An Evaluation of a Special Education Preschool Program Serving Children With Autism or Autistic-Like Behaviors

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ABSTRACT

Educational Leadership is faced with the requirements designated under the No Child Left Behind (NCLB) Act of 2001. Included in this legislation are the requirements of administrators to ensure that children with disabilities make academic progress and meet the legal mandates of the Individuals with Disabilities Education Improvement Act (IDEIA) of 2004. States receiving federal funding must provide free, multidisciplinary diagnosis, evaluation, and appropriate public preschool education for special needs children. The demand on administrators to prepare teachers and develop appropriate early intervention programs is especially significant for preschool classrooms that serve children who have been diagnosed with a developmental delay.

This study investigated the effectiveness of the professional development that was provided for teachers of preschoolers who have been diagnosed on the autism spectrum or have been identified with a developmental delay that presents autistic-like characteristics. The purpose of this study was to conduct an evaluation of the professional development program of a large Mid-Atlantic school division's preschool special education autism program. The researcher surveyed teachers regarding their perceptions of preparedness to teach this group of children. By using the Provus Evaluation Model, the researcher examined the program and evaluated whether its implementation was consistent with the program's design. It was expected that the researcher would be able to determine the teachers' perceptions of their level of

knowledge, skills and abilities in teaching the child who has been diagnosed on the autism spectrum, or who presents with autistic-like behaviors. A review of the literature and the interviews of the program managers found five areas or themes: communication, behavior, academics, social and self-help. The findings led to the following conclusions: a discrepancy existed only in one area, self-help skills. No conclusive evidence was found regarding the influence of years of experience on teacher perceptions of effectiveness in the five areas. Future research should include a larger sample and inclusion of other school districts.

By obtaining this information, the researcher is able to provide school leaders with data that could potentially have a direct impact on the future of planned professional development opportunities as well as future program expansion.

DEDICATION

To my loving and supportive husband, James, and our incredible sons,

James, II, Armand, Brandon, Justin, and Jordan

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I thank God for guiding me and giving me the strength to begin and ultimately end this long journey. Without his many blessings, my dream would never have been achieved. The support of my beautiful and loving family allowed me the time and effort away from them to complete this voyage. James L. Atwater, my incredible husband (and biggest cheerleader), who tutored, encouraged, and walked every step with me in this process. I could not have completed this dissertation without the support of our five sons, Jimmy, Armand, Brandon, Justin and Jordan. Each encouraged me in his own special way when I wanted to give up and challenged me to achieve my goal. I thank my mother, Peggy Washington Gwynne, who always extolled the importance of education, as well as my sister, Berra Gwynne-Murdah, and my brother, Bristor Gwynne, Jr., who always believed in me and provided constant encouragement. I am so blessed to have so many loving people in my life

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Vincit Qui Se Vincit.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1 INTRODUCTION

Context for Inquiry

Recent Census Bureau figures state that more than six million three and four year old children with disabilities attend preschool programs for part of the day (U.S. Census Bureau, 2004). The estimates of the proportion of preschool programs that enroll at least one child with a disability vary greatly. Buysse, Wesley, Bryant and Gardner (1998) estimate that the range is from 34% of child care programs to 74% of early education childhood programs. The number of young children with disabilities enrolling in preschool programs within the public school system continues to grow as well. Specifically, schools have experienced a marked increase of children who have been diagnosed with autism spectrum disorders (ASD). When describing the term *autism,* the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR) provides the following explanation:

The essential features of Autistic Disorder are the presence of markedly abnormal or impaired development in social interaction and communication and a markedly restricted repertoire of activity and interests. Manifestations of the disorder vary greatly depending on the developmental level and chronological age of the individual. Autistic Disorder is sometimes referred to as early infantile autism, childhood autism, or Kanner's autism (American Psychiatric Association, 2000, p.70).

The term *autism* was defined by researcher and pediatrician Leo Kanner who noticed a pattern of specific behaviors in young children that he described as "autistic disturbance of affective contact" (Kanner, 1943, p. 217). These actions included (a) a serious failure to develop relationships with others, (b) an inability to develop normal language, (c) stereotypical behaviors such as flailing and obsessive repetitive motions, (d) ritualistic and obsessive behaviors and (d)

potential for normal intelligence.

The mystery of autism continues to dominate the news. The National Institute of Mental Health (NIMH) estimates that there are as many as one in 1,000 children that have been diagnosed with the disorder (NIMH, 2003). The DSM-IV-TR indicates that the median rate of ASD in epidemiological studies is 5 cases per 10,000 individuals. There has been disagreement among authorities concerning the classification of the term *autism*. Should autism be considered a single disability or a subset of other handicapping conditions? Ysseldyke and Algozzine (1995) reported that, "Until 1981, autism was included in the definition of *severe emotional disturbance*, but in that year the secretary of education moved autism from the federal definition of *severe emotional disturbance* to the category of *other health impaired*" (p. 433). In 1997, an amendment to the Individuals with Disabilities Education Act (IDEA), Public Law 105-17, defined autism as:

> a developmental disability significantly affecting verbal and non-verbal communication and social interaction usually 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 movement, resistance to environmental change or change in daily routines, and unusual sensory experiences. (NICHCY, 1997, p. 1)

The most recent classifications of autism within the educational and scientific communities place the autistic and non-autistic behaviors on a continuum. The continuum was defined in 2000 by Billstedt as Autism Spectrum Disorder (ASD). The range spans from those individuals who display mild autistic-like behaviors to those who are affected with the more severe characteristics.

The mystery of autism continues to puzzle many. Educators and parents are challenged to find an appropriate setting to teach the child with autism. As the diagnosis of autism continues to increase, researchers such as Gabovitch and Wiseman (2005) and those in the educational and medical profession study the disorder in an effort to understand autism and provide research-based methods and strategies to best serve the population affected by it.

Under the No Child Left Behind (NCLB) Act of 2001, states must not only assess the progress of all students within the general educational curriculum, but also ensure that students with disabilities are making academic progress. This includes ensuring that the legal mandates of the Individuals with Disabilities Education Improvement Act (IDEIA) of 2004 are met. While IDEIA reaffirms the right of all children with disabilities to receive an appropriate and individualized education, it extends those rights in Parts B and C of the legislation. Part C of the act ensures that infants and toddlers from birth to age three are provided services, and Part B continues the coverage for children from age three to 22. IDEIA also provides parental safeguards that encourage parents to be an active participant in the decision-making processes involving their child.

Increasingly, students diagnosed with autism are being included in the general education classroom in accordance with the Least Restrictive Environment (LRE) provision of the legislation. The concern for the best form of intervention within the classroom environment is complicated due to the fact that there has not been a consensus regarding etiology or best instructional practices for autism. Nevertheless, educators, medical professionals, and policymakers appear to agree that there is consistent evidence that supports providing early intervention services for the young child with autism. Public Law 99-457, passed in 1986, supports the funding of preschool special education programs. States receiving federal funding

must provide free, multidisciplinary diagnosis, assessment, and appropriate public education to all three to five year old handicapped children; however, consensus has not been achieved as to what form of early intervention best benefits these children. A great demand, therefore, has been placed on school systems to better prepare teachers, develop high-quality early intervention programs as well as understand the many complexities of this condition. The special education preschool classroom has been developed to address the needs of young children who might meet the ASD diagnosis.

Purpose of the Study

The purpose of this study is to examine the quality and effectiveness of the professional development that is provided for teachers of young children who have been diagnosed on the autism spectrum or identified with a developmental delay that presents with autistic-like characteristics. In addition, the study will ascertain the perceptions and experiences of preschool special education instructors regarding the level of preparedness in teaching this population. The special education preschool model is typically defined as a classroom of eight to ten children from ages three to five years, who are developing atypically and may or may not have been diagnosed on the autism spectrum. As the incidence of children being diagnosed with ASD and the expectation that public school systems provide appropriate services increase, it is vital that educators are provided with the necessary professional development opportunities so that they are prepared to meet the needs of this challenging population.

