers attend Karen's IEP meetings, her father has not met many of them. He receives IEP progress reports and report cards but no other regular communication. When I asked what he would change if anything about Karen's educational program, her father stated, "I wouldn't mind if they [teachers] would have called more…or email." The lack of on-going communication with teachers has nurtured his fear that Karen may "get lost" in the large high school setting and that her needs as a student with an autism disorder may sometimes be overlooked.

Special education and general education teacher interviewees also strongly endorsed the theme that on-going communication between teachers and parents is an essential component of effective educational programs for children with ASD. Teachers described regular communication with parents as vital for facilitating family involvement, teamwork, and positive parent-teacher relationships. Many have used a combination of phone calls, email, and school-home note systems as means of communication. For example one elementary special education teacher said she not only "writes little different notes" to parents about each child's day, but she also calls parents during the day to say, "Guess what so and so did! And that really thrills them." Celebrating small steps with parents has helped to cement positive parent-teacher relationships.

Another elementary special education teacher commented that her relationship with parents is one of her "strongest areas" due to on-going communication, which she placed "right up there at the top" as an essential element of effective programs for children with ASD. This teacher has also used a school-home note system. She explained:

> What I do is always get really close to my parents. I'm very close to my parents. I communicate with them every day…it's very, very important in my experience to have that good communication. And I do a notebook every day on every child. They know exactly if they had a good day, if they didn't have a good day. And if they had a good day I don't elaborate a lot, but if they had a really bad day with behavior, I try my very best to get as much detail down so that the parents can work on that at home.

An elementary general education teacher agreed that on-going communication with parents of children with ASD has been essential for him in developing positive parent-teacher relationships. He always meets with the parent of a child with autism "before that child ever walks in the door, so that the first day of school can be good, because you want to set the tone." He described the value of getting feedback from parents to assist with planning:

> I try to make sure to establish contact with the parent almost before school starts – talk with them…That's a great place to start for me anyway is to say, "How are things going at home? What strategies are working for you at home? Where are your spots in terms of interaction that are weak? Are we dealing with something where, is there a particular subject that we may shut down on? Are we looking at more just a kind of social interaction piece? Are we looking at a time where the student is just going to tune you out?"

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Both elementary and secondary special education teachers described using email, assignment notebooks, study guides, and behavior contracts as methods of communicating with parents to facilitate home-school collaboration on academic and behavioral issues. For example one secondary special education teacher said that many students with ASD have an assignment notebook that teachers initial so that parents know if a student has homework or upcoming tests and projects. Another secondary general education teacher described a typical weekly school-home note system used with a middle school student:

> We have a situation with a young man where the whole team is involved with using literally a folder system. The student takes the folder home at the end of every week, and all the teachers have made comments on it. This is a family that is more comfortable with the student being involved by literally hand-delivering the feedback because they feel like it's important for him to have the hands-on buy in to the behavior contract.

One elementary general education teacher commented that he is "not a big note-writer," but he loves using the phone to contact parents because "in 2 minutes you can say what it'd take you an hour to write. I call…I make sure they know they can all me…in a lot of cases, it may be a phone call a week." This teacher observed that many students with autism disorders lack the communication skills to provide their parents with feedback, and this is another reason why on-going communication with parents is so essential:

> If they've [the autistic child] had a really rough day, I'm gonna pick up the phone 2 minutes and say, "Listen, we had a really rough day with student A or B. Just wanted to let you know. It's over now, but I wanted to let you know in case it was brought up at home." Because sometimes those students may not be able to verbally come home and say, "Today was rotten." But if this kid gets in the car and they're in an awful mood this afternoon, it's nice for the parent to know.

One high school general education teacher summarized beautifully how on-going communication strengthens collaboration and teamwork among parents and teachers in meeting the needs of students with autism disorders:

> You need to have that communication established, and I think that's very key also. Very quickly establish communication with the parents and the family. Make sure we're all going in the same direction. So that you're part of the team and you just feel like you're all working on the same page.

IEP Team meetings and the IEP itself. IEP Team processes were regarded by all three study groups as a third factor that helps facilitate positive parent-teacher relationships. However, when I directly asked interviewees what they perceived to be "essential" components of effective educational programs and interventions for children with autism spectrum disorders, no one spontaneously mentioned IEP Team meetings or the IEP itself among their essentials. This in itself was an interesting study finding in light of the emphasis that federal and state mandates place on IEP processes and the amount of time that educators spend complying with those mandates. Because I was curious about the perceptions of parents and teachers regarding IEP meetings, the IEP itself as a document, and the impact of IEP processes on parent-teacher relationships, I asked interviewees direct questions about their experiences with IEP Team meetings and their views of the IEP itself.

Even though study participants did not bring up the topic spontaneously, their answers to direct questions revealed that parents and teachers perceived IEP Team meetings to be helpful in meeting the educational needs of students with ASD and supporting collaborative parent-teacher relationships. Furthermore, parents and teachers reported generally positive experiences with IEP meetings. However, IEP meetings were viewed as far less important than on-going communication between parents and teachers. Frequent communication was spontaneously named by almost every study participant as an "essential" component of effective educational programs for children with autism disorders. Parents placed a slightly higher value on the IEP itself than teachers, but participants in all three study groups described limits to its usefulness.

All parent interviewees reported generally positive experiences with IEP Team meetings. Parents consistently reported that they have been treated with respect as equal team members and that they have been fully included in planning and decision-making. Several parents mentioned times when they had to "advocate" for something, yet they still described their experiences as positive because school staff were willing to listen, treat them as equal members of the team, and put the needs of the child first.

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For example Ross's mother described her role in IEP meetings as "just advocating for him, for things I thinks he needs or doesn't need." When I asked if she has ever been in a "fight" with school staff over services, she said "no" because "I've felt an equal member. You always get a chance to say what you think and they always ask for your input and listen to your input." She described her perceptions of IEP meetings as follows:

> They've been good…I always like the goals they come up with. They always seem to come up with imaginative stuff I wouldn't have thought of that he needs to do. And even if you're arguing about a point, like even when we had our big discussion about whether he should have an aide or not have an aide to start with [in kindergarten], you still feel like everybody is looking out for what is best for Ross…I mean nobody said it would cost too much, or we don't have enough people to do that. It was just more like let's wait and see what he needs.

Ross's mother perceived the IEP itself as a helpful source of information about her son's growth and progress. She keeps all his IEP progress reports in a notebook at the house. She remarked, "That's nice to see, just anything you can see that's a measure of progress…and then you can look back and see, here's where he was." She also described IEP progress reports as helpful "because it's nice to see things that are working, and you want things to work, but it's nice to know if they're not…because you can't fix what you don't know is broken."

Brent's mother concurred that IEP meetings have been a positive, collaborative experience for her. She commented, "I think I have an equal part, because if there is something that I see a problem with or I want him to have help with, they put it in there." Brent's mother provided a fascinating narrative of a recent IEP meeting that typified the collaborative, collegial IEP Team processes reported by parents and teachers alike in this study. The purpose of the IEP meeting was to plan Brent's upcoming transition to kindergarten. His mother commented:

> I was really worried about transitioning to kindergarten…I didn't know what to expect…So beforehand I sat down, and I wrote out a list of all my concerns. By the time the IEP meeting was over, there were only two of my concerns that were not addressed by that IEP.

I asked Brent's mother to tell me what concerns were addressed and which were not. Her first concerns were about placement due to toileting issues. She was worried whether Brent could

function in a kindergarten setting because "he had just started potty training." Teachers addressed her concern by listing toilet-training as an IEP goal and telling her to simply send extra clothes to school. Her next major concern was a transition issue. She explained:

> One of my biggest fears was him going into school. He rides a bus now and that helps him transition. He loves the bus. He goes in. He has his routine, and he takes off his backpack, gets out his folder. He does all that by himself. Well, now he will have to ride with me, and I will have to take him to school. He won't be on a bus…I live so close. What's going to happen to him once he goes inside those doors? Is he going to know where to go? Is he going to know who to ask if he gets lost? How is he going to feel? And they were very easy to say, "You can come in with him. As a matter of fact we encourage you to come in with him."

School staff also offered to let Brent visit the school during the summer to ease his transition. In a forward-thinking move this IEP Team agreed to the use of video-self modeling as an intervention – the only use of this intervention reported by any interviewee in the current study. Brent's mother reported that a friend "has offered to come and video Brent going through the school, going to his classroom, because he is very visual and if he sees it and he's used to it, it won't be so bad." A third concern for Brent's mother was "about his eating because he has a very limited diet. He eats Pop Tarts, that's all he eats." The IEP team alleviated this concern by telling her, "Just look at the menu. If there's something on there that you want him to try, you just hi-light it. Otherwise, pack his lunch." Wondering what was left that was not addressed in the IEP, I asked. Brent's mother responded, "I mean everything was pretty much…the only thing I didn't ask, and I haven't said this to anybody, is about an aide." She did not raise the topic of a one-on-one aide at this meeting because she wanted to wait "to see how it goes." By the end of this meeting Brent's mother said, "I was amazed. I was really nervous going into it. I've heard so many people say how horrible these meetings are, and they've had to fight for everything. I've not had to fight for anything."

Regarding IEP meetings Gordon's mother said, "They have been very, very good for us to just sit down and talk about, 'This is what we're doing. This is what we see.' " She felt she has been treated as "an equal part of the team." However, in contrast to Ross's and Brent's mothers, Gordon's mother viewed the IEP itself as not especially helpful. From her perspective

the IEP is too limited a snapshot of what Gordon can do, and it cannot begin to describe

everything on which he needs to be working. She explained her feelings about the IEP itself:

> I don't know if it's really helpful for me because I know, I see what he needs. I
> know what we need to be working on. Sometimes I think that, especially in math,
> maybe the goals are not where they need to be. Sometimes I think they're too
> low…And sometimes I don't even think the teachers look at it. And then
> sometimes I'm glad that they don't because if they see these things in an IEP,
> these are the only things that we're going to be working on. The goals don't
> address science or social studies. I wouldn't want them to limit what they're
> working on just to those goals, and he needs way more. Sometimes I think an IEP
> for an autistic child is a waste of paper. I don't think that you can put their needs
> down on paper. I think that there's just so many things, so many opportunities
> that they need and that they can have that when you say, "This is a legal
> document, this is what we're working on," you can't do that.

Troy's mother reported positive experiences very similar to those of Brent's and Ross's

parents. As she talked about the IEP Team process she stated, "I've had success. I mean,

everything that I wanted, they provide for us. So I have been well pleased." When I asked her

what role she has played as a parent in IEP meetings, Troy's mother responded, "Well, some

things I've had to fight for, [like] the aide." However, she did not feel her role as advocate had

caused her to have negative feelings about IEP Team processes because she has been treated as

an equal member of the team, and teachers have been "very respectful." Troy's mother

described IEP meetings and the IEP itself as helpful in facilitating teamwork in planning and

providing a measure of progress toward goals:

> I think it [the IEP] is very important because that way they can just see the goals.
> Are they meeting his needs to get to that goal? Or is everybody working on the
> same thing? It just gets you more knowing what to expect and how to succeed.
> So I think that's very important because at least that lets you know how things are
> going, and is everybody doing what they need to be doing…I feel like you're
> more in touch, and you're knowing your part of it, and you're knowing what
> they're expecting and what you're expecting.

Sam's mother voiced similar feelings about the value of IEP processes in providing

overall direction and feedback about goals. She said that IEP meetings are "useful, just to know

what's coming, what we've changed, what [goals] we've met, what we need to do." Like other

parents Sam's parents have built close, collaborative relationships with his teachers through on-

going communication throughout the school year. Therefore, when the time comes for an IEP meeting Sam's parents feel comfortable with team members. His mother humorously observed:

> Aside from the LEA's that come in that I don't know, it just feels like we're having another teacher conference because we know them already. We're so familiar with everyone that when we sit down with them, it's just another chat, with paperwork.

When I asked Sam's parents to describe their feelings about the value of the IEP itself, Sam's mother responded, "I keep it on file." His father added, "I don't think we've ever pulled it out and used it unless we've had to go back." His mother recalled pulling the IEP out for the last meeting when she wanted occupational therapy services restored for Sam. But otherwise she said, "We save them. We look at them. We discuss them if we need to, but I mean, we just save them in his file. We've got a Sam file." Like other parents who appreciate the IEP as a general measure of progress, Sam's mother stated:

> Well, the goals are there, and they are in writing, and it's nice to have…We can take this year's and compare it to last year's to see what the progress has been. It's been nice to have. But it's not anything we pull out weekly to review or anything. Certainly not.

In contrast to other parents who have maintained on-going communication with teachers (through phone calls, emails, etc.) Karen's father has relied heavily upon IEP meetings as a major channel for communicating with teachers. Therefore, her father said that IEP meetings "were real helpful to me to find out what they were doing to help Karen…teachers would tell us how she was getting along and would share information." At IEP meetings "teachers can provide a lot of insight…how she's doing at school, because there's really no communication from Karen." Her father said that when Karen was in middle school "we had a ton of people show up" at IEP meetings, and "it felt like a lot more support." He felt "very positive" about those meetings saying he was fully included as an equal member of the team in planning for Karen. By contrast he has been disappointed at teacher turn-out at Karen's IEP meetings at the high school level. IDEA (2004) requires at least one general education teacher who is familiar with a student's grade-level curriculum standards to attend IEP meetings, but not all the students'

teachers are required to attend although they must read and sign the IEP later. For Karen's father this practice has hampered the close relationships that he enjoyed with her teachers at lower grade levels.

Like parents special education and general education teachers generally perceived IEP meetings as a collaborative process that facilitates family involvement and teamwork in planning educational programs for children with ASD. Like most parents many teachers also viewed the IEP itself as helpful general guide for intervention. However, special education teachers in particular often viewed IEP processes as excessively burdensome due to the time and paperwork involved. They viewed regular, on-going communication with parents as a far better use of their time for building positive, collaborative parent-teacher relationships.

One special education teacher's remarks were typical of this group:

> IEP meetings are a necessary thing to get paperwork done. We are mandated to do that, and I will do that. It's a tremendous amount of paperwork that takes away from what I went to school to do and that's to teach. But what I enjoy doing, what I would I prefer to do is when you walk them out in the afternoon or you fill in their homework planner, that little bit of communication daily or weekly is much more valuable than what you learn in a thirty or forty-five minute IEP Team meeting once a year. I think that's where the rubber meets the road. I think the IEP, yeah, OK, yes. And they [parents] are interested in the goals, what are we working for. But that's kind of it.

Several teachers mentioned the usefulness of the IEP as a general guide for planning. For example one special education teacher remarked, "I remember when we didn't do IEPs, so I think an IEP is really important, but I try to make sure parents understand that it's just a general blueprint, that there's no way it can show everything we do."

Another special education teacher agreed saying:

> I think that the IEP maybe brings your focus a little more. You have more directed focus a little bit. If you didn't have that and you're out there trying to problem-solve, it narrows you in a little bit…So I think the IEP [meeting] does serve as a time to, "Let's regroup and refocus and remind ourselves what we need to focus on." If it's used for anything, I think that would be it.

However, this same teacher also described barriers due to the time and paperwork involved:

It's a huge barrier for me. I mean, honestly, I feel like…this is IEP season. To do an IEP for a student, you're spending about an hour and a half to two hours a kid. I have two planning periods. I've got four different classes I'm supposed to plan for that. I'm supposed to meet the individual needs of my 27 kids…I feel like there's a better way than to be a classroom instructor than someone who does the paperwork. That's just my view.

In spite of all the paperwork another special education teacher felt that "the process is working" at the secondary level as a means of facilitating general education teacher "buy in" and involvement in students' educational programs. She explained:

There was a time that IEPs were a document that had to be dealt with once a year, and so we, you know, the dotted line says: One general education teacher, sign on this line, be at this meeting, and walk away. Say "Thank you." We're getting more buy-in from larger group meetings now from teachers truly sitting and talking about the needs of the student and what can be done to implement the best possible learning scenario.

Several teachers described IEP meetings for students with ASD as being "longer" or more difficult not because parents were acrimonious but simply because students with autism disorders have a complex and "high needs" disability. One special education teacher stated:

Generally those meetings tend to be a little longer. If there is a specific population of kids at the secondary level that require a little more planning and structure, it is probably this population of students. So your meeting will typically be longer. Generally a lot of it is spent on problem-solving. What can we do? The behavioral….Most IEP meetings for other students are just run-of-the-mill. We accomplish this. It's routine, and you move on. But you're going to have more issues in those meetings, more input…I think it is a more complex disability, but I also think it's a very high profile disability.

This teacher described parents of children with ASD as "very assertive" in IEP meetings" and added, "I will say for the most part they are more involved than the average special education parent probably because the needs that they have had over the years have been greater." She astutely remarked, "I feel like if you lose your empathy, then you probably need to find another job!" She explained the source of her own empathy:

Ever since I have become a parent, I just try to say, "What would I want for my child?" So to me it's just an assertiveness of trying to get the best for their child…for the most part I think it's just making sure that their child is understood, that their needs and concerns are validated. I don't necessarily view it as negative. They're just trying to advocate for their child.