Research Questions

The guiding research questions include:

1. What are the primary characteristics, objectives, and standards of the professional development program being studied that are designed to provide pre-school special

education teachers with the knowledge, skills and abilities necessary to meet the needs of children with autism or those children exhibiting autistic behaviors?

2. Do participants in the professional development program perceive that the professional development provided them with the knowledge, skills, and abilities necessary to meet the needs of children with autism or those children exhibiting autistic behaviors? To what degree are these perceptions affected by prior training and experience in the classroom?
3. To what degree do program standards align with teacher perceptions of the professional development?

Definition of Terms

Applied Behavior Analysis (ABA). ABA is the process of systematically applying interventions based upon empirically derived principles of behavior to improve socially meaningful behaviors, and to demonstrate that the interventions employed are responsible for the improvement in behavior (Baer, Wolf, & Risley, 1968).

Asperger's Syndrome. Hans Asperger, an Austrian pediatrician, used the term to describe a group of children with a unique behavioral style, indicating a personality disorder marked by social isolation. Children with Asperger's Syndrome exhibit few cognitive delays and their IQ typically falls within the normal and sometimes superior range. (Lee & Park, 2007).

Autism. Autism is a developmental disorder marked by severe deficits in reciprocal social interaction, communication, and imagination as well as repetitive and restricted patterns of interests and behaviors. (Klin, Chawarska, Paul, & Rubin, 2004).

Autism Spectrum Disorder (ASD). Billstedt (2000) defined as autism spectrum disorder as the range span of those individuals who display mild autistic-like behaviors to those who are

affected with the more severe characteristics.

Complementary Alternative Medicine (CAM). Wallace (2009) defines complementary and alternative medicines as special diets and supplements that are used in addition to conventional treatments or therapies.

Discrete Trial Teaching (DTT). Downs, Downs, Johansen, and Fossum (2007) define DTT as a specific type of teacher-directed instruction that is empirically grounded in the experimental analysis of behavior and simplifies instruction to improve children's learning.

Daily Life Therapy (DLT). 'Higashi' or the DLT method is a program which incorporates physical activity in order to release endorphins to develop strength, encourage concentration and, in turn, inhibit anxiety while reducing hyperactivity (Larkin & Gurry, 1998).

Early Intervention. Justice, Invernizzi and Meier (2003) define early intervention as the systematic, sensitive, valid, and reliable protocol for identifying children exhibiting early delays in acquiring key literacy precursors.

Epidemiological. Fombonne (2005) defines this term as the study of the repartition of diseases in human population and of the factors that influence it.

Fragile X. The National Institute of Mental Health (2008) defines Fragile X as the most common inherited form of mental retardation, which occurs because one part of the X chromosome has a defective piece that appears pinched and fragile when viewed under a microscope. Fragile X Syndrome affects about two to five percent of people with ASD. Fragile X Syndrome, also termed Martin-Bell Syndrome or marker X Syndrome, is the most common cause of inherited mental retardation and is the second most common cause of genetically associated mental deficiencies after Trisomy 21.

Hyperlexia. Newman et al. (2006) define children with hyperlexia as having a

preponderance of behaviors consistent with infantile autism or a ‘‘neurological dysfunction.’’ These children have an average or above-average intelligence and demonstrate exceptional word-reading ability above that expected given their IQ, and at a higher level than their ability to comprehend and integrate words.

Individualized Education Program (IEP). Copenhaver and Taylor (2002) define the Individualized Education Plan (IEP) as a written statement for each child with a disability that serves as a communication vehicle between a parent and the school. It is a product of collaboration among parents and educators who, through full and equal participation, identify the unique needs of a child with a disability and plan the special education services to meet those needs. It contains statements of goals and short term objectives to monitor and measure the effectiveness of the services.

Individuals with Disabilities Education Improvement Act (IDEIA). Yell, Katsiyannis, McDuffie, and Mattocks (2008) define the IDEIA as the reauthorized and amended Individuals with Disabilities Education Act (IDEA) law. The changes in the IDEIA require that special education teachers and administrators know and understand their duties and obligations under the law.

Integrated Preschool. Smith and Rose (1994) define the Integrated Preschool model as the early intervention paradigm that combines typically developing preschool children, ages three through five, who act as both language and social skill models for atypically developing preschoolers who have been diagnosed with a disability.

Landau Kleffner Syndrome (LKS). LKS is a rare and unique syndrome that is most often characterized by difficulty in receptive or expressive language ability, abnormal electroencephalograms (EEGs), and seizures. LKS is also referred to as infantile-acquired

aphasia, acquired epileptic aphasia or aphasia with convulsive disorder. LKS affects the parts of the brain that control comprehension and speech. The disorder usually occurs in children between the ages of five and seven years (Chapman, Stormont, & McCathren, 1998).

Least Restrictive Environment (LRE). The IDEA of 1997 states that, to the maximum extent possible, children with disabilities, including preschool children with disabilities, are to be educated in an environment with children who do not have a disability. This environment is identified as the LEA (Copenhaver & Tayor, 2002).

Mental Retardation or Global Developmental Delay (MR/GDD). MR/GDD results in significantly sub average general intellectual functioning existing concurrently with deficits in adaptive behavior. MR/GDD is manifested during the developmental period and adversely affects a child's educational performance (Levine, 1994).

Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS). PDD-NOS is a condition that results in some of the classic autism behaviors, but not enough to meet the criteria of autism. Behaviors may include repetitive behaviors, difficulty with socialization, and sensitivity to stimuli. Children with PDD-NOS have significant difficulties in social interaction as well as verbal and non-verbal communication (Levine, 1994).

Picture Exchange Communication System (PECS). Spencer, Petersen, and Gillam (2008) characterize PECS as an augmentative or alternative option to teach functional speech. PECS incorporates the use of standardized picture icons, symbols, and sign language.

Rett Syndrome. Woodyatt, Marimac, Darnell, Sigafoos & Halle (2004) define Rett Syndrome as an X-linked, dominant neurodevelopmental disorder affecting mainly females characterized by apparently normal development in the first 6 to 18 months after which cognitive, communicative, and physical skills are lost.

Scientific-Based Research. Kahle (2004) defines scientific-based research as the application of rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to education activities and programs.

Theoretical Framework

The theoretical framework for this study is intended to cover the perceptions, concerns, and questions of teachers of preschool children who have been diagnosed within the autism spectrum or present with autistic-like characteristics, and are taught within the special education preschool classroom environment. The preschool, special-needs population throughout the United States continues to grow. As stated earlier, the population of children who have been diagnosed on the autism spectrum or who exhibit autistic-like characteristics is also increasing. School systems around the nation are faced with the obligation of providing high-quality instruction to these children as well as providing high quality professional development to the teachers. It is vital that central office and school-based administrators recognize the needs of both students and teachers.

A variety of classroom models of teacher training and effective instructional practices have been investigated. It is hoped that this study will contribute to the knowledge base of schools that provide specific early intervention programs for young children who have been diagnosed on the autism spectrum. By measuring the perceptions of those teachers who are providing instruction, it is hoped that the data collected and the interventions identified will provide administrators with valuable information when researching and developing professional development programs for their teachers.

Methodology

This study design includes a mixed methodology that incorporates both qualitative and

quantitative data. The research was conducted in a large Mid-Atlantic public school system that provides special education services to children between the ages of two and five and who have been identified as qualifying for special education services. The qualitative data consists of the results of the interviews with central office administrators and the analysis of training documents. The quantitative data were obtained from the survey responses of the participating preschool special education teachers.

CHAPTER 2 A REVIEW OF THE LITERATURE

This review of the literature encompasses the following topics: (1) elements of successful professional development opportunities for teachers, (2) understanding and managing autism, (3) the essential characteristics of the medical models for teaching and treating the young child with autism, and (4) instructional models for teaching the young child with autism. These four topics form the framework for the evaluation of a preschool special education program that serves children diagnosed on the autism spectrum or who present with autistic-like behaviors.