An elementary general education teacher voiced similar feelings saying, "I will tell you, most of these parents are not push-overs…Some of the toughest IEPs I have ever sat in were with these parents." He explained that in most cases parents were not being antagonistic against the school system but just "being advocates" for what is "a tough disability." He described his perception of the role of parents as advocates:

> Parents…I think they've just learned over time that really they have to advocate. But most of them would just get in there, they weren't rude about it in most cases. They were just like, "Hey, we have to, we want to see this happen." Because you know what, they want to see their kid grow up and be as successful as they are able to be, and they want to be sure to stretch them in that. So yeah, exactly, they're just being advocates…And sometimes you just have to listen to them, let them get it off their chest, and then move on, and then you're OK.

Meetings may be long or tough, but overall general education teachers expressed positive perceptions of IEP meetings as a collaborative process in which they have been fully included as equal team members. For example one secondary general education teacher described IEP Team meetings as an "absolutely positive" process with which he has been "very happy." He agreed with parents and other teachers that IEP meetings as "just a good time to give each other feedback." Another general education teacher commented that she has been happy with IEP processes as a collaborative, team effort. She remarked that the IEP itself provided a "structure of where I needed to get him" (a student with autism), but for her the IEP was less important in guiding instruction with this child than the grade level curriculum map and state standards that she followed for all children in her classroom.

One secondary general education teacher said that her own experience as a teacher and relationship with an ASD student has guided her instruction with him more than an IEP. When I asked her how she felt about the IEP itself, she responded quite candidly saying:

> Sometimes I think a lot of that is like "No Child Left Behind." It looks so great on paper. It doesn't make it true. I think a lot of times we put things that sound so good and weren't necessarily good goals for him. Some things were being done that were useless, elementary, very beneath him, but it all sounded good and looked good but weren't meaningful. I can't say that I learned anything in that IEP meeting that would help me teach him.

However, this teacher said she learned how to teach this student by taking the time to build a warm, caring relationship with the student and his parents. For her positive outcomes were grounded in daily experiences with the student in the classroom and on-going communication with the family rather than the IEP itself.

Positive teacher relationships with autistic children. Three pillars supporting positive parent-teacher relationships have been described thus far: collaboration, teamwork, and support; on-going communication; and IEP Team processes. No house has a firm foundation, however, without four strong corners. Participants in all three study groups described positive teacher relationships with autistic children as the critical fourth pillar.

When asked what they want "most" from their child's teachers, five of six parents placed "love" and "acceptance" of their child at the top of their list. Parents also desired "communication," but in all but one case that was named after love and acceptance or discussed elsewhere in the interview. Parents generally valued relationships more than any one program or intervention as the corner-stone of effective educational programs for their children. Not only did parents value collaboration, teamwork, and on-going communication with teachers for themselves, they also perceived positive teacher-student relationships to be an essential feature of their children's educational programs.

When parents perceived teachers as loving, caring, and accepting, they tended to report strong feelings of satisfaction with their children's educational programs. In rare instances when their child encountered a teacher whom parents perceived as unsupportive and lacking acceptance (see Problematic Teacher Attitudes), parents reported dissatisfaction with their child's educational program during the child's year with that particular teacher. Such occurrences were rare for parent interviewees, who generally reported very positive perceptions of their children's relationships with their teachers.

When asked what she wants most from her son's teachers, Sam's mother gave a typical response:

Probably love. Yeah really, because that's what he's gotten this far. I think I'd be in shock if he didn't have a teacher that really cared about him. We've just been so blessed. Because when they care, then they're going to do everything else that they can to help.

Sam's parents both attributed their positive experiences with the school system to people who have demonstrated caring and love for Sam. His father explained:

People had a lot to do with it, even if they may have lacked some training or something else, they made up for it with their personalities and just their willingness: "I'll help." Loving him like Sam was their own kid. There's a general love, a true love that a lot of these teachers and aides have for these kids...they really care about them a whole lot here.

Ross's mother voiced similar thoughts. When asked what she wants most from his teachers she replied, "I guess mostly, I want them to love my kids." She gave a delightful example from the day when Ross finally mastered potty training:

The first day that he did pee in the potty, that's one thing I like about the program here, it's like everybody just loves the kids, everybody in the whole building. I remember coming in and somebody saying something about him peeing in the potty before I even got to class, and the janitor saying "Congratulations" because she loves the kids and wants them to do well. I remember thinking, "Boy, everybody in the building is excited that Ross peed in the potty!"…You just feel like everybody loves him like you love him, and they want what's best for him like you want what's best for him. So that makes you feel really good. That everybody wants the same thing, and you have the same goals, and that they love him. It's so obvious they love the kids.

Parents also talked about their desire for teachers to accept their children and appreciate their potential in spite of individual differences. For example Troy's mother remarked that she wants teachers to "treat him just as well as any other child, as much as they can, and make him feel part of everything." Gordon's mother agreed saying:

I want them to understand that he is capable, and it's going to take a little extra time to push him. I want them to understand that he's different, which they know that, but I also want them to appreciate what he has to offer because he does have a lot to offer. I don't want them to say, "Well, he's not going to learn. He's got that label. He's in special ed."

One of the most interesting findings to emerge from this study was not just that parents voiced such a strong desire for love and support from their children's teachers, but that the

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teachers themselves reported their relationships with children with autism disorders to be unusually rewarding and positive. Due to the nature of the disorder itself children with ASD can be difficult to teach and can present vast challenges for educators. Yet special education and general education interviewees repeatedly described experiences with autistic children with whom they have forged strong bonds of affection, caring, and support. In fact several cited their memories with these students as among their most treasured as teachers.

One elementary general education teacher described a particularly touching experience that eloquently summarized her relationship with an autistic child in her class:

> Probably my most favorite story right now currently is [about] the child that I teach now. Mom was trying to teach him to say a prayer at night, and so she would say, "Tell Jesus what you're thankful for. Tell Jesus what you're happy for." And he said, "Miss ____(teacher's name) who's 'the teacher of the stars.' " Because I play "Magic School Bus" when we have to go, and of course the driver goes in the stars and all that stuff. So I'm "the teacher of the stars," and that's what he calls me. And of course that to me means a lot, that that's who he would thank Jesus for.

A general education teacher who looped with an autistic child for 2 years described her experience with this student as "a surprise" because before she went for special training she had expected the worst. She explained:

> I was very intimidated. I had heard, the previous teacher…had been frustrated with the whole situation all around. She was a newer teacher, and she had only been teaching a few years, so she really didn't have a lot of experience with this. So there were negative feelings both ways I think. So I was a little scared about what I was getting into.

Much to her delight the teacher developed a strong bond of affection with this autistic child. With tears in her eyes she described how special the little boy was to her and how thankful she was to have taught him:

> He felt like my son. Once I really got to where I was getting used to his habits, and he was getting used to me, it sort of felt like – I loved him like my son…I wouldn't have traded it for the world. On his last day with me he kissed me on the cheek when he left, and I'll never forget that. And his mother was just trying to get me to loop another year. But I'll always have that memory of him.

Several teachers remarked that they tend to become closer to students with autism than with typically developing students, and their role is often more protective. One middle school general education teacher voiced typical comments when he said, "You become closer with those kids than you do your regular kids. I think you do. I think you're more of a parent, so to speak, because you're trying to look out…you're aware of his or her situation." An elementary special education teacher expressed similar thoughts about her role with very young autistic children as she said, "They mean so much to me…I've been their mother for 5 or 6 years. And the parents kind of consider you that too…When they're not at home with that other mother, they're here with this mother."

Teachers also talked about the importance of building trust with autistic students. One elementary special education teacher said, "You have to gain their trust and bond with them…I call it bonding." She gave a humorous example of how she bonded with Harry *(pseudonym)* The first day this autistic child came into her classroom, he immediately crawled under the table. The teacher went right under the table with him and just sat for awhile, then joined him in play. The teacher said, "It wasn't easy. It took a lot of patience, a lot of letting him feel that I wasn't there to hurt him, or to make him do anything," but Harry finally came out from under the table. By the end of the year he was attending inclusion classes and was "just a delightful child."

One general education teacher agreed that positive teacher-student relationships with autistic students are built upon a foundation of acceptance and trust. He noted that it is well worth the effort and perseverance involved to gain that trust:

> I think respect – gaining their trust – is a big piece that if I was going to say emphasize. Because there are going to be folks that in some cases can be awful hard to gain their trust with. They're going to be very careful who they let in. I think in all of those cases it took a while to build trust with that child. You almost have to be just willing to persevere and keep going at it, and keep going at it, and keep going at it, and keep going at it, until then you'll know. You'll know when they're buying in. But you've got to keep going…It's not like when you first start out you're like, "Boy, *if* they'll buy in we're gonna have a good year." When you start the year now you're like, "OK, *when* they do."

A high school general education teacher described with great passion and eloquence the strong bonds of affection, caring, and trust she has built over several years with an autistic student. Her face was wreathed in smiles as she reflected:

> I think we just developed this great relationship, and there's a very large amount of trust, and he knows that when he and I talk that I'm just not placating. I'm just not trying to….he trusts me. He knows that we have the relationship where it's not just somebody trying to get him to calm down, that I truly care about him. There's a bond, a definite bond with us…What I love about Frank *(pseudonym)* is his heart. He's just such an innocent, kind person. He couldn't be mean, and it just makes me – I live in my little *Mayberry* world where kids are good – and it makes me hopeful. I just wish everybody had his heart!

Like the "the teacher of the stars" this gifted teacher received back the love she so generously gave as indicated by her heart-felt gratitude for a treasured relationship:

> I have grown so much as a teacher and as a person through my experience with this young man, and I would wish that on anybody. And I am thankful. I thank God every day that he was brought into my life, because professionally and personally I've grown so much. And I thank God every day for Frank.

Special Education-General Education Teacher Relationships

Special education and general education teacher participants in this study all placed a high value on collaboration, teamwork, and on-going communication among all stakeholders as they strive to meet the educational needs of children with autism disorders. Their perceptions and feelings in that regard have already been explored (see Relationships Among Parents and Teachers). Furthermore, both groups perceived their relationships with one another as generally close, collaborative, and positive. Yet when asked what they want "most" from one another, special education and general education teachers gave divergent responses suggesting slight differences in what they need most from one another to facilitate collaboration and teamwork.

Collegiality and closeness. All eight special education teachers and all six general education teachers who participated in this study perceived their relationships with one another as generally close, collegial, and positive. General education teachers all described positive

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working relationships. Special education teachers were also generally positive, but they cited some challenges in building relationships with general education teachers depending upon their level of acceptance of children with ASD in inclusion classrooms.

When I asked how he would describe his relationship with special education teachers with whom he has worked in meeting the educational needs of children with autism disorders, one secondary general education teacher gave a typical response:

> Very close. Very close. I almost consider them some of my best friends here at school because you struggle with the special ed kids because it's the unknown…So I stay pretty close with them. Run things by them. The one [special education teacher] that was here last year, she would actually come into my room every now and then, just participate in class, give me feedback, tell me what was good, what wasn't good with the kids. So very close.

An elementary general education teacher remarked, "In general I feel like I've always had a good working relationship…for the most part, I feel I have been an advocate for inclusion. I've had good working conditions with the teachers. So I would say overall positive." One secondary general education teacher described her relationships with other teachers as "very helpful" in meeting the needs of a particular student with ASD because they were "so dedicated and committed and very caring."

Another elementary general education interviewee described his relationship with special education teachers as "integral." He further reflected that opportunities for brainstorming and problem-solving with special education teachers are "absolutely essential." He explained:

> I think you've got to talk…I think if anything, it's just another person to bounce ideas off of. And in some cases if you have a special education teacher, a behavior teacher, and a regular ed teacher, it's kind of like, "Hey, what works here?" And I've gone in to the behavior teacher before and said, "Listen, I need some help. What in the world do we need to be doing?"

Special education teachers also perceived their relationships with general education teachers to be close, positive, and collaborative in general. For example a special education teacher who instructs an elementary self-contained class for severely delayed children said, "We have wonderful gen ed teachers in this building." When she has sought opportunities for her

students to spend time in inclusion settings, general education teachers have been warm and accommodating. She gratefully remarked:

> All you have to do is ask and they'll say, "Sure thing. What day? What time?" It's wonderful. I mean, they're just great. The gen ed teachers in this building all know who my kids are and speak to them regularly. They know their name. They speak to them.

This teacher also observed that many teachers in the system are "very dedicated…very willing to go the extra mile and do things that have nothing to do with the job description."

Other special education teachers talked about a kind of "public relations job" they sometimes have to perform as they work with general education teachers to facilitate inclusion opportunities for students with autism. For example one special education teacher described how she builds relationships with general education teachers as the foundation for teamwork in meeting the needs of children with ASD:

> Special education teacher is a public relations job because it's your relationship with those teachers that get the "buy in." Yes, they may know the law or not know the law, but it's the relationship that you have that enables you to go and say, "Billy, you will have a child coming into your classroom this year, and let me tell you about this child, and I would like you to try this." So it's that relationship…You've got to be part of that team.

Another special education teacher had similar thoughts about her role in providing support in a diplomatic, collegial manner to general education teachers who encounter frustrations with autistic children in inclusion settings:

> I consider myself a peace-maker. That's my position I feel like with teachers. Teachers get upset. They're having such a hard time and maybe not with a child with autism but with their case load in general. And I think a lot of the frustration there is coming from different places. There's just so much on teachers…There's not enough hours in the day. So when they really start to get frustrated, I feel like it's my responsibility. I'm sending my kids to them, and I don't want them to be so frustrated before they ever get there. So I try to be the peace-maker, and I try building them up. "Oh, you do such a wonderful job with them, and I really appreciate everything you do!"…And then when there are problems, like "If he comes in here and does that one more time, I just don't think I can do this anymore," here I find myself saying, "You can do it!"…And I try never to say, "Do this" or "Do that." I always say, "What would you think about it if we did it this way? Do you think that would help?"

A secondary special education teacher observed that her relationship with general education teachers is "generally very good" yet "it varies." She explained:

> The relationship is stronger with some than others, and typically we as special educators will gravitate to working closer to the gen ed teachers who are more willing to take this on. And when I say "take it on," to make it work. To make it a proactive situation rather than just waiting for the worst case scenario.

This special education teacher puts her emphasis on building relationships with teachers who are more open and receptive to students with ASD, "with the hope that the teachers that I'm gravitating toward may have some influence [on their peers] because they work as a team. They work together all day, whereas I don't necessarily work together with them all day."

Divergent needs. During interviews general education teachers and special education teachers in this study placed a high value on collaboration, teamwork, and on-going communication. Yet when asked what they want "most" from one another, they gave divergent responses. When asked what they want most from special education teachers, general education teachers mentioned support, feedback, coaching, and time for planning and collaboration. By contrast special education teachers wanted general education teachers to be empathetic and accepting of children with ASD, provide access to inclusion, and be willing to differentiate instruction and provide needed accommodations.

One secondary general education teacher gave a typical response as he described what he wants most from special education teachers:

> Just the feedback, the communication. This is good, this is not good. We could help Harry *(pseudonym)* by doing it this way. This probably is not a good idea for Harry. Can you think of something else that we could do for him?

An elementary general education teacher said that she would like more time to meet with other school personnel for brainstorming and planning:

> With the specialized people, the speech pathologist, the occupational therapist, the physical therapist, those types of things, so that we're all sort of on the same page and we're all working on the same things…it would be great to have those times to talk and say, "You know, he's using this and it's working."

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Another elementary general education teacher agreed saying "I think the biggest thing is just working together, collaboration" and "be clear about where we're going."

One secondary general education interviewee described the invaluable role a special education colleague had for him as "a mentor" and his primary source of training and knowledge about how to work with children with ASD. He explained:

> We had a great, great special ed person when I first got here…she was an encyclopedia. She was the mother to those children, so she knew them really well, and I would go run stuff by her and say, "OK, do you think this is OK? Is this a good activity?" "Yeah." Or I would say, "OK, this is what I'm wanting to do. What can I do to help those kids or with the parents or whatever?"

In contrast to general education teachers whose foremost desires were for support, feedback, coaching, and time for collaboration with their special education colleagues, special education teachers described what they want "most" from general education teachers in terms of what they want for children with ASD themselves. Special education teachers desired acceptance, understanding, and empathy for children with ASD from general education teachers. They also wanted general education teachers to accept these children in inclusion settings and differentiate instruction to meet students' needs. One secondary special education teacher described what she wants most from her general education colleagues:

> Empathy would be one, for the special ed students that they serve. The other is understanding, the ability to differentiate for the students. I feel that at the secondary level teachers feel they can't differentiate so well. I don't know how to describe it. If you go to any good elementary classroom across the country there are kids at all ability levels doing different things, having different expectations of the assignment or whatever. And I think once you get to the secondary level teachers feel like it's harder to do that, or they don't know how to do it…So I do think the biggest setback is being able to differentiate and to know that every kid in there, you should have high expectations but not every kid's expectations are the same…And there are teachers that do a great job at that, but there are a lot that just don't understand that there really is a difference there that needs to be accommodated.

An elementary special education teacher voiced similar feelings about what she wants most from general education teachers:

To understand this – special ed is diversity, and to understand that it's OK to differentiate for kids. Having kids do different tasks, different assignments, different things. It's OK to have different levels of expectations. And what I mean by this is, you want to have high expectations for all children…But it is OK if that child is in the classroom and this is his personal best to accept that personal best…and to modify and adapt.

When I asked her if most general education teachers have been willing to differentiate instruction, this special education teacher replied:

I have seen some teachers, they're not going to do it because it takes time, and they're going out the door. You're back to time again. It's way easier to teach everybody lock-step at one level…And I have seen some folks do a beautiful job…But for the most part, I think if the child is willing to do his or her personal best, then I've seen teachers accept personal best.

One secondary special education teacher gave a delightful example from the world of golf as she discussed her desire for general education teachers to "honestly read the IEP and accommodations and modifications and live by them and actually implement them…and be happy about it and realize it's what's right." She wisely observed that she would not "ask one of these social studies teachers to go to the golf course with his worst driver in his bag and tell him that he's in a tournament, he can only use that one. Same thing!"

In spite of somewhat divergent views of what they want most from each other, special education and general education teachers perceived their relationships with one another as positive, collegial, and collaborative. Furthermore, interviewees in both groups expressed strong feelings about the ways general education and special education teachers in the school system go "above and beyond the law" or "the extra mile" to embrace and care for children with ASD. One general education teacher eloquently summarized this perception:

Just in general I think our school system does a tremendous job, a tremendous job in special education and services. I think they accommodate above and beyond. I think our system is great at not just minimums that, "OK, we've got to do this, and we've got to do this, and we've got to do this, and this is what we're doing, by law." They truly have a genuine compassion and concern for kids that are either learning disabled or autistic. I just feel like that's one of the strengths of our school system. Being accommodating and being aware, and not resenting the law. Not resenting that you have to do it but embracing. I just feel that from our school system…And I am very proud of our school system in that.

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Summary

Chapter 4 presented an analysis of research data collected through in-depth interviews and gathering of documents. Interviews were conducted with a purposeful sample of seven parents of six children with autism spectrum disorders, eight special education teachers, and six general education teachers in a Northeast Tennessee school system. Documents gathered for analysis included teacher-made materials such as visual aids, schedules, and behavior plans; materials from professional development opportunities provided by the district and outside agencies on interventions for children with autism disorders; and district informational documents describing educational programs and services for children with special needs. Interview data and documents were analyzed using the constant comparison analysis method (Strauss & Corbin, 1998). Emerging themes describing parent and teacher perceptions fell into three broad categories: (1) perceptions of effective educational interventions and teaching methods for children with autism spectrum disorders; (2) perceptions of barriers and challenges experienced; and (3) perceptions of relationships between parents and teachers in meeting the educational needs of children with ASD.

Nine themes emerged regarding parent and teacher perceptions of effective educational interventions and teaching methods for children with autism spectrum disorders. All three study groups endorsed the effectiveness of intensive early intervention programs for children with ASD in the preschool and early elementary years. Interviewees favored an eclectic approach in early intervention programs with an emphasis on structured teaching and naturalistic teaching strategies and limited use of applied behavior analysis with discrete trial training. Parents and teachers in all groups strongly endorsed the benefits of providing a structured learning environment for children with ASD at all ages and grade levels through the use of schedules, routines, visuals, and a variety of highly engaging, hands-on, active learning activities.

For facilitating social and communication skills in children with ASD, parents and teachers endorsed the benefits of adult-mediated interventions such as priming, role playing, and social stories and peer-mediated interventions involving peers as partners, trainers, and tutors.

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All three study groups strongly endorsed the importance of inclusion for children with ASD to provide access to modeling by typical peers. However, participants in this study did not generally favor a full inclusion model. Instead parents and teachers perceived a need to maintain a balance between inclusion and direct services such as speech-language therapy, occupational therapy, and part-time resource services. Parents and teachers also strongly endorsed the essential role that support staff play in facilitating inclusion for children with ASD.

All three study groups described a functional approach to problem behaviors as effective in decreasing, eliminating, and proactively preventing challenging behaviors among children with ASD at all ages and grade levels regardless of severity of autism or type of placement. In particular interviewees reported effective results with antecedent interventions that focus on identifying triggers and preventing problem behaviors before they occur and interventions using positive reinforcement to strengthen desired behaviors while decreasing problem behaviors.

Parents and teachers described augmentative and alternative communication (AAC) strategies as effective. They viewed manual signs and gestures and the Picture Exchange Communication System (PECS) (Frost & Bondy, 2002) as helpful in facilitating communication in very young children with ASD whose oral communication skills are still emerging and therefore limited and in some older children whose oral speech remains limited due to severe autism. Two study groups, parents and special education teachers, also perceived the effectiveness of a variety of sensory-motor interventions to increase calmness and prevent or reduce problem behaviors.

Seven themes emerged regarding the barriers and challenges that parents of children with ASD, special education teachers, and general education teachers have experienced in meeting the educational needs of children with ASD. All three participant groups strongly endorsed the need for more training and knowledge for all school staff who work to meet the educational needs of children with ASD. Teachers desired training opportunities that are on-going, job-embedded, and immediately relevant to their day-to-day experiences with individual students with autism. All three study groups also described lack of time as a barrier in meeting the

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educational needs of children with ASD due to caseloads, excessive paperwork, and pressures of preparing children for state-mandated tests.

Challenges caused by characteristics of autism spectrum disorder itself emerged as another strong theme that parents and teachers alike have experienced as a barrier in meeting the needs of children with ASD. In particular study participants described significant challenges they have faced due to the diversity of the spectrum and characteristics behaviors among children with ASD such as noise-making, inattention, meltdowns, limited communication skills, and handwriting problems.

Although not generally characteristic of their experiences in this school system, parents and teachers did describe times when they encountered problematic teacher attitudes and problematic parent attitudes they perceived to be a barrier to meeting the needs of children with ASD. Parents and teachers have sometimes encountered problematic teachers attitudes such as lack of acceptance of children with ASD, a "one-size-fits-all" mentality, and unwillingness to differentiate instruction in inclusion settings. Teachers described challenges they have sometimes faced with parents who are overprotective of their children or unrealistic in their expectations. Parent participants related experiences with other parents whose attitudes were hurtful to them due to intolerance and lack of understanding of autism.

Transition issues emerged as a sixth theme reported by all three study groups as a challenge experienced in meeting the educational needs of students with ASD. In particular interviewees described the difficulties involved in transitions from preschool to elementary to middle school to high school. A seventh theme was endorsed by two groups, parents and special education teachers, who perceived a need for additional services and therapies for children with ASD. Parents perceived a need for more occupational therapy and speech-language therapy for their children. Special education teachers perceived a need for more occupational therapy and social skills training for secondary level students and a need to split existing elementary resource programs into separate part-time and self-contained programs.

The perceptions of parents of children with ASD, special education teachers, and general education teachers regarding their relationships with one another were analyzed first with regard to parent-teacher relationships. Four major themes emerged among all three study groups regarding factors they believe facilitate family involvement and positive parent-teacher relationships: collaboration, teamwork, and support; on-going communication between parents and teachers; IEP Team meetings and the IEP itself; and positive teacher relationships with autistic children. Parents and teachers perceived their relationships with one another as generally positive due to a high level of collegiality, teamwork, and support with all members of the team treated as equals and fully included in collaborative decision-making.

All three study groups strongly endorsed the importance of on-going communication between parents and teachers as an essential component of effective educational programs for children with ASD, one they valued much more highly than IEP Team meetings or the IEP itself. However, they also endorsed IEP meetings and to a lesser extent the IEP itself as somewhat helpful in providing overall direction and feedback about progress. All three study groups also strongly endorsed the theme that positive relationships between caring, loving, accepting teachers and autistic children facilitate effective educational programs for these children, family engagement, and parent satisfaction with their children's educational programs.

Two themes emerged summarizing special education and general education teacher perceptions of their relationships. These two groups described their relationships with one another as generally characterized by collegiality, closeness, and teamwork. However, the two groups voiced somewhat divergent needs regarding what they want most from one another. General education teachers strongly valued feedback, coaching, and support from special education teachers, and time for collaboration. Special education teachers strongly valued general education teachers who are empathetic and accepting, who provide access to inclusion for children with ASD, and who are willing to differentiate instruction for these students.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The purpose of this qualitative case study was to investigate the perceptions of parents of children with autism spectrum disorders (ASD), special education teachers, and general education teachers regarding educational interventions for children with ASD in a Northeast Tennessee public school system. I explored the attitudes, opinions, and experiences of three key stakeholder groups regarding the successes and barriers they have experienced in meeting the educational needs of children with ASD, what interventions and teaching strategies they have found most helpful and effective, and how they view their interactions and relationships with one another.

There were several reasons for conducting this study. First, my hope was that the perceptions of these stakeholders might be used to increase understanding and collaboration among parents and educators and to positively impact educational programs for children with ASD in the school system that was the site of study and among other who may learn from their experiences. The themes that emerged in this study could provide parents, special education teachers, and general education teachers with new insights from other points of view that facilitate mutual collaboration in meeting the needs of children with ASD.

Second, even though hundreds of quantitative studies have been conducted on the effectiveness of numerous educational and behavioral interventions for children with autism spectrum disorders (ASD), only a handful of qualitative studies have been conducted examining parent and teacher perceptions regarding those interventions. The current study was designed to help fill a gap in the research literature regarding parent and teacher perceptions of educational interventions for children with ASD, thereby providing a voice for parents and educators that has been lacking in the literature.

Third, I perceived the need for qualitative research on this topic to be especially critical in light of the increasing prevalence of children with autism spectrum disorders in the United States and the impact of this dramatic increase on school systems like the one that was the focus of study. Over the past 2 decades there has been a striking increase in the prevalence of autism throughout the United States. The Centers for Disease Control and Prevention (2010) currently estimates that an average of 1 in 110 children in the United States has an autism spectrum disorder. I was particularly interested in exploring the successes and challenges experienced by parents and teachers in one school system that, not unlike others throughout the United States, has been faced with an explosive increase in the number of children with autism disorders entering classrooms throughout the district.

Data for this study were collected by conducting in-depth interviews and gathering documents. Twenty interviews were conducted with a purposeful sample of seven parents of six children with autism spectrum disorders, eight special education teachers, and six general education teachers in a Northeast Tennessee school system. Maximum variation sampling was used in an effort to select parent and teacher participants representing children at all levels on the autism spectrum (from mild to severe), a variety of grade levels (preschool through high school), and a variety of educational settings (ranging from full inclusion to self-contained special education classrooms). Documents gathered for review included teacher-made materials used in the classroom with autistic children such as visual aids, schedules, and behavior plans; program manuals accompanying specific educational interventions; materials from professional development opportunities provided on-site and off-site for school staff on educating children with autism disorders; district literature describing programs and services for children with disabilities; and Tennessee Department of Education (2010b) special education data reports.

Interview data and documents were analyzed using the constant comparison analysis method (Strauss & Corbin, 1998). Emerging themes describing parent and teacher perceptions of educational interventions for children with autism spectrum disorders fell into three broad categories: (1) perceptions of effective educational interventions and teaching methods for

children with autism spectrum disorders; (2) perceptions of barriers and challenges experienced; and (3) perceptions of relationships among parents and teachers in meeting the educational needs of children with ASD. A summary of the findings and conclusions in relationship to the research literature are presented here as they relate to the four main research questions followed by recommendations for practice and further research.

Summary of Findings

Research Question #1

What educational interventions have parents of children with autism spectrum disorders (ASD), special education teachers, and general education teachers used to address the educational needs of children with ASD, and what have been their experiences with those specific interventions?

Parents and teachers in all three study groups described a wide variety of educational interventions that have been implemented for children with autism spectrum disorders in the school district that was the site of study. Consistent with the research literature parents and teachers in this study did not identify one approach or a single program as clearly better than all others (Iovannone et al., 2003). Instead interviewees endorsed a vast array of educational interventions for children with ASD. They reported positive experiences with all specific educational interventions described and perceived these strategies to be generally helpful and effective in meeting the educational needs of children with ASD.

All three study groups reported positive perceptions of the district's Early Childhood Intervention Program that provides intensive early intervention services for preschool children with disabilities (ages 3-5) in three self-contained special education classrooms. Interviewees favored an eclectic approach in early intervention programs with an emphasis on structured teaching and naturalistic teaching strategies and limited use of applied behavior analysis (ABA) with discrete trial training (DTT). Alternative augmentative communication strategies (AAC) were also perceived effective with preschool and elementary age children with whose oral

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speech was still emerging and therefore quite limited. By elementary school teachers typically discontinued use of ABA with discrete trial training in favor of naturalistic teaching strategies and structured teaching methods they found easier to implement in the natural classroom environment without the need for intensive, one-on-one intervention.

Parents and teachers reported positive experiences with several interventions they perceived to be effective in meeting the educational needs of children with ASD at all ages and grade levels regardless of severity of autism or type of classroom placement including the following: structured teaching methods; naturalistic or incidental teaching strategies; interventions based on principles of applied behavior analysis and the development of positive behavior supports (PBS) to address problem behaviors; adult-mediated interventions such as modeling, priming, and role play; peer-mediated interventions involving peers as partners, trainers, and tutors; inclusion with a balance of direct services such as speech-language therapy, occupational therapy, and resource assistance; and sensory-motor interventions. Because they perceived this broad range of strategies to be helpful and effective in meeting the educational needs of children with ASD, interviewees answered the second research question at the same time as the first research question. Therefore, a more detailed summary of these study findings is reported in relationship to the second research question.

Although parents and teachers in this study did not necessarily use the same terminology for specific interventions as that reported in the research literature, their accounts revealed positive experiences with 10 of the 11 interventions that the National Autism Center (2009) identified in their *National Standards Report* as "Established Treatments" or those for which several well-controlled studies have shown them to be effective for individuals with ASD. These included: Antecedent Package; Behavioral Package; Joint Attention Intervention; Modeling; Naturalistic Teaching Strategies; Peer Training Package; Pivotal Response Treatment; Schedules; Self-Management; Story-based Intervention Package. Parents and teachers also reported positive experiences with several interventions that the National Autism Center identified as "Emerging Treatments" or those for which one or more well-designed studies have

shown them beneficial for those with ASD although more high quality research is needed to confirm their effectiveness. These included: Structured Teaching (including TEACCH); Picture Exchange Communication System; Sign Instruction; Peer-mediated Instructional Arrangement (peer tutoring); Language Training; Exercise; and Massage/Touch Therapy.

Additional summary and conclusions regarding parent and teacher perceptions of effective interventions and the relationship of study findings to the research literature are presented in the context of the next research question.

Research Question #2

What educational methods, practices, and interventions do parents of children with ASD, special education teachers, and general education teachers perceive to be helpful and effective in meeting the educational needs of children with ASD?

Nine themes emerged summarizing the educational methods, practices, and interventions parents of children with ASD, special education teachers, and general education teachers perceived to be helpful and effective in meeting the educational needs of children with ASD. Eight of these nine themes were endorsed by all three study groups. Parents, special education teachers, and general education teachers perceived the effectiveness of:

1. Intensive early intervention using multiple methods

2. A structured learning environment

3. Adult-mediated interventions for social and communication skills

4. Peer-mediated interventions for social and communication skills

5. Inclusion with a balance of direct services

6. Adequate support staff to facilitate inclusion

7. A functional approach to problem behaviors

8. Alternative and augmentative communication interventions

Parents and special education teachers also perceived the effectiveness of:

9. Sensory-motor interventions

Intensive early intervention using multiple methods. All three study groups reported positive perceptions of the district's Early Childhood Intervention Program that provides intensive early intervention services for preschool children with disabilities (ages 3-5) in three self-contained special education classrooms. Parent and teacher descriptions of the district's Early Childhood Intervention Program indicated that it meets the recommendations of the National Research Council (2001) that young children with ASD receive at least 25 hours a week of instruction in systematically planned and developmentally appropriate activities with opportunities for inclusive instruction and interaction with typically developing peers and a focus on the following areas: functional spontaneous communication; social skills; cognitive development; play skills; and a proactive approach to problem behaviors. Consistent with recommendations of the National Research Council that no one approach be used in isolation interviewees favored an eclectic approach in early intervention programs with an emphasis on structured teaching and naturalistic teaching strategies and some use of applied behavior analysis (ABA) with discrete trial training (DTT).

Study participants including parents, preschool and elementary special education teachers, and elementary general education teachers reported positive perceptions of structured teaching using a modified TEACCH (Treatment and Education of Autistic and Related Communication Handicapped Children) model. Aspects of the TEACCH model that were described as particularly beneficial and effective with autistic children in preschool and early elementary settings included: modifying and organizing the learning environment with clear, concrete, visual information; use of activity schedules to help children visualize "what comes next" as they transition from one activity to another; use of "work-play" structured learning contingencies with visual aids and reinforcement; and use of picture communication symbols to facilitate communication and prompt desired behavior. The perceptions of teachers and parents in this study were consistent with research studies supporting the effectiveness of the TEACCH program (e.g., Mesibov, 1997; Ozonoff & Cathcart, 1998; Panerai et al., 1997) and the National Autism Center's (2009) *National Standards Report* that identified Structured Teaching

(including TEACCH) as an "Emerging Treatment" that has some empirical evidence of its effectiveness for children with Autistic Disorder and PDD-NOS in increasing communication, higher cognitive functions, interpersonal skills, learning readiness, motor skills, and personal responsibility although additional high quality research is needed.

Study participants also perceived use of naturalistic teaching methods in early intervention programs to be effective in increasing autistic children's social and verbal interaction skills. Teachers regularly integrate a number of naturalistic, incidental teaching methods within the context of children's everyday activities and interests in a manner consistent with the research literature. For example preschool and elementary teachers described beneficial results using the mand-model variation on incidental teaching (Allen & Cowan, 2008) wherein the teacher joins children in play in their natural environment and asks them to describe what they are doing or what they want. Teachers also described effective use of time-delay incidental learning techniques (Allen & Cowan, 2008) wherein the teacher inserts a time-delay before giving help or desired objects to children with ASD. Consistent with the research on incidental learning, mand-model, and time-delay procedures (e.g., Allen & Cowan, 2008; Charlop-Christy & Carpenter, 2000; Miranda-Linne & Melin, 1992) preschool and elementary teachers perceived these approaches to be effective in increasing children's social interaction and use of words.