Successful Professional Development

Whether teaching preschool or grade twelve, general or special education, teachers across the country are a part of the standards-based reform movement. The expectations for educators include high academic standards for all students as well as tests that are more rigorous and challenging and that measure whether students are meeting those standards. Klentschy (2005) made the case that this movement has created the need for teacher learning, as well as an opportunity for districts to examine their professional development practices. The National Staff Development Council (NSDC) has identified standards for professional development that provide benchmarks that schools can employ when assessing their programs. The assumption is that if teachers are trained in content specific strategies with a clear understanding of how students learn, high student achievement will result. Klentschy (2005) further validates this assumption in the following quote:

> The standards movement across the United States has created a real need for teacher learning. This need has created a critical examination of the practices employed by school districts across the country to provide sustained professional development opportunities for teachers. There is a growing belief that professional development

> should be targeted and directly related to teachers' practice. This belief also focuses on the notion that professional development should be site-based and sustained over time. It should be integrated into the regular practices of teachers. The focus of the professional development should be curriculum-based so that it helps teachers help their students attain higher levels of content understanding and improved performance. (p. 1)

This approach to professional development design is contrary to the many current practices of providing generic professional development programs focused on curriculum implementation, content, pedagogical approach, or student assessment strategies which are designed for all teachers within a system or region. The "one-size-fits-all" approach to professional development limits the pathways individual teachers may take to meet their own professional development needs. Dufour and Eaker (1998) support the idea of teacher input regarding professional development through the concept of professional learning communities. They state, “We have argued that professional learning communities are committed to result-driven education. They move beyond prescribing courses and specifying seat time to articulating specifically what students should know and be able to do as a result of their education” (p. 261).

Changing the typical approach to professional development must be implemented carefully because how change is managed in an organization can have a major impact on the success or failure of any reform effort. One method to organize change is outlined by Patterson and Rolheiser (2004) in their article on creating a culture of change. In Canada’s Edmonton Catholic School District, a rise in student achievement was noted after the initiation of the Assessment for Learning (AFL) program, which encouraged staff collaboration and the value of a shared learning environment. In an effort to reculture a district that had become fragmented, the founders of the AFL began with a goal that encouraged continuous learning and a climate of

change, thereby supporting a framework for teachers that would transfer from school to school.

Patterson and Rolheiser (2004) state:

> To reculture a district, people must change how they think about doing business. They must collaborate and share leadership, use data to make classroom, school and district decisions about teaching and learning, make teaching practices more transparent, and think about what their out-comes are. (p. 2)

As a result of the implementation of the AFL program, a change in teacher and student behavior was observed. Teachers and administrators engaged in conversations about how they teach and the students showed improvement in the Provincial Achievement Test (PAT). The authors noted that, while the improvement in student test scores may not have been a result of the AFL initiative alone, the scores of the students encouraged educators from neighboring districts to investigate the AFL strategies.

Guskey (2000) defines professional development as "those processes and activities designed to enhance the professional knowledge, skills, and attitudes of educators so that they might, in turn, improve the learning of the students" (p. 16). Further, Guskey states that there are three essential characteristics that should be considered when planning the professional development process: intentional, ongoing, and systematic.

Characteristics of professional development.

Intentional professional development.

As educators plan and implement professional development activities, a clear intent must be established. When defining the true meaning behind professional development, Guskey (2000) states "It is a consciously designed effort to bring about positive change and improvement. Professional development is not, as some perceive it to be, a set of random,

unrelated activities that have no clear direction or intent" (p. 17). Guskey outlines steps that should be taken as educators strive to create intentional processes. Whether defined as "results driven" or "beginning with the end in mind," comprehensive goals and outcomes must be defined. Clarity of practices, the implementation process, and results must be explicit. Additionally, the goals defined must be viewed as essential to all stakeholders. This can be achieved by aligning the goals with the mission of the school. Lastly, a determination of how the professional development opportunity will be evaluated, prior to its implementation, must be ascertained.

Ongoing professional development.

Guskey (2000) also indicates that education is not a static occupation. The profession lends itself to continuous learning and growth by students and adults. Therefore, the professional development activity should be a continuous process. Educators should have a thirst for new knowledge, strategies, and information as well as a desire to analyze their current practices. Ongoing professional development should provide for these ideals using a variety of methods ranging from observations, in-services, curriculum reviews, and professional readings. Opportunities to partake in peer discussions should also be encouraged as sharing practices can be mutually beneficial to all.

Systemic professional development.

When creating professional development opportunities, it is important that educators consider a variety of factors that can directly affect the outcome, positively or negatively (Guskey, 2000). Too often workshops, in-services, and programs are implemented without adequate background information, do not support the culture of the school, or are unclear in their purpose. Systemic professional development creates an environment of continuous

improvement. The goals are clear and concise and are supportive of the individual as well as the organization.

Professional development models.

School districts are continually searching for methods to provide teachers and administrators with high quality professional development opportunities. While there are many different designs available, the model chosen should reflect the audience as well as the needs and goals of the school. DuFour and Eaker (1998) have developed a set of professional development processes within the context of a professional learning community. The first process involves the coaching of teachers that includes presentation of the information, demonstration, guided practice, feedback and sustained coaching. The second process supports the idea of thoughtful reflection where teachers in small groups discuss questions or ideas. The next process reinforces the concept that professional development must be sustainable, as the most common mistakes school divisions make is to not see the initiative to its conclusion. Lastly, the professional development program must be evaluated at a variety of levels since assessing teacher satisfaction is not the only measurement of success; student achievement must be the priority.

Guskey (2004) suggests that while two major professional development designs (district-wide and site-based) have been traditionally used to great benefit, a third, the integrated implementation model, may be more effective. He indicates that the district-wide approach has a relatively reduced record of achievement. This is due to a combination of effects such as inconsistent support and follow-up, as well as in-services unrelated to the specific needs of the staff or school. On the other hand, district-wide activities have the tendency to present a broader view of the needs and necessary improvements of the division as a whole. Staff members also have the opportunity to collaborate and share resources in an efficient manner. The advantage of

the site-based design, according to Guskey (2004), is that it has the propensity to address the specific needs of the school. The planning and decisions of the site-based professional development in-services are usually made by those at the site who are directly involved. However, the benefit of cross collaboration among schools and school levels is lost.

Guskey (2004) has constructed the integrated implementation model that merges the benefits of both division and site-based designs. An example of the model begins with a division-wide informational session that includes all stakeholders. Presenters provide a common knowledge base of information, with scheduled follow-up sessions at the individual school sites. By combining the best of both division-wide and site-based professional development opportunities, schools can maximize the learning practices of teachers.

Evaluating professional development.

A two-fold study conducted by Shaha, Lewis, O'Donnell and Brown (2004) evaluated the efficacy of a professional development program along with its effect on students' reading achievement. Using a two-dimensional program evaluation model, the researchers analyzed both the program's impact and the level of impact. In the area of impact, three types were considered: learning impact, attitudinal impact, and resources impact. Learning impact consists of the end result of the strategies or methods used to teach the curriculum, namely assessment results. Test scores signify the learning impact of the student population as an end result of the professional development. The second impact, attitudinal impact, is defined as the affective impression of the program on staff members (Shaha, et al., 2004). Typically, the professional development opportunities in which teachers participate should positively affect the instruction as well as his/her professional and personal outlook of the experience. The third impact, resources impact, is the fiscal impact of a professional development program (Shaha, et al., 2004). Generally, the

administrators focus on this area, understanding that while the learning and attitudinal impacts are extremely important, the cost related to the program must also be evaluated to determine if the program is considered economically feasible. The second dimension of the evaluation, levels of impact, is two-fold: teacher/educator and student (Shaha, et al., 2004). The purpose of professional development opportunities is to create stronger, more knowledgeable and more confident teachers. When assessing a programs' validity, data on the improvement of, or impact on, teacher behavior should also be an element of the over-all evaluation process. Student impact should be measured in order to obtain the academic benefits, as well as to assess the students' attitude on their learning experience.