Teachers and parents also reported limited use of a third approach in early intervention programs, that of applied behavior analysis (ABA) with discrete trial training (DTT). ABA with DTT was not described as a primary intervention in early intervention programs, nor has it been used anywhere near the number of hours reported by early researchers (e.g., Anderson et al., 1987; Lovaas, 1987). Even so a preschool special education teacher and some parents perceived ABA with DTT to be helpful with young autistic children with limited verbal skills for developing joint attention and imitation as a foundation for mastering more complex skills. Consistent with the findings of Smith (2001) teachers at all grade levels favored structured teaching and naturalistic teaching approaches that still involve use of applied behavior analytic

principles but are easier to implement in natural classroom environments without the need for as much one-on-one intervention as intensive ABA with DTT.

      A structured learning environment. One of the strongest themes to emerge among all three study groups was the need for a structured learning environment as an essential feature of effective educational programs for children with ASD at all ages and grade levels. The perceptions of parents and teachers in this study were consistent with several reviews of the literature (Dawson & Osterling, 1997; Hurth et al., 1999; Iovannone et al., 2003) that identified a structure learning environment as an essential component of effective educational programs for students with ASD.

      Early intervention programs provide structure by using TEACCH methods such as visual prompts, activity schedules, and work-play structured learning contingencies. However, parents and teachers reported effective use of structure to facilitate positive outcomes for students with ASD at all grade levels through the use of schedules, routines, visuals, and a variety of highly engaging, hands-on, active learning activities. Schedules (written or visual) and routines were perceived by parents and teachers to be particularly effective in helping students with ASD understand what they are supposed to be doing and what will happen next. Teachers and parents also described effective use of visual cues to prompt desired behavior and checklists to increase self-regulation and work completion among students with ASD. Although they did not use the term "pivotal response training" from the research literature, interviewees used schedules and checklists as self-monitoring devices in a manner consistent with research on the use of pivotal response training to increase self-regulation in natural settings (e.g., L. K. Koegel et al., 1999). In their *National Standards Report,* the National Autism Center (2009) identified the use of Schedules (in the form of written words or pictures, or work stations) as an "Established Treatment" for children (ages 3-14) with Autistic Disorder in increasing self-regulation. These types of schedules were perceived by teachers and parents in this study to be effective in increasing self-regulation, prompting desired behavior, and facilitating transitions in children with ASD of all ages and grade levels in all types of classroom placements.

Adult-mediated interventions for social and communication skills. Study participants in all three groups perceived adult-mediated interventions including adult modeling, priming, and role playing to be effective in facilitating the development of social and communication skills in children with ASD of all ages regardless of level of severity or type of program placement. Study participants also described many situations in which adult-modeling, priming, and role playing were strategically combined with peer-modeling as teachers guided peers during interaction with ASD students. In fact adult-mediated and peer-mediated interventions were overlapping themes in this study because interviewees described an effective combination of both as the most common scenario in classrooms at all grade levels.

Both special education and general education teachers reported it easy to provide prompts, verbal cues, and opportunities to practice target behaviors in everyday classroom environments. Their use of adult-mediated interventions dovetailed nicely with their use of naturalistic, incidental teaching strategies in naturally occurring situations. Even at the secondary level teachers reported using role-playing combined with adult modeling and priming to deal with problematic social situations right when they occurred, using what one teacher humorously referred to as "the rewind technique." Study findings were consistent with a recent review of the literature by the National Autism Center (2009) that identified Modeling (by adults or peers and often combined with other strategies such as priming and reinforcement) as an "Established Treatment" for children (ages 3-18) at all levels on the autism spectrum including those with Autistic Disorder, Asperger's Syndrome, and PDD-NOS.

Another adult-mediated intervention, the use of social stories, was described as highly effective by parents and teachers, but social stories were only used with preschool and elementary age children. Consistent with the research literature teachers and parents described effective use of social stories to help children with autism disorders read social cues, comprehend situations from the perspectives of others, and know what to do and how to act appropriately in various situations (Gray, 2000; Gray & Garand, 1993; Machalicek et al., 2008). Preschool and elementary teachers described effective use of social stories on topics ranging

from keeping your clothes on, asking for help, being a good friend, and trying new foods to coping with the illness and death of a parent. Parents reported effective results with social stories that teachers created for them to use in challenging situations outside of school such as getting a haircut and going out to eat in public. In their recently published *National Standards Report* the National Autism Center (2009) identified Story-based Interventions including social stories as an "Established Treatment" that has been proven effective in increasing interpersonal skills and self-regulation in children (ages 6-14) with Autistic Disorder and Asperger's Syndrome. Teachers and parents in this study did not report use of social stories among students as old as age 14, but they found them quite easy to implement and effective in increasing social skills and self-regulation in preschool and elementary age children.

Peer-mediated interventions for social and communication skills. The effectiveness of peer-mediated interventions for facilitating social and communication skills in children with ASD at all ages and grade levels was one of the strongest themes to emerge in this study. All 21 interviewees whole-heartedly endorsed this theme. Parents, special education teachers, and general education teachers described the benefits of peers as partners, peers as trainers, and peers as tutors in facilitating reciprocal social interaction, play skills, and language among children with ASD of all ages and levels of severity on the autism spectrum regardless of type of educational placement. Parents and teachers reported providing as many opportunities as possible for children with ASD to participate with typical peers in naturally occurring settings. Typical peers thereby serve as *in vivo* models of age-appropriate social, play, and communication skills in their everyday interaction with children with ASD.

Study participants did not describe any formal peer-training programs for peers of children with ASD. However, teachers did provide numerous examples of ways they have used adult-mediated strategies such as priming, cueing, and prompting to guide peers during their social interaction with ASD classmates. Some teachers described effective use of peer buddy systems or a "circle of friends" to increase opportunities for social interaction with typical peers. Parents and teachers also perceived access to peers as tutors in cooperative learning groups to be

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very effective with ASD students in facilitating social interaction and communication along with academic learning at all ages and grade placements.

Perceptions of parents and teachers in this study were consistent with the research literature that has identified peer-mediated interventions including use of peers as partners, trainers, and tutors as highly effective in increasing social and communication skills in children with autism spectrum disorders (e.g., Machalicek et al., 2008; Weiss & Harris, 2001). Based on a recent review of the literature the National Autism Center (2009) identified Modeling (by adults or peers) as an "Established Treatment" for children (ages 3-18) especially when combined with other strategies such as prompting and reinforcement. Participants in this study described exactly that kind of combination. Similarly, the National Autism Center identified Peer Training Package (including peer-mediated social interactions, peer buddies, "circle of friends," and peer networks) as an "Established Treatment" for children (ages 3-14) with Autistic Disorder and PDD-NOS and Peer-mediated Instructional Arrangement (peer tutoring) as an "Emerging Treatment" in children (ages 6-9) with Autistic Disorder.

Inclusion with a balance of direct services. Consistent with their perceptions of the effectiveness of peer-mediated interventions study participants also strongly endorsed the importance of inclusion of students with ASD in general education settings to provide access to modeling by typical peers. However, parents and teachers did not generally favor a full inclusion model for every child with ASD. Instead all three groups emphasized the need to maintain a balance between inclusion and direct special education services such as speech-language therapy, occupational therapy, and resource assistance with the particular balance dependent upon the individual needs of the child. Parents affirmed the value of at least part-time inclusion in general education settings, but they also perceived speech-language and occupational therapies to be extremely beneficial and highly desirable for their children. Special education and general education teachers endorsed the value of inclusion for children with ASD to the maximum extent possible, but they also described situations when direct resource services have been beneficial for work on academic and behavioral skills depending on individual need.

Study participants in all three groups voiced strong feelings that adequate support staff must be in place to facilitate inclusion in order for this intervention to work smoothly and effectively for students with autism disorders.

The perceptions of parents and teachers in this study regarding the importance of inclusion with a balance of direct services were consistent with the research literature. For example the National Research Council (2001) recommended that children with ASD receive instruction in inclusion settings with typically developing peers to the extent that inclusion supports children with ASD in meeting individual goals. Teachers in this study reported similar views to those expressed by teachers in previous studies (e.g., Robertson et al., 2003; Spann et al., 2003). Special education and general education teachers in those studies also perceived the benefits of inclusion for providing children with ASD opportunities for social interaction and modeling typical peers. The perceptions of parents in this study were similar to those voiced by parents in studies by Whitaker (2007) and McGregor and Campbell (2001) who found that parents of children with autism spectrum disorders strongly endorsed the value of inclusion of children with ASD in general education classrooms and the value of teacher training and paraprofessional assistants in making inclusion work.

Adequate support staff to facilitate inclusion. The need for adequate support staff to facilitate inclusion emerged as a major theme among all three study groups. Parents, special education teachers, and general education teachers emphasized the critical role that one-on-one assistants and other paraeducators play especially when an autistic child needs close adult supervision to maintain concentration, practice new skills, and avoid disruptive behavior. Teachers also perceived assistants to be very helpful when autistic children require sensory breaks or removal from the classroom due to meltdowns or other problem behaviors. Both parents and teachers in this study agreed with the Autism Spectrum Disorder Inclusion Collaboration Model proposed by Simpson et al. (2003) whereby paraprofessionals should not be exclusively and constantly assigned to a particular child with ASD but should remain free to circulate and assist other children in the classroom as well.

Parents reported mixed experiences with provision of adequate support staff to facilitate inclusion. One parent in this study reported that her child has a part-time one-on-one assistant to facilitate concentration and completion of work when the child goes into an inclusion classroom, and the parent has been pleased with this service. Another parent reported that her child has never had a one-on-one aide but that various teaching assistants have been invaluable in helping him to focus and practice new learning in a self-contained setting and transition safely to related arts classes. This parent also reported satisfaction with the level of support. Another child represented in this study functioned well in an inclusion class in the early elementary grades with a teacher who had the support of a teaching assistant. However, now that he is in an upper elementary grade, this child's general education teacher does not have a teaching assistant. His parent expressed a strong desire for an ancillary assistant to enable her son to access the inclusion setting more often because he lacks the attention and self-regulation skills needed to function in that setting without closer adult supervision.

Teachers strongly endorsed the critical role that paraprofessionals play in inclusion settings. However, teacher perceptions also indicated that a positive experience for the general education teacher, the child with ASD, and the paraprofessional is heavily dependent upon the nature of the working relationship between the general education teacher and the assistant. One general education teacher reported a very negative experience with a one-on-one assistant due to lack of communication about their respective roles, failure of the teaching assistant to follow her authority, and the fact that the assistant was exclusively "tied" to the autistic child. This teacher felt that this exclusive relationship fostered over-dependency and impeded the child's access to the teacher and learning opportunities with peers. By contrast another general education teacher reported positive outcomes for a student with severe ASD in an inclusion setting. This teacher developed a very positive working relationship with the student's one-on-one assistant by meeting with her daily, reviewing lesson plans for the day, and explaining his expectations. The teacher took the lead, and the assistant understood and followed clearly established lines of authority. The teacher often purposefully directed the ancillary assistant to walk away, assist

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other students, and allow the autistic student to work independently for a few minutes. This teacher and the aide enjoyed the kind of working relationship favored by Simpson et al. (2003) in their Autism Spectrum Disorder Inclusion Collaboration Model.

A functional approach to problem behaviors. All three study groups strongly endorsed the theme that a functional approach to problem behaviors is highly effective in decreasing, eliminating, and proactively preventing challenging behaviors among children with ASD at all ages and grade levels regardless of severity of autism or type of placement. Parents and teachers described the effective use of interventions based on principles of applied behavior analysis and the development of positive behavior supports (PBS) to reduce, eliminate, or prevent problem behaviors in children with ASD. In particular interviewees reported effective results with antecedent interventions that focus on identifying triggers and preventing problem behaviors before they occur and interventions using positive reinforcement to strengthen desired behaviors while decreasing problem behaviors.

Parents and teachers described effective use of antecedent interventions that have the purpose of preventing the occurrence of problem behaviors before they occur by eliminating triggers or modifying events that typically precede the occurrence of the behavior (Luiselli, 2008). Antecedent interventions that study participants found effective with autistic children of all ages in all types of classroom placements included providing visual cues to prompt desired behavior, providing choices, modifying work requirements, and providing breaks or "time away" from instruction. Parents and teachers found it helpful to identify and reduce sensory triggers in the environment that cause problem behaviors among children with ASD due to visual, auditory, and tactile sensitivities. Teachers also found it helpful to provide students with choices of learning activities and to modify workloads as a means of preventing meltdowns. Teachers and parents reported effective use of "time away" (both inside and outside the classroom) as a means of preventing meltdowns or other disruptive behavior in students with ASD of all ages.

All three study groups also reported effective outcomes using positive reinforcement and other behavior supports to strengthen desired behaviors while decreasing problem behaviors in

children with ASD of all ages. Based on information gained from functional behavior assessments teachers and parents have often collaborated to develop positive behavior support (PBS) plans designed to reduce problem behaviors, teach alternative skills, and reinforce desired behaviors. Parents and teachers described a variety of positive reinforcers they have found effective in reinforcing work completion and reducing challenging behaviors. Preschool and elementary children demonstrated increased work completion and fewer problem behaviors when they were given the opportunity to earn reinforcers such as stickers, M & Ms, Skittles, rewards from a classroom "store" in a token economy system, and free time on the computer. Secondary level teachers described opportunities to download music on the computer as a powerful reinforcement for older ASD students.

The perceptions of parents and teachers in this study were consistent with reviews of the literature that identified a functional approach to problem behavior as an essential component of effective educational programs for students with autism spectrum disorders (e.g., Dawson & Osterling, 1997; Iovannone et al., 2003; National Research Council, 2001). A large body of research over the past 3 decades has consistently provided evidence for the effectiveness of individualized positive behavior support procedures for reducing problem behaviors of children with ASD (e.g., Horner et al., 1990; L. K. Koegel et al., 1996; National Research Council, 2001). The National Autism Center (2009) identified both Antecedent Package interventions and Behavioral Package interventions as "Established Treatments" for individuals with ASD of all ages in preventing and decreasing problem behaviors and increasing self-regulation.

Alternative and augmentative communication interventions. All three study groups perceived augmentative and alternative communication (AAC) strategies including manual signs and gestures and the Picture Exchange Communication System (PECS) (Bondy & Frost, 1994) to be helpful in facilitating communication in very young children with ASD whose oral communication skills are still emerging and therefore quite limited and in some older ASD students whose oral speech remains limited due to severe autism. Parents of young children and preschool and elementary teachers reported effective use of simple signs and gestures to

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facilitate communication with young children with ASD using signs for things like "eat," "potty," "drink," "stop," "wait," and "quiet." Participants in all three groups also endorsed the effectiveness of the Picture Exchange Communication System (PECS) in facilitating communication skills among children with ASD during the preschool and elementary years when they are still developing oral speech.

Parent and teacher perceptions regarding the benefits of using manual signs and gestures with young children with ASD were consistent with research findings that support the efficacy of teaching sign language to children with autism (e.g., National Research Council, 2001). Schlosser and Wendt (2008a) concluded that the use of this AAC intervention is an effective communication tool for children with autism both for symbol acquisition and for speech comprehension. The National Autism Center (2009) identified Sign Instruction as an "Emerging Treatment" for increasing communication skills in children (ages 3-9) with Autistic Disorder.

Study participants favored use of AAC interventions in conjunction with speech-language therapy. Thus, they supported the approach known in the research as "total" or "simultaneous" communication (Mirenda & Erickson, as cited in Schlosser & Wendt, 2008a, p. 361). Their perceptions and experiences were consistent with prior research indicating that for many children with autism total communication training (speech training plus sign language) has resulted in greater levels of receptive and expressive vocabulary acquisition than speech training alone (e.g., Barerra & Zulzer-Azaroff, 1983; Carr & Dores, 1981; Layton, 1988; Yoder & Layton, 1988).

Parent and teacher perceptions of the effectiveness of the Picture Exchange Communication System (PECS) for facilitating communication in young autistic children with limited oral speech were also consistent with previous research providing "suggestive" to "conclusive" evidence that PECS is effective as an alternative communication system for children with autism (e.g., Charlop-Christy et al., 2002; Kravits et al., 2002; Schlosser & Wendt, 2008a; Tincani et al., 2006). Based on their review of the literature the National Autism Center (2009) identified Picture Exchange Communication System as an "Emerging Treatment" with

some evidence of its effectiveness in increasing communication and interpersonal skills in children with Autistic Disorder and PDD-NOS (ages 0-9).

Sensory-motor interventions. Two study groups, parents and special education teachers, perceived the effectiveness of a variety of sensory-motor interventions including occupational therapy, deep pressure, exercise and movement, touch therapy, brushing, sensory breaks, and access to sensory objects (e.g., squeegees) to increase calmness and prevent or reduce problem behaviors. Parents and special education teachers endorsed the effectiveness of sensory-motor interventions and therapies for students with ASD at all ages. Techniques such as brushing, weighted backpacks, bouncing on trampolines, and putting hands in various textures have been used more often with preschool and elementary age children with ASD. However, teachers also reported benefits of sensory breaks, exercise and movement, and access to sensory toys (e.g. squeegees for calming) for secondary level students with ASD.

The experiences of parents and special education teachers in this study exceeded the scope of the current research literature that has not reported evidence of the benefits of occupational therapy or sensory-integration therapies for children with ASD in addressing sensory and motor development needs (Dawson & Watling, 2000; National Autism Center, 2009; National Research Council, 2001). The National Autism Center (2009) recently identified Sensory Integrative Package as an "Unestablished Treatment" or one for which there is little or no evidence in the research literature supporting the effectiveness of this intervention for individuals with ASD.

However, it is important to note that the National Autism Center (2009) identified two other sensory-motor treatments as "Emerging Treatments" for children with ASD. These included Exercise (increasing a child's physical activity as a means of decreasing problem behavior and increasing appropriate behavior) and Massage/Touch Therapy (deep tissue stimulation). Study participants perceived both interventions to be effective in addressing sensory and behavioral issues for children with ASD. For example parents and teachers reported benefits of activities involving exercise and movement (e.g., incorporating movement in the

classroom; sensory breaks to jump on balls or trampolines) in increasing attention, focus, and engagement in learning, and decreasing problem behaviors such as inattention and disruption. Their experiences in this regard were consistent with National Autism Center's report that Exercise is an "Emerging Treatment" for children with ASD. There is also a strong body of research (e.g., Jensen, 2008; Tate, 2003) suggesting that children in general tend to focus and learn better when, as one teacher so astutely observed, they can "get the wiggles out."

Research Question #3

What are the barriers and challenges that parents of children with ASD, special education teachers, and general education teachers have experienced in meeting the educational needs of children with ASD?

Seven themes emerged regarding the barriers and challenges that parents of children with ASD, special education teachers, and general education teachers have experienced in meeting the educational needs of children with ASD. Six themes were endorsed by all three participant groups:

1. Lack of training and knowledge

2. Lack of time

3. Challenges caused by characteristics of ASD itself

4. Problematic teacher attitudes

5. Problematic parent attitudes

6. Transition issues

A seventh theme was endorsed by parents and special education teachers:

7. Need for additional services and therapies

Lack of training and knowledge. All three participant groups strongly endorsed the need for more training and knowledge for those who work to meet the educational needs of children with ASD. Parents and teachers felt that more training is essential for everyone especially general education teachers and support staff who may not have accessed training

opportunities. Due to the rising incidence of autism combined with an increased emphasis on inclusion to the maximum extent possible, it has been difficult for the school district to keep pace with the need for training of all general education staff in particular. Although parents expressed a high level of satisfaction with their children's overall school programs, several parents reported times when their children had teachers who lacked training and knowledge about how to teach children with autism disorders. During their children's tenure with those teachers, parents experienced frustration and dissatisfaction with their children's educational program. By contrast when their children had teachers who had received specific training, parents described high levels of satisfaction and positive experiences. Although some parents have attended parent support groups in neighboring cities and towns, others voiced a need for a parent support group for families of children with ASD in the local community.

Several documents gathered indicated that the school system has provided many training opportunities for teachers, teaching assistants, and other staff on educational interventions and teaching methods for children with ASD. The district has sent a number of special education and general education teachers to workshops sponsored by TEACCH (Treatment and Education of Autistic and Related Communication and Handicapped Children) and by the Vanderbilt Treatment and Research Institute for Autism Spectrum Disorders (TRIAD). The district has also provided on-site training in the use of the Picture Exchange Communication System (PECS) (Bondy & Frost, 1994) and the use of applied behavior analysis (ABA) with discrete trials. Every year for at least the past 5 years the Autism Coordinator has led on-site professional development workshops for teachers, teaching assistants, and administrators on topics relating to teaching methods for children with autism spectrum disorders.

In spite of access to these types of opportunities for training, teacher interviewees reported that on-the-job experience has been their primary source of knowledge for how to teach children with autism disorders. Teachers perceived one-time training workshops to be limited in value because they have not been linked to on-the-job opportunities for modeling, feedback, and collaboration. In spite of having attended in-service workshops provided by the school district

and outside agencies, both special education and general education teachers in this study strongly perceived a need for more training that is on-going, job-embedded, and directly relevant to their day-to-day experiences with individual students with ASD. Parents and teachers viewed the Autism Coordinator as a valuable source of on-going, job-embedded training and support. Several expressed a desire for that job to be restored to a full time position. The strong desire of teachers for on-going, job-embedded training that is practical, problem-centered, and relevant was consistent with the research of Knowles (1990) on adult learners. Knowles reported that adult learners desire learning that is immediately useful and opportunities to collaborate with others and receive feedback as they master new skills. This kind of collaboration, feedback, and sharing is only possible when professional develop training is on-going and job-embedded.

The perceptions of study participants regarding the need for more training for school personnel were consistent with several previous studies on perceptions of parents and teachers of children with ASD. For example when asked how schools could better meet the needs of their children, parents of children with ASD in a study by Starr et al. (2001) cited more education and training for professionals as one of their top three choices. In two other studies (Spann et al., 2003; Starr et al., 2006) parents of children with ASD expressed a need for school personnel to receive more education about autism and more training in how to teach these children. In prior studies of teacher perceptions of inclusion programs for children with ASD general education teachers expressed a need for more training for themselves (McGregor & Campbell, 2001) and for teaching assistants (Glashan et al., 2004) in how to teach autistic children. In other studies (e.g., Ruef et al., 1999; Sperry et al., 1999) both parents and teachers endorsed the importance of training for parents and educators. Furthermore, in the study by Ruef et al. (1999) parents and teachers preferred to receive information and knowledge in a person-to-person format from someone with experience whom they knew and trusted. Interviewees in the current study were similar to parents and teachers investigated by Ruef et al. in that they preferred to receive practical, immediately relevant information from trusted persons with experience in similar situations.

Lack of time. All three study groups also described lack of time as a major barrier in meeting the educational needs of children with ASD. Pressures due to teacher caseloads, excessive paperwork, pressures of preparing children for state-mandated tests, and pressures of balancing the needs of the individual versus the needs of the group were cited as major reasons for the time crunch general education and special education teachers experience. Special education teachers reported additional time pressures due to the sheer number of general education teachers with whom they need to collaborate at the secondary level when students with ASD in inclusion settings can have as many as eight general education teachers in a school year. Parents wanted their children to be included in general education settings as much as possible, but they also cited teacher time pressures and case loads as impediments and a reason why paraeducator support is needed in those settings.

Challenges caused by characteristics of ASD itself. Challenges caused by characteristics of autism spectrum disorder itself emerged as another strong theme that all study groups endorsed as a major barrier in meeting the needs of children with ASD. Parents and teachers described significant challenges they have faced due to the diversity of the spectrum and typical behaviors among children with ASD such as noise-making, inattention, meltdowns, limited communication skills, and handwriting problems. The diversity of the autism spectrum presents a challenge due to the wide range of individual differences across the spectrum and assorted co-occurring conditions. Parents and teachers gave numerous examples of ways common behaviors among children with ASD such as noise-making, sensory issues, attention problems, and temper tantrums (meltdowns) have caused significant disruptions in the classroom, hampered children's access to inclusion opportunities, and presented on-going challenges for educators. Meltdowns (temper tantrums) were named as the biggest challenging behavior faced by parents and teachers alike. Teachers and parents also reported significant challenges due to children's limited communication skills and difficulties with writing that are also common features of autism disorders.

Perceptions of parents and teachers regarding challenges caused by characteristics of autism spectrum disorder itself were similar to perceptions of teachers in a study by Robertson et al. (2003) who found that a high incidence of behavioral problems displayed by children with autism in inclusion settings negatively impacted the quality of the teacher-student relationship and the autistic children's level of social inclusion by peers. Teachers in a study by McGregor and Campbell (2001) expressed similar concerns about classroom disruptions caused by challenging behaviors exhibited by children with autism.

Problematic teacher attitudes. Although not generally characteristic of their experiences in this school system, parents and teachers did describe times when they encountered problematic teacher attitudes they perceived to be a barrier in meeting the needs of children with ASD. Parents and teachers have sometimes encountered teachers who have displayed lack of acceptance of children with ASD, a "one-size-fits-all" mentality, and unwillingness to differentiate instruction. Both special and general education teachers felt that not all general education teachers are open to receiving children with autism disorders into their classrooms. Problems also arise when teachers are inflexible and expect children to fit into the structure or mold of an existing program rather than being willing to adapt the program to meet the needs of the child. Several parents described how painfully difficult it was for them when teachers who lacked understanding of autism thought their children were being stubborn, defiant, or misbehaving on purpose. Parents and teachers attributed instances of teacher resistance to a variety of factors including fear of getting out of their comfort zone, lack of training in methods of teaching children with ASD, and not wanting to spend the time and energy required to individualize instruction and make accommodations. Parent and teacher perceptions suggested that problematic teachers attitudes were more likely to occur when other barriers were present, namely lack of training and knowledge, lack of time, and characteristics of autism disorder itself that teachers were unprepared to address.

Parent and teacher perceptions regarding the need for teachers who are caring, accepting, and willing to differentiate instruction were similar to those voiced by parents of children with

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ASD in a study by Whitaker (2007). Factors that differentiated two groups of "satisfied" and "dissatisfied" parents in Whitaker's research included: (a) the degree to which parents felt that school staff understood and empathized with their child as a person with autism; and (b) the extent to which parents perceived educators as flexible in responding to their child's needs and challenging behaviors. Spann et al. (2003) also found that parents of children with ASD wanted teachers to show compassion, caring, and concern for their children.

   Problematic parent attitudes. Although not generally characteristic of their experiences in this school system, all three study groups described experiences with problematic parent attitudes that have sometimes posed a challenge for them in meeting the educational needs of children with ASD. However, two different types of problematic parent attitudes were reported by teachers and parents. Although they described their relationships with parents of children with ASD as positive overall, special education teachers and general education teachers described challenges they have sometimes faced with parents who were overprotective of their children or unrealistic in their expectations.

   Not surprisingly parent participants did not view themselves as having those kinds of attitudes, but they did relate experiences with other parents whose attitudes were hurtful to them due to intolerance and lack of understanding of autism. Parents were more likely to encounter intolerant parents in public settings such as stores and restaurants than in the school setting where they described their experiences with other parents as much more positive. Parent interviewees voiced a need for more awareness about autism and more acceptance of these children by society in general. The perceptions of parents in this study regarding experiences of intolerance were similar to those reported by Ruef et al. (1999) who examined barriers faced by five-stakeholder groups as they addressed challenging behaviors exhibited by individuals with mental retardation and/or autism. All five stake-holder groups including families, friends, administrators, teachers, and adults with mental retardation or autism identified barriers related to societal values that are intolerant of persons with disabilities. All groups expressed a need to treat persons with disabilities with compassion, respect, and understanding (Ruef et al., 1999).

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Transition issues. Transition issues emerged as a sixth theme reported by all three study groups as a challenge in meeting the educational needs of students with ASD. In particular interviewees described the difficulties involved in transitions from preschool to elementary to middle school to high school. Four of six parents in this study received some services through Tennessee Early Intervention System (TEIS) under Part C of IDEA (1997; 2004). All four parents reported positive experiences with their children's transition into the district's preschool Early Childhood Intervention Program (ECIP) at age 3. Factors that made this transition easier included inviting both parent and child to transition meetings and meeting in the classroom so that families could get an idea of what to expect.   Several parents appreciated the fact that their children were allowed to stay an extra year in the ECIP program to facilitate kindergarten readiness. Parents described transitions to elementary school that went poorly when particular teachers lacked training and knowledge about how to teach children with ASD. By contrast transition experiences went well with teachers who were warm, accepting, and well-trained.

Study participants felt that more could be done to facilitate smooth transitions from one school level to the next. They endorsed strategies such as allowing children with ASD to visit their next school before entrance to meet teachers, tour the school, and take pictures or videos. In fact the only instance of video self-modeling in this study was reported by one parent who said a plan was in place to implement this technique to facilitate her child's transition from preschool to another campus for kindergarten. High school teachers and one parent observed challenges presented for students with ASD when they transition to the high school setting because not all general education teachers attend IEP meetings for ASD students at this level. Special education teachers to whom students are ultimately assigned as freshmen may not be the ones who attend transition meetings during the spring of their eighth grade year. Teachers at all school levels expressed a desire for more communication between schools so that upcoming teachers could benefit from the knowledge and experiences of teachers who have gone before.

Perceptions of parents and teachers in this study were consistent with a review of the literature on early intervention programs for young children with ASD (ages 0-8) by Dawson and

Osterling (1997) who identified careful planning for transitions from preschool to kindergarten and first grade as an essential element in all programs reviewed. Similarly, in their review of the literature Iovannone et al. (2003) concluded that facilitating transitions and change is essential for students with ASD of all ages.

Need for additional services and therapies. A seventh barrier was endorsed by two groups, parents and special education teachers, who perceived a need for additional services and therapies for children with ASD. Children represented in this study commonly received OT once weekly and speech-language therapy twice weekly especially during the preschool and elementary years. Parents valued these therapies highly, and many perceived a need for more occupational therapy and speech-language therapy for their children. Several parents have obtained additional outside therapies for their children at their own expense. Special education teachers perceived a need for more occupational therapy and social skills training for secondary level students. Elementary special education teachers perceived a need to split existing elementary resource programs into separate part-time and self-contained programs. Resource teachers described difficulties with implementing appropriate interventions for children with ASD in noncategorical resource room settings where 40 or more children with all types of disabilities cycle in and out during the day with some staying only an hour and others all day. Some special education teachers also suggested developing a K-2 special education class for students with ASD and other communication disorders so that intensive interventions that are appropriate for these children could be continued in a smoother transition from the preschool ECIP program to the early elementary grades.

Study participants' perceptions of the need for more social skills training for students with ASD were similar to those expressed by parents of children with ASD in previous studies (e.g., Spann et al., 2003; Whitaker, 2007). The major educational intervention that topped parents' priority list in Whitaker's study was social skills development. Parents in the study by Spann et al. (2003) felt that their children's most pressing needs were to have more friends and develop better social skills.

Research Question 4

What are the perceptions of parents of children with ASD, special education teachers, and general education teachers regarding their experiences and relationships with one another in meeting the educational needs of children with ASD?

All three study groups perceived family involvement and positive parent-teacher relationships to be essential components of effective educational programs for children with ASD. Four major themes emerged summarizing parent and teacher perceptions of factors they believe facilitate family involvement and positive parent-teacher relationships:

1. Collaboration, teamwork, and support

2. On-going communication

3. IEP Team meetings and the IEP itself

4. Positive teacher relationships with autistic children

Two themes emerged summarizing special education and general education teacher perceptions of their relationships:

1. Collegiality and closeness

2. Divergent needs

Collaboration, teamwork, and support. Parents and teachers reported positive perceptions of their relationships with one another based on experiences of collaboration, teamwork, and mutual support. Parents and teachers viewed themselves as equal partners fully included in collaborative decision-making processes rather than hostile adversaries. Each study group perceived themselves as bringing valuable knowledge and experience to the table; none reported being treated as secondary team players. For parents experiences of teamwork and equitable decision-making contributed to positive perceptions of teachers and high levels of satisfaction with their children's educational programs. All of the parents who volunteered for this study were highly engaged in their children's school program. This was not surprising because parents who were uninvolved were less likely to respond to a request to participate. Teachers perceived family involvement to be an essential component of effective educational

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programs for children with ASD, but they have not always been able to engage every family. Parent interviewees strongly valued teacher support for themselves and their children, and teachers placed an equally high value on the support, trust, and involvement of parents.

On-going communication. Parents, special education teachers, and general education teachers strongly endorsed the importance of on-going communication between parents and teachers as an essential component of effective educational programs for children with ASD. In fact this was one of the strongest themes to emerge in the current study. Parents and teachers reported communicating with one another on a regular basis through means such as e-mail, phone calls, and school-home note systems. They valued these means of on-going communication more highly than IEP Team meetings or the IEP itself. Both parents and teachers perceived on-going communication to be extremely beneficial in facilitating family involvement, positive parent-teacher relationships, collaboration and teamwork in decision-making, and positive outcomes for children with ASD. Parents also valued regular feedback from teachers when their children with ASD lacked communication skills to keep them informed about their day-to-day activities at school.

IEP Team meetings and the IEP itself. Parents and teachers regarded IEP processes as helpful in facilitating family involvement and providing overall direction, guidance, and feedback but less valuable than on-going communication between home and school. When directly asked what they perceived to be "essential" components of effective educational programs for children with autism spectrum disorders, no study participant spontaneously mentioned IEP meetings or the IEP itself among their list of essentials. This in itself was an interesting study finding given the emphasis that federal and state mandates place on IEP processes and the amount of time that educators spend complying with these mandates. However, when I asked specific questions about IEP Team meetings and the IEP itself, parents and teachers reported generally positive perceptions of IEP Team meetings based on experiences of mutual collaboration, teamwork, and equitable decision-making. Several parents mentioned times when they had to advocate or "fight" for something, yet they still described their

experiences as positive because school staff were willing to listen, treat them as equal members of the team, and put the needs of their child first. Like parents special education and general education teachers described IEP meetings as a collaborative process that has facilitated teamwork in planning educational programs for children with ASD. Several teachers described IEP meetings as longer or more difficult not because parents were acrimonious or adversarial but simply because students with autism disorders have a complex, "high needs" disability.