The Shaha et al. study was conducted in a small district of 4,480 students in grades kindergarten through twelve. The purpose of the study was to evaluate the advantage of a professional development program that was focused on reading instruction and its impact on student achievement, teacher attitude and teacher learning. The design focused on the comparative learning and the attitudinal impact of teachers and their students (the experimental group) who participated in the program, compared to the control group of teachers and their students.

Teacher data were obtained from a total of 34 teachers, 25 from the experimental group and 9 from the control group. A Likert scale attitudinal survey was employed at the end of the school year for the teachers and resource personnel. The responses focused on: (a) attitudes towards teaching reading; (b) perceptions of their personal competency in teaching reading; and (c) perceived impact of the program on student achievement. Four additional items were included in the experimental group's survey in order to obtain the teachers' perception of the

impact of the professional development program as it related to their teaching and their students' specific attitudes of the results of the program.

Post-test results revealed significantly higher ratings for the teachers in the experimental group at the elementary level as opposed to the control group. At the middle and secondary level, the results were not significantly different, although the teachers in the experimental group had a tendency to report preference for the new professional development program (Shaha, et al., 2004). A pre and post test, 56-item Likert scale Self Assessment of Reading Instruction was given to the teachers in both the experimental and control groups in order to measure the area of teacher-learning impacts. Skill sets that are considered vital to teaching reading, according to the National Reading Panel (1999), were assessed. These include early reading strategies, skilled reading strategies, balanced and integrated reading strategies, phonological awareness, fluency, comprehension strategies, and intervention. Results showed statistically significant improvements in reading instruction that were attributed to the teachers' participation in the program. Experimental group scores indicated a high degree of improvement in each of the seven areas, with two areas indicating a significant improvement. Conversely, the control group showed no significant improvement in any of the areas. However, Shana et al. (2004) state, "Few, if any, professional development offerings provide similar data verifying the impact achieved through participation" (p. 6).

Student data were collected from 741 students in grades kindergarten through twelve. The experimental group was comprised of 479 children and the control group included 262 students. In the area of reading and language arts, the student learning impacts were measured by using the district-generated testing tool that assessed both reading and language arts three times during the school year. Results indicated that for the experimental group, the student

scores on all three occasions were significantly higher than those of the control group's students. Elementary scores were the highest and the high school scores were among the lowest when comparing the elementary, middle, and high school students (Shana et al., 2004). Concerns of skewed data due to any pre-existing student advantage were addressed by the authors of the study. After conducting a follow-up analysis, they noted that the selection of participating teachers focused on those who would most benefit from the professional development opportunity. Secondly, the students selected were not among the highest achieving population, and were in need of interventions.

In the same study (Shana et. al., 2004), student attitudinal impacts were conducted for all students using a grade-level sensitive, 13-item Likert scale survey. The survey measured the students' perceptions of the reading and the reading instruction that were provided, as well as perceptions of their own improvement in the area of reading. The Smiley Face Scoring Card was used as a means of obtaining data from students in kindergarten through second grade. Results indicated significant differences between the elementary and high school students. The professional development program had its greatest impact on the attitudes of the young children, less impact on the attitudes of middle school students, and the least impact on the attitudes of high school students.

As indicated earlier, the resource impact focused on the cost benefit of the professional development program. Prior to the program specified in this study, the school district formally invested in two reading programs, both of which were significantly costlier than the program studied. In order to recognize the true value of the program, the district developed surveys for teachers, focusing on the perceptions and attitudes related to each program. It is important to note that while participating in the survey, the teachers were unaware of the results the program

being evaluated had achieved. The outcome of the survey indicated no significant differences between the three programs as far as the perceived value. These results directly influenced the divisions' decision-making process, thus deciding to cancel the more costly program for the newer program which was not only less expensive, but provided evidence of a positive impact in attitudes and learning (Shana et al., 2004). The authors state, "In the age of accountability, organizations cannot justify spending on professional development programs that do not represent investments. Program providers must prove with data that significant improvements in skills, knowledge and attitudes will result from expenditure and implementation" (p. 9).

Lowden (2005) cites that the NCLB legislation recognizes the importance of professional development by defining it as "activities that are high quality, sustained, intensive and classroom focused in order to have a positive and lasting impact" (p. 2). Schubert (2007) states:

> Organizations approach training in a variety of ways. Too often training is viewed as nothing more than an inconvenient requirement mandated by a regulatory agency. Or, training is proposed as a 'quick fix' to remedy a problem that is creating current concern. (p. 53)

It appears that among the researchers cited here, there is agreement that professional development opportunities must focus on enhancing teacher knowledge, improving teacher performance, and increasing student achievement. Building and central-level administrators should ask the question, "What makes professional development meaningful and relevant?" This literature review revealed that, unfortunately, researchers have been unsuccessful in identifying the exact impact of professional development programs.

The impact of professional development on teachers and student learning.

It is clear from the review of literature, that the outcome of professional development

opportunities must positively impact student achievement as well as teacher performance. Guskey (2000) states that, for professional development to have an impact on student learning, it must first have an impact on the teacher participants. Further he shares:

> Teacher knowledge and practices are the most immediate and most significant outcomes of any professional development effort. They also are the primary factor influencing the relationship between professional development and improvements in student learning. Clearly, if professional development does not alter teachers' professional knowledge or the classroom practices they employ, little improvement in student learning can be expected (p. 75).

Lowden (2005) conducted a study using Guskey's model of teacher change to evaluate the professional development opportunities in 11 public schools in two selected school districts with similar demographics. A voluntary survey was conducted that included 205 certified kindergarten through twelfth grade teacher respondents. The purpose of the study was to understand the influence that professional development has on teachers and to verify the effect on student learning. Using Guskey's model, Lowden studied the impact of professional development using six criteria: (1) participant satisfaction, (2) participant learning, (3) organization's support and change, (4) change in teacher knowledge, skills and pedagogy, (5) teacher perceptions of student learning, and (6) changes in attitudes and beliefs of teachers. Further, this study addressed additional questions including:

> What was the nature of the professional development process, format, and content in the participating districts? What was the existing relationship between the change in teacher attitudes and beliefs about instruction and learning and their perception of the professional development at each of the levels of evaluation? For those teachers who had

> prior experience in research-based, effective professional development, how did they rate their experiences at each of the five levels of evaluation as well as the teacher change process? (p. 3)

The findings of the Lowden (2005) study provided a clear picture of the attitudes and perceptions of the teacher participants. When asked if they were aware of the professional development process of their district, 68% of the teachers indicated that they were aware of the district's goals of the professional development plan, while 31% indicated that they did not know the district's goals. While responding to the first question of the survey, when asked if the professional development plan was linked to student achievement, 73% responded affirmatively, while 2 percent indicated no and 23% were not sure. The last question asked if the professional development activity was linked to teacher evaluation. Of those who were in agreement, 43% responded, 20% were not in agreement and 35% were unsure. Participants were also asked to indicate the times when professional development activity opportunities were provided. Overwhelmingly, 90% of the respondents indicated that conference days that were built into the school calendar were used for these activities. Conversely, 54% of the teachers stated that they were involved in professional development sessions during the school day. The types and frequency of offerings the teachers participated in ranged from direct training, graduate level courses, peer observation, curriculum development, individually guided practices, and action research.