Parents and teachers perceived the IEP itself to be helpful in providing overall direction and guidance for intervention but not something to which they refer often. Parents especially appreciated the feedback IEPs provide about their children's progress toward goals. Several general education teachers reported that their daily experiences with autistic children in the classroom and their knowledge of grade-level curriculum standards were more important than the IEP itself in guiding their instruction. Special education teachers viewed the IEP itself as generally helpful in providing focus and direction. However, special education teachers viewed IEP processes as excessively burdensome due to the time and paperwork involved.

Positive teacher relationships with autistic children. Parents, special education teachers, and general education teachers strongly endorsed the theme that positive relationships between caring, loving teachers and autistic children facilitate effective educational programs for these students. Parents generally valued relationships more than any one program or intervention as the corner-stone of effective educational programs for their children. Not only did they value collaboration, teamwork, and on-going communication with teachers for themselves, but they also placed "love" and "acceptance" of their child at the top of the list of what they want most from teachers. Parents in this study described most teachers as very loving, caring, and accepting of their children. Positive teacher-student relationships contributed to strong feelings of satisfaction among parents with their children's educational programs. In rare instances when their child encountered a teacher whom parents perceived as unsupportive and lacking acceptance, parents reported strong dissatisfaction with their child's educational program during the child's time with that particular teacher. Such occurrences were uncommon for parent

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interviewees but did happen on occasion especially with teachers who lacked training and knowledge about teaching children with ASD.

One of the most interesting findings to emerge from this study was that the teachers themselves reported their relationships with children with ASD to be unusually rewarding and positive. Even though children with ASD can present vast challenges for teachers simply due to the nature of the disorder itself, special education and general education teachers in this study described numerous experiences with autistic children with whom they have forged strong bonds of affection, caring, and support. They cited their memories of these children as among their most treasured as teachers. For these teachers the greater the challenge the greater was the reward. They delighted in seeing children with ASD reach small steps and major goals ranging from getting a haircut without a meltdown and mastering potty-training to performing in a district-wide spelling bee and learning to self-regulate emotions and direct their own learning.

Collegiality and closeness. Special education teachers and general education teachers perceived their relationships with one another as generally close, collegial, and positive. All general education teachers who participated in this study reported positive, collaborative relationships with special education colleagues. Special education teachers were also generally positive, but they cited some challenges in building relationships with general education teachers depending upon their level of acceptance of children with ASD in inclusion classrooms and willingness to provide accommodations.

Divergent needs. Special education and general education teachers voiced somewhat divergent needs regarding what they want most from one another. General education teachers strongly valued feedback, coaching, and support from special education teachers and time for collaboration. Special education teachers strongly valued general education teachers who are empathetic and accepting, who provide access to inclusion for children with ASD, and who are willing to differentiate instruction for these students.

The major themes that emerged in this study regarding factors that have facilitated positive relationships among parents of children with ASD and their teachers were consistent with previous research. For example parents and teachers in this study strongly endorsed the benefits of close, mutually respectful, collaborative partnerships between parents and teachers, a theme that is emphasized repeatedly in the research literature as an essential ingredient in providing effective services for children with ASD (e.g., Dunlap et al., 2008; National Research Council, 2001; Stoner & Angell, 2005; Stoner et al., 2005; Whitaker, 2007). The perceptions of study participants that collaboration and teamwork have facilitated positive parent-teacher relationships and high levels of parent trust and satisfaction with their children's educational programs are also similar to the perceptions of parents of children with ASD and service providers reported in a study by Sperry et al. (1999).

Parent and teacher perceptions that on-going communication between home and school is an essential feature of effective educational programs for children with ASD were consistent with previous research by Whitaker (2007) who reported that the amount and quality of communication between school personnel and families was strongly related to parent satisfaction with programs for children with ASD and positive relationships with school staff.   Parents in this study also voiced feelings quite similar to those reported by Stoner et al. (2005) who found that parents of children with ASD valued frequent, open, and honest communication with teachers especially when their children lacked communication skills to tell them what was going on at school.

Parent and teacher perceptions of IEP meetings and IEP processes in this study were generally positive unlike the negative experiences with IEP meetings reported by parents of children with ASD in a study by Fish (2006). Unlike parents in the Fish study who reported that they were not treated as equals by educators, parents in this study perceived themselves as equal members of the team who were fully included in the decision-making process and treated with fairness and respect. Teachers and parents in this study described times when parents played the role of advocate, but interviewees did not perceive parents as adversarial in that role. Study

participants viewed IEP processes as a democratic, collaborative team effort. Collegiality, teamwork, and inclusion of all team members in IEP decisions appears to have contributed to the positive parent-teacher relationships reported by study participants and their overall positive experiences with IEP Team processes.

Parents in this study engaged in all four roles reported by Stoner and Angell (2006) in their research on perceptions of parents of children with ASD regarding their roles with educational professionals. In particular parents in this study engaged at various times in the roles of negotiator, monitor, supporter, and advocate (Stoner & Angell, 2006). Parents described experiences of engaging in negotiation and advocacy for the assistance of a paraprofessional and more therapy services. Parents monitored the content and quality of their children's educational programs through formal measures such as attending IEP meetings and reviewing progress toward IEP goals and through informal methods such as on-going communication with teachers through email, phone calls, and school-home notes. Parents in this study most often engaged in the role of supporter by developing positive, collaborative relationships with their children's teachers and reinforcing classroom intervention strategies at home. Consistent with findings by Stoner and Angell parent engagement in the role of supporter appeared to increase when trust was high and parents perceived educators as warm, caring, and collegial.

Parent and teacher perceptions regarding the importance of teachers who are loving, caring, and supportive in their relationships with autistic children were also consistent with previous research findings. The experiences of parents in this study were similar to those reported by Whitaker (2007) who found that parents' trust in educational professionals increased when they viewed teachers as positive and caring with a genuine passion for teaching children with autism spectrum disorders. The perceptions of teachers in this study that they have enjoyed unusually close, rewarding relationships with autistic children especially when supported by frequent communication with parents were similar to teacher perceptions reported by Robertson et al. (2003).

Parent and teacher perceptions in this study were also consistent with those reported by Ruef et al. (1999) who investigated the perceptions of five stake-holder groups regarding educational programs for children and adults with mental retardation or autism. Ruef et al. found that all five groups perceived a strong need to treat persons with disabilities with compassion, respect, and understanding. All groups endorsed the value of "good people," referring to individual teachers, friends, family members, or other support persons who were caring, flexible, persistent, and willing to go beyond what was required to provide appropriate educational programs for children and adults with mental retardation or autism (Ruef et al., 1999, p. 50). Similarly parents and teachers in the current study perceived teachers as loving, caring, and accepting in their relationships with children with autism spectrum disorders, and more than willing to go "above and beyond the law" or "the extra mile" to embrace children with ASD and meet their educational needs.

Recommendations for Practice

The perceptions and experiences of parents and teachers represented in this qualitative case study are not intended to represent those of all parents or all teachers of children with autism spectrums disorders. However, the themes that emerged from this study provide a framework for increasing understanding and collaboration among parents and educators and positively impacting educational programs for children with ASD in the school system that was the site of study and among others who may learn from their experiences.

Based upon an analysis of the findings regarding parent and teacher perceptions of interventions and practices they found effective and beneficial, the following recommendations for practice are offered:

1. School personnel should use a variety of research-based interventions for children with ASD rather than relying upon any one approach or method as superior to all others. In particular a combination of structured teaching methods, naturalistic teaching strategies, adult-mediated and peer-mediated interventions, and interventions using a functional

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approach to problem behavior appears effective for students with ASD of all ages regardless of severity of autism or type of educational placement.

2. The district's Early Childhood Intervention Program appears to promote positive outcomes for children with ASD and high levels of parent satisfaction. At the time of this study the ECIP program met the standards recommended by the National Research Council (2001) for intensive early intervention programs for children with ASD. Strengths in this regard should be maintained at the site of study.

3. A structured learning environment is a key component of effective educational programming for students with ASD of all ages and can be facilitated by the use of schedules, routines, visuals, and highly engaging, hands-on, active learning activities.

4. Teachers and parents should promote inclusion to the maximum extent appropriate for children with ASD while maintaining a balance of direct services based on each child's individual needs.

5. Peer-mediated interventions should be emphasized and may be especially effective when used in combination with adult-mediated interventions that involve priming, prompting, and guiding peers during social interaction and learning activities with ASD students.

6. Alternative augmentative communication interventions such as manual signs and gestures and the Picture Exchange Communication System (Frost & Bondy, 2002) appear beneficial for autistic children with limited oral speech especially when implemented with speech-language therapy and a simultaneous communication approach.

Based upon an analysis of the findings regarding barriers and challenges faced by parents and teachers in meeting the educational needs of children with ASD, the following recommendations for practice are offered:

1. There is a need for more training for all school personnel who serve children with ASD including teachers, teaching assistants, and other support staff. On-site and off-site workshops should be supplemented with on-going, job-embedded training that is immediately relevant with opportunities for collaboration, feedback, and practice.

2. The school district should consider restoring the job of Autism Coordinator to a full-time position. A full-time Autism Coordinator could be an invaluable resource in providing on-going, job-embedded training, collaboration, and support to school personnel.

3. Administrators can help to reduce time pressures teachers of children with ASD experience by providing extra support staff to reduce pupil-teacher ratios and guarding instructional time from unnecessary interruptions.

4. Adequate support staff should be provided to facilitate inclusion opportunities for students with ASD who have significant problems with attention and challenging behaviors that can disrupt the learning environment. More support staff are also needed at the secondary level simply due to the number of teachers with whom students with ASD interface during the course of a school year in general education programs.

5. Study findings suggest that paraprofessionals should not be exclusively and continuously assigned to a particular student with ASD because this can create over-dependency and impede the child's access to learning opportunities with the teacher and peers. It is recommended that school personnel follow the Autism Spectrum Disorder Inclusion Collaboration Model proposed by Simpson et al. (2003) whereby paraprofessionals are made available to assist children with ASD in inclusion settings while remaining free to circulate and assist other children in the classroom as well.

6. Behaviors that are characteristic of autism disorder itself can present a major challenge for teachers and parents. It is recommended that educators use a functional approach to problem behaviors with a combination of antecedent interventions, positive reinforcements, and other positive behavioral supports.

7. School personnel should collaborate with parents to develop activities to promote general awareness, tolerance, and acceptance among teachers and other adults for children with autism spectrum disorders. For example interested parents might be invited to speak at PTA meetings, faculty meetings, and teacher in-service workshops and share their experiences as the parent of a child with autism.

8. Administrators should attempt to "match" students with ASD with general education teachers who are caring, positive, accepting, and willing to differentiate instruction and provide needed accommodations.

9. General education teachers with a "one-size-fits-all" teaching style or fear of stepping outside their comfort zone might benefit from professional development training on how to differentiate instruction for all learners including those with ASD.

10. Parents of children with ASD expressed a desire for more opportunities to share and collaborate with other parents of autistic children. Although there are parent support groups for families of children with ASD in nearby towns, there is no such support group in the local community. School personnel might assist interested parents in starting a local support group for families of children with ASD.

11. Transitions from one school level to the next should be facilitated by providing students with ASD opportunities to visit their next school, tour the building, see classrooms, meet teachers, and take pictures or videos before the next school year begins.

12. A smoother transition to elementary school could be further facilitated if the school principal selects the autistic student's classroom teacher before the next school year begins and gives that teacher an opportunity to visit the child's preschool ECIP class and observe interventions that have proven effective actually being implemented.

13. Similarly, middle school and high school teachers would benefit from opportunities to talk to teachers of students with ASD who have gone before them regarding specific teaching strategies they have found effective, how they addressed challenging behaviors, and other practical information.

14. Smoother transitions to high school might occur if special education teachers who will teach a particular student with ASD during ninth grade attend that student's eighth grade transition IEP meeting, meet the parents, provide input into the IEP, and gain feedback from eighth grade teachers.

15. School staff should consider providing secondary level students with ASD with more social skills training opportunities while continuing the combination of adult-mediated and peer-mediated interventions that have proven effective.

16. Elementary resource teachers find it difficult to provide appropriate educational interventions for students with ASD in resource room settings that combine part-time and self-contained programs. Administrators and policy makers should consider possible solutions to this difficulty such as splitting direct service resource programs into separate part-time and self-contained programs in schools where they are combined.

17. Administrators should consider developing a K-2 special education program for young children (ages 5-8) with ASD and other communication disorders so that intensive early interventions that are appropriate for these children can be continued in a smoother transition from Early Childhood Intervention Programs to the early elementary grades.

Based upon an analysis of the findings regarding parents and teachers perceptions of their relationships with one another in meeting the educational needs of children with ASD, the following recommendations for practice are offered:

1. Parents and teachers in this study reported positive perceptions of their relationships with one another based upon experiences of collaboration, teamwork, and mutual support. Educators can promote teamwork and positive partnerships with parents by treating them as equal partners in collaborative, democratic decision-making processes.

2. On-going communication between teachers and parents is an essential feature of existing educational programs for children with ASD, one that facilitates positive parent-teacher relationships and a high level of parent satisfaction with their children's educational programs. It is strongly recommended that teachers engage in on-going communication with parents of children with ASD through a variety of means such as emails, phone calls, and school-home notes.

3. At the high school level all teachers of students with ASD should attend IEP meetings or they should make other arrangements to meet with the parents of students with ASD to facilitate personal communication and feedback.

4. IEP Team meetings provide opportunities for planning, collaboration, and feedback. Even when parents of children with ASD assume the role of advocate or negotiator, they are more likely to view IEP processes as positive if they feel that school staff are willing to listen, treat them as equals, and put the needs of their child first.

5. Parents value the IEP itself as a helpful means of measuring the child's progress toward goals, but parents and teachers alike observe limits to the IEP's usefulness. Teachers should be aware that parents may value on-going communication with teachers as a more important, practical source of information especially if students with ASD lack communication skills to keep parents informed about their day-to-day activities at school.

6. General education teachers in this study voiced a need for coaching and support from special education teachers and more time to plan and collaborate. Administrators can help by providing specific times for such collaboration to occur and making certain that special education teachers are included in grade-level or departmental planning teams.

7. Educators should strive to develop loving, caring relationships with autistic children to promote positive outcomes for students and to facilitate parent involvement and satisfaction with their child's educational program.

Recommendations for Research

The purpose of this study was to provide a voice for parents of children with ASD, special education teachers, and general education teachers regarding their perceptions of educational interventions for children with ASD. Study findings are delimited to a sample of parents and teachers in one Northeast Tennessee school district and are not intended to represent the perceptions of all parents or all teachers of children with autism spectrum disorders.

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Furthermore, the views of interviewees in this study may not represent those of all parents of children with ASD or all teachers within the school system that was the site of study.

1. The limited scope of this study and the lack of similar qualitative studies in the research literature suggest a need to conduct other qualitative studies on this topic with parents of children with ASD and their teachers in other settings.

2. Findings from this study could be used to develop a survey to further investigate the attitudes, perceptions, and experiences of a broader sample of parents of children with ASD, special education teachers, and general education teachers, both within the school district that was the site of study and in other school systems as well.

3. Quantitative research studies often focus on specific educational interventions for children with ASD one at a time or compare the relative effectiveness of two interventions. Yet in "real world" settings in this study teachers reported using as many as 10 or more specific interventions that have empirical support in the literature indicating their effectiveness. Further research needs to be done investigating possible cumulative effects of combining research-based interventions for children with ASD.

4. It is recommended that quantitative research studies be designed to test the following hypotheses that derive from current study findings based on qualitative analysis and inductive reasoning procedures:

   - $H_0 1$:   Peer-mediated interventions involving typical peers as models, trainers, or tutors are more effective with children with ASD when combined with adult-mediated interventions involving priming, prompting, and guiding peers during social interaction, play, and learning activities with their ASD classmates than when peer-mediated interventions are used in isolation.

   - $H_0 2$:   There is a relationship between the degree to which parents of children with ASD perceive themselves to be treated by educators as equal members of a team fully included in democratic decision-making processes and their level of satisfaction with their child's educational program.

- $H_0 3$: The level of satisfaction of parents of children with ASD with their child's educational program tends to be higher and their level of trust in teachers higher when they view teachers as loving, caring, and accepting toward their child.

- $H_0 4$: There is a relationship between the amount and quality of on-going communication between teachers and parents of children with ASD and the level of parent involvement and satisfaction with their child's educational program.

- $H_0 5$: The amount and quality of teacher training teachers have received on interventions and teaching methods for children with ASD is related to teacher attitudes of acceptance toward these children and willingness to receive them in inclusion settings, differentiate instruction, and provide accommodations.

- $H_0 6$: There is a relationship between teacher attitudes toward inclusion of students with ASD in general education settings and positive outcomes for students when support staff are available to facilitate inclusion and assist with addressing challenging behaviors that ASD students exhibit.

5. Parents of children with ASD often advocate for one-on-one ancillary assistants, yet there is little quantitative research in the literature on the benefits of one-on-one aides. Quantitative research should be conducted examining the effects of assigning one-on-one aides exclusively to children with ASD on the child's learning, level of dependency, and relationship with the classroom teacher and peers, in comparison to the model proposed by Simpson et al. (2003) whereby paraprofessionals are made available to assist children with ASD in inclusion settings, while remaining free to circulate and assist other children in the classroom as well.

6. Although Exercise and Massage/Touch Therapy have been identified as "Emerging Treatments" for individuals with ASD by the National Autism Center (2009), parents and teachers in this study went beyond existing research in endorsing other sensory-motor interventions. There is also a need for more quantitative research on sensory-integrative treatments such as brushing, weighted backpacks, and sensory integrative-based

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occupational therapy that were endorsed by participants in this study as helpful but have been identified as "Un-established Treatments" by the National Autism Center.

Conclusion

In order to build strong collaborative relationships with families of children with autism spectrum disorders and truly include all stakeholders as equal partners in planning and implementing educational interventions as mandated by IDEA (2004) it is essential that educators and parents seek to understand one another's perceptions, attitudes, and experiences. This qualitative case study has opened a window to those understandings by providing an opportunity for parents of children with autism spectrum disorders, special education teachers, and general education teachers to share their perceptions of educational interventions for children with ASD including the successes and barriers they have experienced in meeting the educational needs of these children, what interventions and teaching strategies they have found most helpful and effective, and how they view their relationships with one another.

Based on the themes that emerged from this study, recommendations were made to strengthen existing educational programs and services for children with ASD in the school system that was the site of study. Parents and teachers in other school systems may gain insights from this study that assist them in reducing barriers and strengthening their own collaboration in implementing effective educational programs for children with ASD. Findings from this qualitative research study help to fill a gap in the existing research literature by adding to knowledge about parent and teacher perceptions of educational interventions for children with ASD and providing a voice for parents and educators that has been largely absent in the literature. Research that continues to explore the perspectives and experiences of multiple stakeholders will facilitate more effective implementation of educational services and more positive outcomes for children with autism spectrum disorders.

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APPENDICES

APPENDIX A

Interview Guide for Parents

I. Introduction

A. Intent: *The purpose of this study is to examine the perceptions, thoughts, and experiences of parents of children with autism spectrum disorders, special education teachers, and general education teachers regarding educational interventions for these children. I would like to thank you for your willingness to share with me your own thoughts and experiences about this topic.*

B. Informed Consent: Ask interviewee to read and review the Informed Consent Form. Answer any questions. Have the interviewee sign the Informed Consent Form and give him/her a copy of the signed form.

Have interviewee select pseudonyms of his/her choice to refer to self and his/her child. Make a folded tent card with pseudonyms for the parent and child written on it to remind interviewee and researcher to use those during the interview.

I want to remind you to use these pseudonyms during the interview. Do not use any real names for your child, your child's teachers, or other people during this interview. If you accidentally forget and use a real name, I'll just stop the tape momentarily and back it up to erase that piece and we'll begin again.

I assure you that your participation in this study will remain anonymous. I may quote you in my final research report. However, I will not use your name or that of your child in association with these quotes, nor will I use any personal identifiers that might link you or your child to your words. I am tape-recording this session to have an accurate record of your comments. Do you have any questions before I begin the tape recorder?

C. Turn-on tape recorder: *Do I have your permission to tape record this session?*

II. Main Interview Questions

1. Tell me a little about your journey as the parent of a child with an autism disorder.
   a. How old was your child when he/she got the diagnosis?
   b. Is your child now in preschool, elementary, or secondary school? Does s/he mainly participate in an inclusion classroom, part-time resource room, a self-contained special education class, or some combination of these?
   c. Does your child receive any related services (speech/language therapy; occupational therapy; physical therapy)? Other supports?
   d. Would you describe your child's autism disorder at this point in time as mild, moderate, or severe? What is your child's level of communication ability (mostly nonverbal; limited single-word responses; or verbal, functional speech)?
   e. How have your educated yourself about autism? Where do go for information about your child's disorder and learn more about how to help?

2. Describe some of the specific educational programs and teaching methods that have been used with your child since s/he entered the school system?

3. Which educational programs and teaching methods have you found to be most effective in meeting your child's educational needs?

   a. In developing communication skills?

   b. In developing social skills?

   c. In developing positive behaviors and addressing behavioral concerns?

   d. In developing academic skills?

4. What do you think are the most important components of effective educational programs for children with autism disorders? What is essential?

5. What are some of the barriers and challenges you have faced in meeting the educational needs of your child?

6. What factors do you think hamper parents and teachers most in meeting the educational needs of children with autism disorders?

7. How would you describe your relationship with your child's special education teacher? In what ways does that relationship affect how your child's educational needs are met?

8. How would you describe your relationship with your child's general education teacher(s)?   In what ways does that relationship affect how your child's needs are met?

9. What do you want most from your child's teachers?

10. Tell me about some of your most memorable experiences with teachers and school staff in planning or implementing your child's educational program.

11. What have been your experiences in working with your child at home on IEP goals or carrying out specific methods used at school?

12. If you could change anything about educational programs and services for children with autism disorders, what would be different?

III. Conclusion

A. Please remember that I plan to write a report based on my research findings. Based on your feelings about interventions for children with autism disorders, what would you want me to emphasize in the report?

B. That concludes our session. Do you have any additional comments before I stop the tape-recorder.

C. (Turn-off the tape recorder) Do you have any additional comments off the record?

D. Again, I wish to thank you for your participation in this study.

APPENDIX B

Interview Guide for Special Education Teachers

I. Introduction

A. Intent: *The purpose of this study is to examine the perceptions, thoughts, and experiences of parents of children with autism spectrum disorders, special education teachers, and general education teachers regarding educational interventions for these children. I would like to thank you for your willingness to share with me your own thoughts and experiences on this important topic.*

B. Informed Consent: Ask interviewee to read and review the Informed Consent Form. Answer any questions. Have the interviewee sign the Informed Consent Form and give him/her a copy of the signed form.

Have interviewee select a pseudonym for himself/herself and write it on a folded tent card. Remind interviewee to use pseudonyms for students, parents, and others during the interview.

I want to remind you that we will only use pseudonyms during the interview. Do not use any real names for students, parents, teachers, or other people during this interview. If you accidentally forget and use a real name, I'll just stop the tape momentarily and back it up to erase that piece and we'll begin again.

I assure you that your participation in this study will remain anonymous. I may quote you in my final research report. However, I will not use your name or that of anyone else in association with these quotes, nor will I use any personal identifiers that might link you or any student to your words. I am tape-recording this session to have an accurate record of your comments. Do you have any questions before I begin the tape recorder?

C. Turn-on tape recorder: *Do I have your permission to tape record this session?*

II. Main Interview Questions

1. Tell me a little about your experience as a special education teacher:

    a. Type of special education teaching certificate.

    b. Number of years of teaching experience; approximate number of children with autism disorders whom you have taught during that time.

    c. Level (preschool, elementary, secondary) and setting(s) in which you currently provide or have provided special education services to children with autism disorders (full inclusion, resource setting, self-contained classroom, or some combination of these).

    d. How have you received most of your knowledge and training in how to teach children with autism disorders? Tell me about any training you have received in any specific educational interventions or methods.

2. What specific educational programs and teaching methods have you used with children with autism disorders in the course of your career since entering this school system?

3. Which educational programs and teaching methods have you found to be most effective in meeting the educational needs of children with autism disorders?

    a. In developing communication skills?

    b. In developing social skills?

    c. In developing positive behaviors and addressing behavioral concerns?

    d. In developing academic skills?

4. What do you think are the most important components of effective educational programs for children with autism disorders? What is essential?

5. What are some of the barriers and challenges you have faced in meeting the educational needs of children with autism disorders?

6. What factors do you think hamper parents and teachers most in meeting the educational needs of children with autism disorders?

7. How would you describe your relationship with parents of students with autism whom you teach?

8. What do you want most from parents?

9. How would you describe your relationship with general education teachers with whom you work in teaching students with autism disorders?

10. What do you want most from general education teachers?

11. Tell me about some of your most memorable experiences with parents, general education teachers, and other school staff in planning or implementing educational programs for children with autism disorders.

12. Tell me about any experiences you have had in helping parents carry out specific educational methods or practices used at school in the home setting.

13. If you could change anything about educational programs and services for children with autism disorders, what would be different?

III. Conclusion

A. Please remember that I plan to write a report based on my research findings. Based on your feelings about interventions for children with autism disorders, what would you want me to emphasize in the report?

B. That concludes our session. Do you have any additional comments before I stop the tape-recorder.

C. (Turn-off the tape recorder) Do you have any additional comments off the record?

D. Again, I wish to thank you for your participation in this study.

APPENDIX C

Interview Guide for General Education Teachers

I. Introduction

A. Intent: *The purpose of this study is to examine the perceptions, thoughts, and experiences of parents of children with autism spectrum disorders, special education teachers, and general education teachers regarding educational interventions for these children. I would like to thank you for your willingness to share with me your own thoughts and experiences on this important topic.*

B. Informed Consent: Ask interviewee to read and review the Informed Consent Form. Answer any questions. Have the interviewee sign the Informed Consent Form and give him/her a copy of the signed form.

Have interviewee select a pseudonym for himself/herself and write it on a folded tent card. Remind interviewee to use pseudonyms for students, parents, and others during the interview.

I want to remind you that we will only use pseudonyms during the interview. Do not use any real names for students, parents, teachers, or other people during this interview. If you accidentally forget and use a real name, I'll just stop the tape momentarily and back it up to erase that piece and we'll begin again.

I assure you that your participation in this study will remain anonymous. I may quote you in my final research report. However, I will not use your name or that of anyone else in association with these quotes, nor will I use any personal identifiers that might link you or any student to your words. I am tape-recording this session to have an accurate record of your comments. Do you have any questions before I begin the tape recorder?

C. Turn-on tape recorder: *Do I have your permission to tape record this session?*

II. Main Interview Questions

1. Tell me a little about your experience as a general education teacher:

    a. Type of teaching certificate.

    b. Number of years of teaching experience; approximate number of children with autism disorders whom you have taught during that time.

    c. Level (preschool, elementary, secondary) in which you currently teach or have taught children with autism disorders in an inclusive general education classroom.

    d. How have you received most of your knowledge and training in how to teach children with autism disorders? Tell me about any training you have received in any specific educational interventions or methods.

2. What specific educational programs and teaching methods have you used with children with autism disorders in the course of your career since entering the school system?

3. Which educational programs and teaching methods have you found to be most effective in meeting the educational needs of children with autism disorders and how?

    a. In developing communication skills?

    b. In developing social skills?

    c. In developing positive behaviors and addressing behavioral concerns?

    d. In developing academic skills?

4. What do you think are the most important components of effective educational programs for children with autism disorders?   What is essential?

5. What are some of the barriers and challenges you have faced in meeting the educational needs of children with autism disorders?

6. What factors do you think hamper parents and teachers most in meeting the educational needs of children with autism disorders?

7. How would you describe your relationship with parents of students with autism whom you teach?

8. What do you want most from parents?

9. How would you describe your relationship with general education teachers with whom you work in teaching students with autism disorders?

10. What do you want most from general education teachers?

11. Tell me about some of your most memorable experiences with parents, general education teachers, and other school staff in planning or implementing educational programs for children with autism disorders.

12. Tell me about any experiences you have had in helping parents carry out specific educational methods or practices used at school in the home setting.

13. If you could change anything about educational programs and services for children with autism disorders, what would be different?

III. Conclusion

A. Please remember that I plan to write a report based on my research findings. Based on your feelings about interventions for children with autism disorders, what would you want me to emphasize in the report?
B. That concludes our session. Do you have any additional comments before I stop the tape-recorder.
C. (Turn-off the tape recorder) Do you have any additional comments off the record?
D. Again, I wish to thank you for your participation in this study.

APPENDIX D

Document Review Guide

Document Code Number _____

Date of Document: _____

Date Retrieved: _____

Type of Document: _____

Verify as Non-Identifiable Information _____ or Personal Identifiers Removed _____

Purpose of Study: The purpose of this qualitative case study is to investigate the perceptions of parents of children with autism spectrum disorders (ASD), special education teachers, and general education teachers regarding educational interventions for children with ASD in a Northeast Tennessee public school system.

Document Review Questions:

1. What actions or educational interventions are described in this document as proposed or taken to address the educational needs of children ASD?

2. What does this document reveal about study participants' perceptions of the helpfulness or efficacy of specific educational interventions for children with ASD?

3. What does this document reveal about barriers or challenges faced by study participants in meeting the educational needs of children with ASD?

4. What does this document reveal about the interactions among parents, special education teachers, and/or general education teachers?

5. Do any actions, thoughts, perceptions described in this document stand out as different from those expressed by study participants in the interview situation?

Informed Consent Form for Parents

EAST TENNESEE STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
INFORMED CONSENT DOCUMENT (ICD)

PRINICPAL INVESTIGATOR: Paula A. Nickels

TITLE OF PROJECT: *Educational Interventions for Children with Autism Spectrum Disorders: Perceptions of Parents and Teachers in a Northeast Tennessee School System*

This Informed Consent will explain about being a participant in a research study. It is important that you read this material carefully and then decide if you wish to be a volunteer. You will receive a copy of this Informed Consent for your records.

I.   PURPOSE:
The purpose of this research study is to explore the perceptions of parents of children with autism spectrum disorders (ASD), special education teachers, and general education teachers regarding educational interventions for children with ASD in the XX School System, including what interventions they find most helpful and effective, the barriers and challenges they have faced in meeting the educational needs of these students, and how they view their interaction with one another. The results of this study will be published as a doctoral dissertation.

II.   PROCEDURES:
One-on-one Interviews: The researcher will conduct individual interviews with a minimum of six parents of children with autism spectrum disorders, six special education teachers, and six general education teachers who provide educational services to students with ASD in the XX Schools in grades Prek-12. If both parents of a child with ASD wish to participate in the study, they can participate in a joint interview. During the interview, you will be asked questions about your experiences and views concerning educational interventions for children with autism spectrum disorders, including what teaching methods and practices you have found most helpful and effective, barriers and challenges you have faced, and how you view your interactions with others in meeting the needs of these students. With your signed permission, the interview session will be recorded and the researcher will take notes.

III.   ALTERNATIVE PROCEDURES/TREATMENTS:
There are no alternative procedures except not to participate.

IV.   DURATION:
You will participate in one 60 to 90 minute individual interview.

Ver. 11/10/09   Page 1 of 4   Subject Initials_____

V.   POSSIBLE RISKS/DISCOMFORTS:

There are no known or anticipated risks for participation in this study beyond that which you face in your normal daily activities and routines. Pseudonyms of your choice will be used during the individual interview and in interview transcripts. If you accidentally use the real name of your child or other person during the interview, the tape will be momentarily paused and reversed to erase that portion of the tape. Due to the challenges involved in parenting children with autism spectrum disorders, you may experience mild stress or discomfort when discussing certain interview topics. To further reduce possible risks, you have the right to decline to answer any particular interview question or discontinue the interview at any time. You can withdraw from the study at any time. Code numbers will be assigned to all data gathered. No names or personally identifying information will be included in interviews, interview transcripts, or in the final dissertation report that would allow the information to be traced back to you, your child, or any other person. At the conclusion of the interview and subsequent transcription, you will be allowed to review your personal transcript for accuracy and potential changes. You will also be offered a copy of the final research report.

VI.   POSSIBLE BENEFITS:

The possible benefits of your participation are the opportunity to be heard and give voice to your perceptions, thoughts, and experiences regarding educational interventions for children with autism spectrum disorders. You will have the opportunity to provide useful knowledge that can assist administrators and school personnel in the XX Schools as they plan, implement, and evaluate educational interventions and practices for children with autism spectrum disorders. Your stories, successes, concerns, and suggestions will contribute information to school staff that may assist them in planning and improving educational services for children with autism disorders, reducing barriers to effective intervention, and increasing understanding and collaboration among parents and educators in service delivery. The existing research literature has very few studies that provide parents and teachers with a voice concerning their perceptions of educational interventions for children with autism spectrum disorders. By participating in this research study, you will have an opportunity to add your voice and experiences to the existing field of knowledge.

VII.   COMPENSATION:

No compensation will be provided to the participants.

VIII.   FREEDOM TO WITHDRAW & VOLUNTARY PARTICIPATION:

Participation in this research study is voluntary. You may refuse to participate. You can quit at any time. If you quit or refuse to participate, the benefits or services to which you are otherwise entitled will not be affected. You may quit by calling me, Paula Nickels, at (XXX) xxx-xxxx. You will be told immediately if any of the results of the study should reasonably be expected to make you change your mind about staying in the study.

IX. ANONYMITY AND CONFIDENTIALITY:

Every attempt will be made to see that your study results are kept confidential. The results of this study will be published as a doctoral dissertation. Pseudonyms of your choice will be used in the individual interview and interview transcript. Code numbers will be used to label all data gathered. No names of parents, teachers, students, or personality identifying information will be included in interviews, interview transcripts, or the final research report. No school names will be used in data gathered or in the final research report other than a Northeast Tennessee public school district. Audiotapes will be destroyed on completion of transcription and checking for accuracy. A copy of the records of this study will be kept in a secure, locked metal file cabinet in my home for at least 5 years after the end of this research, in keeping with Institutional Review Board standards. The results of this study may be published and/or presented at meetings without naming you as a subject. Although your rights and privacy will be maintained, the Secretary of the Department of Health and Human Services, the ETSU IRB, and personnel particular to this research, including Dr. Eric Glover (Educational Leadership and Policy Analysis, ETSU) and Paula Nickels (researcher), will have access to the study records. Your records will be kept completely confidential according to the current legal requirements. They will not be revealed unless required by law, or as noted above.

X. METHOD OF RECORDING INTERVIEW:

The researcher will tape record your interview to ensure complete recall of the interview. The tape will be destroyed on completion of transcription and checking for accuracy.