In comparison, Darling-Hammond (2005), in her investigation of the professional development practices in various foreign countries, states the following:

> Whereas the decentralized U.S. education system tends to produce both exciting innovations and enormous inequalities, some other nations have taken a more systemic

> approach to the development of teacher knowledge and skill, which makes well-trained teachers more widely available. For example, many European and Asian nations that we might consider peers or competitors routinely prepare teachers more extensively, pay them more in relation to competing occupations, and provide them with more time for joint planning and professional development. In these and other countries, teachers typically spend between 15 and 20 hours per week with their classrooms of students. They spend the remaining time working with colleagues on developing and refining their practice. In Japan and China, teachers routinely work with their colleagues on designing curriculum, polishing lessons, observing one another's teaching, participating in study groups, and conducting research on teaching. Japanese schools provide teachers with 20 or more hours each week for collegial work and planning, visitations to other classrooms and schools, and demonstrations of teaching strategies. By contrast, U.S. teachers have almost no in-school time for professional learning or collegial work. Nearly all professional development occurs in workshops or courses held after school, on weekends, or during a small number of professional development days. (p. 4)

Lowden's (2005) findings of his study suggest that the planning of sustained, systematic and job-embedded professional development activities should include ways for teacher participation during the school day, which further supports the vision of being 'life-long learners.' Abdal-Haqq (1996) agrees with this assumption recommendation stating:

> Professional development and collaboration generally must take place before or after school or in the summer, thus imposing on teachers' personal time; during planning or preparation periods, which cuts into time needed for other tasks; or on the limited number

> of staff development days. Teachers who sacrifice personal time or preparation time often experience burn-out from trying to fulfill competing demands for their time. (p. 4)

In the creation of the professional development offerings, according to the findings of the Lowden (2005) study, nearly 70 % of the teachers indicated that the district-level administration decided on the focus of the professional development offerings, and 26 % indicated that the decisions were made by a combination of people. A policy that excludes certain members of the educational community in the planning of professional development activities does not support the findings necessary for creating positive professional development.

Holley, Arhar and Kasten (2005) indicate that, in the past, educational research and scholarship were typically the responsibility of those at the level of the university and research organization. The information was then passed down to the school level for the teachers to employ in the classroom. We have now moved to a process where classroom teachers must have the opportunity to become inquirers into the curriculum, not only to access the curriculum, but to investigate, develop, create and shape it. Killion (2002) supports this belief:

> School's primary mission is to educate students to become contributing, productive citizens of our democracy. This has been an enduring goal of public schools since their inception. With each decade, achieving this goal becomes more challenging for educators who face students with increasingly diverse learning needs and rising expectations and demands for student achievement. (p. 9)

The roles and responsibilities of teachers have increased as the multifaceted needs of students can be challenging. This concept is also supported by Mitzell, (2008) who noted that, for professional development to be effective and meet the needs of all learners, planning must have input from all stakeholders, including teachers, administrators, parents and community

members. Mizell (2008) states it best:

> Professional learning decisions are strengthened by diversity. The word 'diversity' has multiple meanings related to professional development. It suggests, for example, that more than one person should participate in determining the purpose, content, and type of professional learning available to educators. After all, one decision maker cannot be diverse. (p. 2)

Additionally, the literature review clearly indicates that in order for professional development to have a lasting, positive effect on teacher knowledge and student achievement, its purpose must be clearly communicated to all stakeholders. This concept is further supported by Hampton and Purcell (2006) who conclude that teachers want to know the objective and intention the school and district have constructed for professional development activities. They share five steps for successful professional development opportunities: (1) provide a rationale for the activity; (2) provide information about the activity in advance; (3) inform the teachers of the long-term plan of the activity; (4) inform the teachers of the fiscal impact of the activity; and (5) provide professional development that is pertinent and organized. It is clear that the vision of a division must be clearly articulated and all activities correlated with that vision. The data Hampton and Purcell (2006) collected support the resounding message reported by other researchers. It is vital that school districts communicate clear and unmistakable goals to the participants of the professional development activity.

The last area of research in the Lowden study (2005) focused on the relationship between the change in teachers' attitudes and beliefs about teaching and learning, and their perceptions of the professional development at each of Guskey's (2000) five levels of evaluation: (1) participants' reaction, (2) participants' learning, (3) organization support and change, (4)

participants' use of new knowledge and skills, (5) student learning outcomes. The data obtained revealed a significant positive correlation between Guskey's Model of Teacher Change and the teachers' response to the professional development experience. The correlations ranged from the lowest (.244) for *participants' reaction* to the highest, (.471) for us*e of new knowledge and skills*.

Lowden's study findings suggest the following for school divisions: (a) increased communication is a necessity; (b) the district's professional development plan must be re-examined and linked to the teacher evaluation process, insuring that the skills are being successfully implemented in the classroom environment; (c) the professional development plan should be refined, ensuring that it is research-based and is highly effective; (d) the professional development process must include all stakeholders; and (e) professional development should be built into the school plan from the beginning, not as an after-thought. Future implications include instituting formal and systematic evaluation of districts' professional development plans using both summative and formative methods. This is particularly important because of the strong influence on student learning that professional development can have. Support from the organization for the professional development is also vital. In order for sustained, positive change to take place, time and resources must be allocated to support the activity.

Lowden (2005) states that communication is another key factor for developing and maintaining a strong professional development environment. Killion (2002) concurs, stating "For practicing teachers, staff development is an essential vehicle for continuous improvement of teaching" (p. 9). Nieto (2009) states "Because of state licensing requirements, all teachers must engage in professional development both before they enter the profession and periodically afterward. In spite of such requirements, too often teachers find that their professional development is both inadequate and irrelevant" (p. 10).

The Characteristics of Autism

Autism is defined by IDEA as a developmental disorder that significantly affects a student's verbal and nonverbal communication, socialization skills and educational performance. According to the Diagnostic and Statistical Manuel of Mental Disorders (DSM), autism is a severe form of an expansive group of disorders referred to as Pervasive Developmental Disorders-Not Otherwise Specified (PPD-NOS). Other characteristics include sensory processing problems, hyperlexia, and difficulty with acquiring fine and gross motor skills. In their clinical report for the American Academy of Pediatrics (2007), Meyers and Johnson reported on the importance of early identification, evaluation and management of the child with ASD. Levy and Hyman (2003) indicate that the specific etiology of autism is unknown, but there is a significant genetic predisposition. Because of the nature of the disability and the fact that the disorder is generally not curable, the authors propose that "chronic management" is essential. To further complicate the situation, there appears to be disagreement between policy makers in constructing or agreeing to what would be termed "best practices." Steuernagel (2005) states "Even though there is strong evidence that early intervention allows children with autism to develop better functional skills, the evidence to date suggests that there is not a single form of early intervention that will benefit all affected children" (p. 138).

The prevalence of children diagnosed with autism has increased dramatically in recent years. According to the U.S. Department of Education (2002), enrollment of children with autism and related conditions has increased from 5,000 students in 1991-1992 to 118,000 in 2000-2001.

According to Gabovitch and Wiseman (2005), autism is the third most common childhood disorder, following mental retardation and speech impairments. Further, the authors'

state:

> Intensive, well designed, and timely intervention can improve the prospects and the quality of life for many children who are considered at risk for cognitive, social, or emotional impairments. In some cases, effective intervention can improve conditions once thought to be virtually untreatable, such as autism. (p. 145)

This leads to the importance of early identification of the very young child. In his 2005 study, Fombonne (2005) conducted an investigation of epidemiological studies through systematic searches of scientific databases. He specifically investigated the prevalence of autism and estimated the number of occurrences in the following defined characteristics of the disorder: 13 per 10,000 for autistic disorder; 21 per 10,000 for pervasive developmental disorder, not otherwise specified (PDD-NOS); 2.6 per 10,000 for Aspergers; and 2 per 10,000 for childhood disintegration disorder. Fombonne noted that the best estimate for the prevalence of all autistic spectrum disorders including other PDDs is close to 60 per 10,000 or 0.6%. Autism is a complex disorder for which there is disagreement with the number of affected children as well as its characteristics and intervention strategies.

Legal Mandates

Teachers, as well as parents, continually investigate methods and strategies to improve the communication, social and academic skills of children with autism. The legal mandates of IDEIA require that students with disabilities receive a free and appropriate education (FAPE). Part B of IDEIA specifies the disabilities (which include autism), describes the types of services available, delineates the process for making decisions, and identifies the location of the service delivery. The legislation provides parental safeguards so that the voice of the parent can be included in the decision-making process. It is the intent that the home and school are in

agreement with the services provided; that is not, however, always the outcome. In the case of young children with autism, parents are advocating the application of ABA and DTT therapies (40+ hours per week). These specific methods may result in an additional cost to the families if they are not offered during the school day. While children who are developing typically learn via their environment, children with autism appear to be void of this skill. To address this void, many approaches, including ABA and DTT, have been studied. Parents who support and desire the ABA program for their child may seek due process rights through administrative hearing and court litigation. Nelson and Huefner (2003) state:

> Parents of young children with autism have gone to court seeking relief under the umbrella of IDEIA, arguing that, for their children, FAPE and meaningful educational progress cannot occur without the Lovaas method, an intensive behavioral intervention that is a form of DTT designed specifically for children with autism. (p. 2)

Medical Management.

As the number of children who are being diagnosed on the autism spectrum continues to rise, there is a need for both medical and educational professionals to collaborate in the treatment of the patient. Meyers and Johnson (2007) stress the importance of pediatricians, educators and therapists cooperating in order to promote independence by decreasing the behaviors that impair the child with ASD. The authors, both pediatricians, report that while children with ASD require the same basic health care as typically developing children, they may also have additional health issues. These may include epilepsy, sleep disorders, gastrointestinal problems, pica, extreme food selections (resulting in vitamin deficiencies and protein-calorie malnutrition) aggressive behaviors, self-injury, depression, and anxiety. In an effort to treat maladaptive behaviors, pharmacologic interventions may be considered. The authors indicate that these should be

considered only after modifiable environmental factors and treatable medical causes have been ruled out. Additionally, if the behaviors negatively affect the positive development and daily functioning of the student and they have not been responsive to behavioral interventions, then a pharmacologic intervention may be necessary. Meyers and Johnson (2007) stated:

> ASDs are chronic conditions that affect nearly 1 of every150 children and require ongoing medical and nonmedical intervention. There is a growing body of evidence that supports the efficacy of certain interventions in ameliorating symptoms and enhancing functioning, but much remains to be learned. (p. 1175)

When pharmacologic intervention is used for children with ASD, the drugs most commonly prescribed include selective serotonin-reuptake inhibitors (SSRIs), typical antipsychotic agents, stimulants and antihypertensive agents. Adverse reactions include dry mouth, nausea, fatigue, agitation and anxiety. When medications are prescribed, Meyers and Johnson indicate that potential benefits and adverse reactions should be explained, informed consent granted, baseline data and somatic complaints collected, and strategies for potential treatment failure considered. Additionally, input should be obtained from those who are directly involved with the development of the child such as parents, teachers, teacher aides and therapists.

Complementary and Alternative Medicine (CAM).

In many cases parents of children with ASD, as well as the professionals working with the children, are frequently willing to advocate and try undocumented, unscientifically proven methods to unlock the mystery of the diagnosis itself. The literature is filled with a variety of methods and strategies that range from therapies such as Applied Behavioral Analysis (ABA), daily life therapy, medication, diet changes, and neurofeedback. Wallace (2009) states:

> Special diets and supplements are often called complementary and alternative medicine (CAM) therapies. Complementary therapies complement or are in addition to conventional treatments or therapies. Alternative therapies are at times used instead of conventional treatments. While professionals may not often recommend CAM therapies, they will usually support a family who chooses to use them (p. 28).

CAM therapies are categorized as "non-biological" or "biological." Non-biological treatments include auditory integration training, behavioral optometry, craniosacral manipulation, music therapy, facilitated communication and dolphin-assisted therapy. Biological examples include immunoregulatory interventions such as dietary restrictions, the administration of immunoglobulin or antiviral agents, detoxification, gastro-intestinal treatments (yeast free diets or gluten/casein-free diets), and nutritional supplements such as high dosages of Vitamin B6 and magnesium. Hanson et al. (2006) found that there are many reasons why CAM therapy has become popular with parents. The availability of vitamins, easy access to treatments, an appreciation for a more "natural", less invasive treatment method and dissatisfaction with conventional treatments may explain the increase in CAM treatments.

The National Center for Complementary and Alternative Medicine (NCCAM), describes five major CAM categories including (a) mind-body interventions which are techniques designed to enhance the mind's ability to affect bodily functions, (b) biologically-based therapies that use natural matter such as herbs and vitamins, (c) manipulative and body-based methods that are based on the manipulation or movement of one or more parts for the body, (d) energy therapies such as therapeutic touch, and (e) bio-electromagnetic-based therapies that involve unconventional use of electro-magnetic fields.

Secretin (a biological treatment) is a vasoactive gut peptide, frequently used by

gastroenterologists when examining and diagnosing pancreatic function. Lamson and Plaza (2001) conducted a case study in which a two-and-one-half year old male child who had been diagnosed with autism by a psychiatrist, two pediatricians, and a speech pathologist, was provided the secretin hormone via a transdermal cream. The authors claimed that during a five-month period of a daily application of the cream to the child's back, vocabulary and appropriate behaviors increased. Levy and Hyman (2003) discount this type of case study stating "Many CAM interventions are supported by case reports of improvement or cure. Such anecdotes, however, provide weak evidence of causality" (p. 2). Hanson et al. state that "Secretin was at one time proposed as a possible cure for autism. Unfortunately, rigorous studies did not support the initial flurry of enthusiasm" (2006, p. 2).

Throughout the literature, it has been noted that the parents of children with ASD are willing to investigate and pursue alternative interventions for general health preservation in the hope that their child will attain an increased level of independence and normalcy.

Wong and Smith (2006) surveyed the use of CAM therapy in children diagnosed with ASD and compared the frequency and pattern of use to a control group of children who had not been diagnosed with a physical or developmental disability, but were waiting to be assessed. Additionally, the study investigated the discourse that occurred between parents and their child's pediatrician concerning CAM usage. Two groups of 50 parents were involved in this case-control study. The first group consisted of parents of children who had been diagnosed with ASD and received services from the local child development center. The control group was comprised of children who were waiting to be seen by either a pediatrician or the specialist of the same center. The results of the study indicate that there was a relationship between alternative therapy use and both maternal and paternal education. CAM therapy was used most often among

parents who had a university degree as compared to those who had less than a grade 12 education. The link between higher education and CAM usage indicated that parents with a postsecondary education are more likely to research alternative methods and become better educated about their child's disability. The types of CAM therapies used by the parents varied. Sixty therapies were used by the parents of the ASD group and 75% felt the therapies were helpful for their child. Twenty-five therapies were used by the control group and only four therapies were felt to be ineffective. When disclosing the use of CAM to their pediatrician, only 62% of the ASD group, and 57% of the control group had informed their child's pediatrician. Reasons included: (1) concerns that the pediatrician would not approve, (2) assuming the pediatrician lacked knowledge of CAM, (3) the doctor did not ask, (4) the parents did not feel it was necessary to inform the doctor. Lastly, this study indicated that there was no significant difference between high levels of satisfaction between either set of parents. Of the control group, 85% were pleased with CAM and 75% of the ASD group indicated they were satisfied with the use of CAM (Wong & Smith, 2006).