XI. PERMISSION TO QUOTE:

Your words may be used in the final research report to clarify or further explain the perceptions of parents and teachers or a component of the theoretical framework. The researcher will not identify the source of the quote. In addition, the researcher will take precautions to ensure that there are no identifiers in the body of the quote.

XII. CONTACT FOR QUESTIONS:

If you have any questions, problems, or research-related medical problems at any time, you may call me, Paula Nickels, at (XXX) xxx-xxxx, or my doctoral research chairman, Dr. Eric Glover, at (XXX) xxx-xxxx. You may call the Chairman of the Institutional Review Board at 423/439-6054 for any questions you may have about your rights as a research subject. If you have any questions or concerns about the research and want to talk to someone independent of the research team or you can't reach the study staff, you may call an IRB Coordinator at 423/439-6055 or 423/439-6002.

By signing below, you confirm that you have read or had this document read to you. You will be given a signed copy of this informed consent document. You have been given the chance to ask questions and to discuss your participation with the investigator. You freely and voluntarily choose to be in this research project.

_____
SIGNATURE OF PARTICIPANT   DATE

_____
PRINTED NAME OF PARTICIPANT   DATE

_____
SIGNATURE OF INVESTIGATOR   DATE

_____
SIGNATURE OF WITNESS (if applicable)   DATE

APPENDIX F

Informed Consent Form for Teachers

EAST TENNESEE STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
INFORMED CONSENT DOCUMENT (ICD)

PRINICPAL INVESTIGATOR: <u>Paula A. Nickels</u>

TITLE OF PROJECT: *Educational Interventions for Children with Autism Spectrum Disorders: Perceptions of Parents and Teachers in a Northeast Tennessee School System*

This Informed Consent will explain about being a participant in a research study. It is important that you read this material carefully and then decide if you wish to be a volunteer. You will receive a copy of this Informed Consent for your records.

I. PURPOSE:
The purpose of this research study is to explore the perceptions of parents of children with autism spectrum disorders (ASD), special education teachers, and general education teachers regarding educational interventions for children with ASD in the XX School System, including what interventions they find most helpful and effective, the barriers and challenges they have faced in meeting the educational needs of these students, and how they view their interaction with one another. The results of this study will be published as a doctoral dissertation.

II. PROCEDURES:
One-on-one Interviews: The researcher will conduct individual interviews with a minimum of six parents of children with autism spectrum disorders, six special education teachers, and six general education teachers who provide educational services to students with ASD in the XX Schools in grades Prek-12. During the individual interview, you will be asked questions about your experiences and views concerning educational interventions for children with autism spectrum disorders, including what teaching methods you have found most helpful and effective, barriers and challenges you have faced, and how you view your interactions with others in meeting the needs of these students. With your signed permission, the interview session will be recorded and the researcher will take notes.

Document Collection: You will also be asked to voluntarily provide documents of your choice for review, such as teacher-made materials used to support educational interventions for children with autism disorders, program manuals accompanying specific educational interventions, materials from professional development training on educating children with ASD, samples of visual aids or schedules used in the classroom, and/or templates for behavior intervention plans. Copies of documents collected from you will be non-identifiable. They will not contain any names or personal identifiers that would allow them to be traced back to you or any particular child or other person. Code numbers will be assigned to documents gathered.

III. ALTERNATIVE PROCEDURES/TREATMENTS:
There are no alternative procedures except not to participate.

IV. DURATION:
You will participate in one 60 to 90 minute individual interview.

V. POSSIBLE RISKS/DISCOMFORTS:
There are no known or anticipated risks for participation in this study beyond that which you face in your normal daily activities and routines. Pseudonyms of your choice will be used during the individual interview and in interview transcripts. If you accidentally use the real name of a student or other person during the interview, the tape will be momentarily paused and reversed to erase that portion of the tape. Due to the challenges involved in teaching children with autism spectrum disorders, you may experience mild stress or discomfort when discussing certain interview topics. To further reduce possible risks, you have the right to decline to answer any particular interview question or discontinue the interview at any time. You can withdraw from the study at any time. You can voluntarily decide which documents to offer for review. Copies of documents collected from you will be non-identifiable, and code numbers will be assigned. No names or personally identifying information will be included in interview transcripts, copies of documents collected, or in the final dissertation report that would allow the information to be traced back to you, your child, or any other person. At the conclusion of the interview and subsequent transcription, you will be allowed to review your personal transcript for accuracy and potential changes. You will also be offered a copy of the final research report.

VI. POSSIBLE BENEFITS:
The possible benefits of your participation are the opportunity to be heard and give voice to your perceptions, thoughts, and experiences regarding educational interventions for children with autism spectrum disorders. You will have the opportunity to provide useful knowledge that can assist administrators and school personnel in the XX Schools as they plan, implement, and evaluate educational interventions and practices for children with autism spectrum disorders. Your stories, successes, concerns, and suggestions will contribute information to school staff that may assist them in planning and improving educational services for children with autism disorders, reducing barriers to effective intervention, and increasing understanding and collaboration among parents and educators in service delivery. The existing research literature has very few studies that provide parents and teachers with a voice concerning their perceptions of educational interventions for children with autism spectrum disorders. By participating in this research study, you will have an opportunity to add your voice and experiences to the existing field of knowledge.

VII. COMPENSATION:
No compensation will be provided to the participants.

VIII. __FREEDOM TO WITHDRAW & VOLUNTARY PARTICIPATION__:

Participation in this research study is voluntary. You may refuse to participate. You can quit at any time. If you quit or refuse to participate, the benefits or services to which you are otherwise entitled will not be affected. You may quit by calling me, Paula Nickels, at (XXX) xxx-xxxx. You will be told immediately if any of the results of the study should reasonably be expected to make you change your mind about staying in the study.

IX. __ANONYMITY AND CONFIDENTIALITY__:

Every attempt will be made to see that your study results are kept confidential. The results of this study will be published as a doctoral dissertation. Pseudonyms of your choice will be used in the individual interview and interview transcript. Code numbers will be used to label all data gathered. No names of parents, teachers, students, or personality identifying information will be included in interview transcripts, copies of documents gathered, or in the final research report. No school names will be used in data gathered or in the final research report other than a Northeast Tennessee public school district. Audiotapes will be destroyed on completion of transcription and checking for accuracy. A copy of the records of this study will be kept in a secure, locked metal file cabinet in my home for at least 5 years after the end of this research, in keeping with Institutional Review Board standards. The results of this study may be published and/or presented at meetings without naming you as a subject. Although your rights and privacy will be maintained, the Secretary of the Department of Health and Human Services, the ETSU IRB, and personnel particular to this research, including Dr. Eric Glover (Educational Leadership and Policy Analysis, ETSU) and Paula Nickels (researcher), will have access to the study records. Your records will be kept completely confidential according to the current legal requirements. They will not be revealed unless required by law, or as noted above.

X. __METHOD OF RECORDING INTERVIEW__:

The researcher will tape record your interview to ensure complete recall of the interview. The tape will be destroyed on completion of transcription and checking for accuracy.

XI. __PERMISSION TO QUOTE__:

Your words may be used in the final research report to clarify or further explain the perceptions of parents and teachers or a component of the theoretical framework. The researcher will not identify the source of the quote. In addition, the researcher will take precautions to ensure that there are no identifiers in the body of the quote.

XII. __CONTACT FOR QUESTIONS__:

If you have any questions, problems, or research-related medical problems at any time, you may call me, Paula Nickels, at (XXX) xxx-xxxx, or my doctoral research chairman, Dr. Eric Glover, at (XXX) xxx-xxxx. You may call the Chairman of the Institutional Review Board at 423/439-6054 for any questions you may have about your rights as a research subject. If you have any questions or concerns about the research and want to talk to someone independent of the research team or you can't reach the study staff, you may call an IRB Coordinator at 423/439-6055 or 423/439-6002.

By signing below, you confirm that you have read or had this document read to you. You will be given a signed copy of this informed consent document. You have been given the chance to ask questions and to discuss your participation with the investigator. You freely and voluntarily choose to be in this research project.

_____
SIGNATURE OF PARTICIPANT   DATE

_____
PRINTED NAME OF PARTICIPANT   DATE

_____
SIGNATURE OF INVESTIGATOR   DATE

_____
SIGNATURE OF WITNESS (if applicable)   DATE

APPENDIX G

Letter to Superintendent of Schools

[Name]
Superintendent of Schools
XX Schools
[Address]

December 8, 2009

Dear [Name]:

I am presently working on the requirements for the Ed.D. degree in the Department of Educational Leadership and Policy Analysis at East Tennessee State University. As part of my dissertation requirements, I will be conducting a qualitative research study on the following topic: *Educational Interventions for Children with Autism Spectrum Disorders: Perceptions of Parents and Teachers in a Northeast Tennessee School System.* The purpose of this study is to give parents, special education teachers, and general education teachers an opportunity to share their perceptions regarding what interventions they have found most helpful and effective in meeting the educational needs of children with Autism Spectrum Disorders, the barriers and challenges they have faced, and how they view their interaction with one another.

As a follow-up to our meeting of 9-23-09, please accept this letter as a formal request to contact a selection of special education teachers, general education teachers, and parents of students with autism spectrum disorders (ASD) in the XX Schools (grades PreK-12) to determine their interest in participating in this research study. Individual, semi-structured interviews will be conducted with study participants at a convenient time and place of each person's own choosing. Pseudonyms will be used during interviews. No names of students, teachers, parents, schools, or any personally identifying information will be included in interviews, interview transcripts, or in the final dissertation report.

Parents who volunteer for the study will only participate in individual interviews. In addition to participating in individual interviews, special education and general education teachers who volunteer for the study will also be asked to provide documents of their choice for review, such as teacher-made materials used to support educational interventions for children with autism disorders, program manuals accompanying specific educational interventions, materials from professional development training on educating children with ASD, samples of visual aids or schedules used in the classroom, and/or templates for behavior intervention plans. Documents collected from teachers will be non-identifiable. They will not contain any names or personal identifiers that would allow them to be individually identifiable because the identity of a particular student, parent, or teacher is or may readily be ascertained by me or associated with the information. Code numbers will be assigned to documents gathered for review.

For you to have more information, the interview questions for parents, special education teachers, and general education teachers are attached to this letter, along with a document review guide.

Please sign below if you grant permission for me to contact a selection of special education teachers, general education teachers, and parents of children with autism spectrum disorders in the XX Schools (PreK-12) to determine their interest in participating in the study, and to conduct individual interviews and document reviews as indicated above. Please feel free to contact my Dissertation Chair, Dr. Eric Glover, at (XXX) xxx-xxxx, or me personally at (XXX) xxx-xxxx if needed. Thank you in advance for your consideration. Your assistance in helping me complete this study will be greatly appreciated.

Sincerely,

Paula A. Nickels
Doctoral Student
East Tennessee State University

_____

For the purpose of qualitative research, Paula A. Nickels has permission to contact prospective study participants from among special education teachers, general education teachers, and parents of students with autism spectrum disorders in the XX Schools, and to conduct individual interviews and document reviews in the XX Schools. She will use the following sites: XX Elementary School; XX Elementary School; XX Elementary School; XX High School; XX Elementary School; XX Elementary School; XX Elementary School; XX Middle School; XX Preschool; XX Middle School; XX Elementary School; and XX Elementary School.

_____   _____
Signature   Date
Superintendent

APPENDIX H

Letter to Parents

Date

Dear Parent:

In addition to my responsibilities as a School Psychologist in the [Name, school system], I am currently a doctoral student in Educational Leadership and Policy Analysis at East Tennessee State University. In order to finish my studies, I am conducting a research study on the following topic: *Educational Interventions for Children with Autism Spectrum Disorders: Perceptions of Parents and Teachers in a Northeast Tennessee School System.* I would like to invite you to participate in this research study, which will be conducted with a sample of special education teachers, general education teachers, and parents of students with autism spectrum disorders in the XX Schools.

The purpose of this study is to provide parents and teachers with the opportunity to share their thoughts, feelings, and experiences, including what interventions they have found most helpful and effective, and the barriers and challenges they have faced in meeting the educational needs of students with autism disorders. At the end of the study a report will be generated to communicate the findings of the research. This information could prove helpful in improving service delivery and positively impacting educational programs for children with autism spectrum disorders in the XX Schools..

If you decide to participate in the study, you will be asked to privately share your perceptions in an individual interview at a convenient time and place of your own choosing. If both parents of a child with an autism spectrum disorder wish to participate in the study, a joint interview can be arranged at a time and place convenient for both.

Participation in this research study is completely voluntary. You can decide not to participate, and your decision will not affect the benefits or services to which you or your child are otherwise entitled in any way. Your participation will be kept anonymous and confidential. Pseudonyms of your choice will be used during the interview. No names of parents, teachers, students, or schools will be included in interviews, interview transcripts, or the final research report.

If you are interested please respond to me at [e-mail address] or call me at (XXX) xxx-xxxx.

If you have any additional questions, please do not hesitate to ask.

Sincerely,

Paula Nickels

APPENDIX I

Letter to Teachers

Date

Dear Teacher:

In addition to my responsibilities as a School Psychologist in the [Name, school system], I am currently a doctoral student in Educational Leadership and Policy Analysis at East Tennessee State University. In order to finish my studies, I am conducting a research study on the following topic: *Educational Interventions for Children with Autism Spectrum Disorders: Perceptions of Parents and Teachers in a Northeast Tennessee School System.* I would like to invite you to participate in this research study, which will be conducted with a sample of special education teachers, general education teachers, and parents of students with autism spectrum disorders in the XX Schools.

The purpose of this study is to provide parents and teachers with the opportunity to share their thoughts, feelings, and experiences, including what interventions they have found most helpful and effective, and the barriers and challenges they have faced in meeting the educational needs of students with autism disorders. At the end of the study a report will be generated to communicate the findings of the research. This information could prove helpful in improving service delivery and positively impacting educational programs for children with autism spectrum disorders in the XX Schools.

If you decide to participate in the study, you will be asked to privately share your perceptions in an individual interview at a convenient time and place of your own choosing. Pseudonyms will be used during interviews. You will also be asked to provide documents of your choice for review, such as teacher-made materials used to support educational interventions for children with autism disorders, program manuals accompanying specific educational interventions, materials from professional development training on educating children with autism disorders, samples of visual aids or schedules used in the classroom, and/or templates for behavior intervention plans. Copies of documents collected from you will be non-identifiable. They will not contain any names or personal identifiers that would allow them to be traced back to you or any particular child or other person.

Participation in this research study is completely voluntary. You can decide not to participate, and your decision will not affect the benefits or services to which you are otherwise entitled in any way. Your participation will be kept anonymous and confidential. No names of parents, teachers, students, or schools will be included in interviews, interview transcripts, copies of documents gathered, or the final research report.

If you are interested please respond to me at [e-mail address] or call me at XXX-xxx-xxxx. If you have any additional questions, please do not hesitate to ask.

Sincerely,

Paula Nickels

Letter from Peer Auditor

Karen Reed-Wright, Ed.D.
Assistant Professor of Education
Virginia Intermont College
1013 Moore Street
Bristol, VA 24201

September 28, 2010

Ms. Paula Nickels
 [Address]

Dear Ms. Nickels:

I would like to congratulate and commend you on your meticulous work in completing the data collection for your research project, *Educational Interventions for Children with Autism Spectrum Disorders: Perceptions of Parents and Teachers in a Northeast Tennessee School System*. After reviewing the data throughout the research process and matching it to the written product, it is obvious that the finished product is reliable and thorough. It also is apparent that this research project is valid and verifiable and I have seen evidence that this study was conducted in an ethical, unbiased, and professional manner.

Your presentation of the data and extensive data analysis and findings show the direct impact of interventions for autism for children as well as the perceptions of parents and teachers. The extensive literature review clearly supports your data, your interviews, and findings.

It has been my pleasure to review each and every piece of research. It was performed with professionalism, timeliness, and resilience.

Yours truly,

Karen Reed-Wright, Ed.D.

VITA

PAULA ANDERSON NICKELS

Personal Data: Date of Birth: July 13, 1948
Place of Birth: Memphis, Tennessee
Marital Status: Married

Education: The Hutchison School, Memphis, Tennessee
B.A. Psychology, Summa Cum Laude, Wellesley College,
      Wellesley, Massachusetts, 1970
M.T.S. Theological Studies, Summa Cum Laude,
      Gordon-Conwell Theological Seminary, South Hamilton,
      Massachusetts, 1972
M.A. Psychology, Summa Cum Laude, Marywood University,
      Scranton, Pennsylvania, 1975
Ed.D. Educational Leadership and Policy Analysis, East Tennessee State
      University, Johnson City, Tennessee, 2010

Professional
Experience: Special Education Teacher, Dickson School, Kingsport, Tennessee,
      1975-77
School Psychologist, Kingsport City Schools, Kingsport, Tennessee,
      1977-1978
Private Practice, Contract School Psychologist, 1978-1982
Staff Counselor, Tri Cities Center for Christian Counseling, Kingsport,
      Tennessee, 1983-1986; 1991-1992
School Psychologist, Kingsport City Schools, Kingsport, Tennessee,
      1999 - present
Chairperson, Psychological Services, Kingsport City Schools, Kingsport,
      Tennessee, 2003 - present

Honors and
Awards: Durant Scholar, Wellesley College
Phi Beta Kappa, Wellesley College
Nationally Certified School Psychologist
Golden Key International Honour Society, East Tennessee
      State University