In a similar study on CAM usage, Hanson, et al. (2006) surveyed 112 parents of children who had been diagnosed with ASD and were being treated at the Developmental Medicine Center at Boston's Children's Hospital. Children were classified according to parent report of diagnosis into one of four groups: mental retardation or global developmental delay (MR/GDD), autism, PDD-NOS, and other. The questionnaire inquired about the use of conventional medicine and CAM, diagnostic and demographic information, the parents' perceived advantages of the interventions, and the significance of different considerations in choosing treatments for their children. Also investigated were the types of CAM used and the attitudes and beliefs that framed the interventions. The results of this study indicated that 74% of the children with ASD

used CAM and those with more severe forms of ASD had the highest rate of CAM usage. Additionally, those children who had been diagnosed with ASD for a longer period of time had higher rates of CAM usage. Within the results of this study, the authors investigated the education level of the mother and found it to be only marginally significant. Lastly, this study did not indicate correlations between the individual CAM categories, and no family indicated that the therapies used were harmful.

The study indicated that the most frequently used interventions were those that are generally accepted practices. Educational techniques were used by 89% of the respondents, 71% used sensory therapy, and 50% used prescription drugs. Of the CAM interventions, 74% were used by the families. A form of biologically-based therapy was used by 54% of the families, 30% used mind-body intervention, 25% used a manipulative or body- based method, 8% used energy therapies, and 1% used alternative medical systems. The most commonly used individual therapy was the Modified Diet. Gluten-free, casein-free, sugar-free, wheat-free and dairy-free diets were used by 38% of the families. Vitamin and food supplements were used by 30% and food supplements such as fish oil and omega three fatty acids were used by 23% of the families. Other CAM therapies indicated included the application of massage/body work, biofeedback, herbal remedies, chiropractic and osteopathic manipulation and prayer.

As the severity of the ASD diagnosis increased, so did the use of CAM as reported by the parents. This study indicated that approximately 90% of the children with a diagnosis of autism, or autism-PDD in combination with MR/GDD reported the use of CAM. For children with PDD-NOS but no diagnosis of autism or MR/GDD, the CAM usage was 69%. Children whose parents did not report a diagnosis of autism or PDD-NOS, but had a different diagnosis such as Landau Kleffner or Fragile X, the rate of CAM usage was 42%. As with previous studies, the

parents' education level was examined. Parents who had a higher level of education were more likely to use CAM. The findings related to the duration of the diagnosis and educations were not strong, and the authors suggest further study. When investigating possible correlations of individual categories of CAM use, this study did not produce any significant relationships. However, a pattern did emerge of the overall similarity of CAM usage, indicating that there are individual motivations for attempting alternative medical approaches across socioeconomic and cultural differences. Conventional therapies ranked highest at 94% in effectiveness and frequency of treatment. The authors noted several limitations to this study including a lack of a placebo, a lack of standardization of supplements and possible misinterpretation of the questions by parents.

In conclusion, as these studies indicated, there appears to be satisfaction with the use of CAM among the parents of children with autism. Many of the parents indicated that they felt because the use of CAM did not cause harm to their child, they were willing to seek the services. While the use of CAM has risen, there appear to be questions regarding the efficacy of its use. Angley (2007) states: "Often disenchanted by a health care system that appears to be able to do little to help their child, hopeful parents may turn to complementary and dietary therapies. It is important to discuss alternative therapies openly and compassionately" (p. 829). Lastly, this review of the literature of the use of CAM supports the need for better communication between parents and their child's pediatrician. The American Academy of Pediatrics Committee on Children with Disabilities (2001) published a policy statement that suggests pediatricians need to understand better the reasons parents choose to investigate and use CAM for their children.

Instructional Models for Teaching the Young Child with Autism

Daily life therapy.

The belief that a program which incorporates physical activity in order to release endorphins to develop strength, encourage concentration and, in turn, inhibit anxiety while reducing hyperactivity is the purpose behind the 'Higashi' or Daily Life Therapy (DLT) method. Developed in 1969 in Tokyo by Dr. Kiyo Kitahara, the word 'higashi' translates in English to 'hope' and is a holistic method of integrating children with autism with typically developing children to learn as part of a group. The students are physically active in an attempt to keep the autistic child from reverting back to the typical autistic-type behaviors. Academics, art, music, and vocational training are all incorporated into the school day.

The research in DLT is limited, however. Larkin and Gurry (1998) conducted a study in order to answer the question "Do students with autism make progress using DLT and in what areas?" (p. 339). The study began during the inaugural year of the Boston School. Three researchers participated by observing students with autism in three different grade levels: primary, elementary and junior high. The students involved in the study included six students in each of the grade levels of similar ages, diagnosis, communication skills and behavioral patterns. The age of onset was also comparable for all six subjects. Of the six students, only one had minimal communication skills, the remaining five were nonverbal. Further, all six children engaged in self-stimulating behaviors. At the time of the study, the children had not been tested using western assessment tools in order to obtain an intellectual quotient (IQ) score.

A weekly observation was conducted from February to May 1988. Each observer was assigned to study the behaviors of two students in one grade level in weekly, one hour sessions. The classroom teachers were unaware of the students being observed. A time-sampling method

was used as the observers watched the students for a total of 30 data points per hour, recording student conduct and teacher intervention in one minute periods. A minimum of eight observations over a three month period of 24 school hours in the spring of 1988 was conducted. Inter-observer reliability of 85% was achieved as the observers completed three observations prior to the start of the study.

A follow-up study was conducted in the spring of 1990, by a trained research assistant. The assistant conducted the same number of observations during a three-month period on three of the remaining original students. Because the sample included a kindergartner, a primary and a junior high school student, the original sampling remained intact. The students were observed in the categories of attending behavior, inappropriate responses and appropriate responses. The data of the spring of 1990 and the 1988 data were compared. Larkin and Gurry (1998) defined the first category, attending behavior as "when a child is demonstrating appropriate classroom behavior and/or watching the teachers and/or task; and/or other students when no specific response is required of the students". The findings revealed a significant increase in attending behavior from the 1988 observations to the 1990 follow-up study. The second category observed was inappropriate responses, defined by Larkin and Gurry (1998) as "When a child is not on task, not performing a desired response and is making any inappropriate vocalizations or actions" (p. 340). According to the data, a significant decline in each student's inappropriate behavior was observed.

The last observed behavior was defined by Larkin and Gurry (1998) as appropriate responses, meaning "When a child is demonstrating appropriate classroom behavior and specific situational responses required of students" (p. 340). The findings indicated that the first child, child 1, who was the oldest of the sample, had a significant decrease in appropriate responses,

while children 2 and 3, the younger of the sample, remained considerably stationary from the first year to the third. The results indicate that the students did not perform in class as they were asked, denoting that the students either made no progress in this area, or the one student lost skills that he had prior to his enrollment in school.

The implications of this study suggest that the DLT method was successful in the areas of improved behavior and attending skills. An improvement in the areas of appropriate response was not evident according to the data. The authors noted that the target students did not appear to follow teacher directions or comprehend what was being asked of them. The lack of appropriate verbal skills is well documented in the literature as a major area of concern for children with autism. Tutt, Powell, and Thornton (2006) state "The learners with autism, by definition, lack awareness of primal communication that inevitably leads to a lack of key understandings and an inability to develop general abilities and specific skills" (p. 69).

The results of the DLT indicated that while the stereotypic behaviors, such as self-stimulating behaviors, decreased, there was a substantial improvement in attending behaviors, as well as a decrease in inappropriate responses. The fact that there was a lack of change in appropriate responses was an area of concern. The point is made, that while the students have learned to sit and behave, the amount of acquired language and academic skills remained in question. The data received may also reflect a limited understanding of language, which may have been the reason behind the older student exhibiting frustration and the younger student presenting passive resistance type behaviors.

Applied behavior analysis (ABA).

There have been a variety of studies conducted to investigate successful behavioral approaches to treating children with ASD. Applied Behavior Analysis or ABA is one that has

gained both support and opposition. The program is teacher-led, including the selection of the activity and materials. It involves the teacher gaining the child's attention and maintaining eye contact which may involve multiple requests as well as physically redirecting the child's head. Instructors model the task and encourage the child to imitate it. This continues until success in replicating the step is achieved and the student is rewarded with positive verbal feedback. If success is not achieved, a firm "no" is stated. As stated earlier, ABA is not supported by all practitioners. Wall (2004) reports:

> Opponents to such a program for very young children could suggest that it does not take into account the reasons why the children do not wish to participate or involve themselves in adult-selected activities. In addition, the child's reactions are their way of trying to cope with the anguish and difficulties created within themselves by this structured approach. It could also be suggested that such an approach will teach skills in a 'robotic' fashion and although the child may be able to complete tasks or a set of learned skills successfully, they may have difficulties transferring the skills to another situation. (p. 86)

Dr. Ivar Lovaas (1987) led a groundbreaking study that was conducted from 1970 to 1984 at the University of California-Los Angeles (UCLA). The Young Autism Project was a behavioral intervention study that was conducted on young autistic children in a preschool setting for over two years. Children below the age of four were selected because it was assumed that it would be easier to mainstream the children into preschool as opposed to an older child in a primary placement. Younger children were also selected because it was expected that they would be less likely to discriminate between environments and therefore would most likely generalize and maintain any treatment gains. The subjects were assigned to two groups: a

demanding treatment experimental group of 19 children who received more than 40 hours of one-to-one treatment per week, including the use of systematic aversion, and a minimal-treatment control group of 19 children who received 10 hours or less of one-to-one treatment per week in a variety of treatments at community-based programs. A second control group of 21 autistic children from the same referring agency who had not referred for treatment was employed to guard against the possibility that subjects who had been referred for treatment consisted of a subgroup with favorable or unfavorable outcomes. Parents of the children in the experimental group were trained in the treatment procedures so that parents could expose their children to the intervention for almost all of their waking hours. Further, high rates of aggressive or self-stimulating behaviors that were displayed by the experimental group students were reduced by using methods such as "time-out," ignoring, providing a more socially acceptable behavior alternative, a loud "no" or, as a last resort, a slap on the thigh. Conditional physical aversions (such as the slap) were not used in the control group due to inadequate staffing. The first year of the study involved the implementation of reinforcement (operative) theory, with intervention goals of reducing self-stimulating behaviors, gaining compliance to elementary verbal requests, teaching imitation, establishing the beginning of appropriate toy play, and extending the treatments into the family environment. The second year focused on the teaching of expressive language, early abstract language, and interactive play with peers for extension into a preschool group. The focal point of the third year emphasized teaching appropriate and varied expression of emotions, pre-academic tasks, and observational learning (learning by watching peers learn).

The study resulted in IQ scores of the experimental group that were significantly higher than those of the two control groups at the time of their educational placements. The IQ scores

of the two control groups were not significantly different at either intake or follow-up. Of the 19 subjects in the experimental group, nine children (47%) were able to successfully complete their first grade in a regular first grade, public school classroom, and they obtained an average or above average score on IQ tests. Eight children (42%) completed first grade in classrooms for children with aphasia and obtained a mean IQ score within the mildly retarded range of intellectual functioning. Only two children (10%) were placed in classes for autistic/retarded children and scored in the profoundly retarded range. Increases in the subjects' levels of intellectual functioning after the three years of treatment were considered significant. The experimental group gained an average of 30 IQ points over the control group subjects. The number of subjects who scored within the normal range of intellectual functioning increased from two to 12, and the number of subjects in the moderate to severe range of intellectual retardation dropped from 10 to 3.

The study (Lovaas, 1987), which began in 1970, followed the subjects and reported that, as of 1986, the accomplishments of the experimental group remained constant. There were however, two children who had been reclassified. One 18-year-old student was moved from the aphasia to the regular classroom after the sixth grade. The other 13-year-old child was moved from the aphasia to an autistic/retarded class assignment. The mental age and the IQ scores of the participants in the two control groups remained unchanged for the most part. There was one subject that achieved normal functioning as evidenced by an IQ score of 99 and was placed in a regular first grade classroom. Additionally, 18 students with a mean IQ of 70 were placed in a class for students with aphasia and 21subjects were placed in a class for students who are autistic/retarded and have a mean IQ of 40.

There were many criticisms leveled at the UCLA Young Autism Project including the

fact that the program incorporated the use of aversions, a protocol not typically accepted in many communities. Of the children who participated in the study, approximately half of those students showed significant gains, which researchers cited as a need to identify predictors to assist in the determination of which students would benefit from the treatment. The group was also criticized for using the term "recovered" to describe the outcome of many of the students who had achieved an IQ score in the average range and were placed in the regular classroom setting. Lastly, it was suggested that the resources available at the level of a university the size of UCLA would be difficult for many researchers to obtain, a fact that could influence the size and scope of replicated studies.

The Wisconsin Project, a study designed by Sallow and Grauper (2005) to replicate the Lovass UCLA research, examined three significant questions: (a) Can a community-based program be conducted without the use of aversions and achieve similar results without the capital of a large research university?, (b) Do the residual symptoms of autism remain among the children who achieved average post treatment scores? and (c) What are the pretreatment variables that can accurately predict outcomes? The participants in this study included children who were selected through local early childhood special education programs. Eligibility requirements for the children included: (a) the age of intake be between 24 and 42 months of age, (b) a Mental Development Index (MDI) of 35 or higher, (c) neurologically within "normal" limits as indicated by a pediatric neurologist, and (d) a diagnosis of autism by an independent child psychiatrist who was recognized for his/her knowledge of and experience and familiarity with autism. Three treatment groups were established: (a) 13 children participating in 1996, (b) 11 children in 1997, and (c) 14 children in 1998–1999. The children were matched according to their pre-treatment IQ and then randomly assigned to the three groups by a UCLA statistician.

The intervention provided to the groups replicated Lovass' intensive behavioral treatment and the less intensive parent-directed treatment.

The results indicated that the Wisconsin Project was successful in implementing the UCLA study in a clinical setting outside of a university and without the use of aversions. After two to four years of treatment, 48% or 11 of the 23 children in the clinic-directed group achieved a Full Scale IQ in the average range. Increases in IQ scores from 55 to 104 were noted by the researchers. Other significant increases comparable to the UCLA study were indicated in language acquisition and adaptive behavior. These 11 children, defined as "rapid learners" by age seven were successful learners in the first or second grade classrooms. Children in the parent-directed group performed about as well as the clinic-directed group. The authors noted that the parents appeared to take on senior therapist roles, advocating for their child. At times, the parents were observed making decisions which resulted in their child making progress in a slower manner than expected. However, as this occurred and frustration ensued, the parents sought input from the treatment supervisors and quickly made adjustments and avoided repeating the same mistakes.

The authors of the Wisconsin project (Sallows & Grauper, 2005), in discussing implications for further study, recommended additional investigation of parental involvement. The ratings of parental involvement suggested a need to increase the participating parents' feelings of being qualified to contribute to treatment planning. The authors also note a positive relationship between children's acquisition of social skills and the amount of time spent with peers in supervised play. Lastly, while the hours of treatment provided in the Wisconsin Project closely resembled the UCLA study, the hours of intensive supervision were found to be insufficient to make up for the lower levels of pretreatment skills. Children who did not acquire

language by three years of age and whose IQ scores were below 44 were accurately predicted to make limited progress. The authors planned follow-up for all of the children who participated to determine outcomes in adolescent and adulthood.

Discrete trial training (DTT).

Discrete Trial Training is based on the theory of ABA therapy and is now used in many educational and therapeutic setting for young children with autism. The basic tenets of DTT include one-to-one intervention, precise, succinct instructions, planned prompts and fading of prompts, and instantaneous praise for correct responses. When incorporating the discrete trial methodology, teachers use a single cycle of a behaviorally-based instruction routine, meaning that the task is introduced in small steps until the task is mastered. Mastery of a skill may be achieved after a particular trial has been repeated several times in succession, either several times a day or over several days. Skokut, Robinson, Openden, & Jimerson (2008), describe four parts of discrete trial, with an optional fifth. The first stage consists of establishing a teaching relationship, involving the teacher using one-step instructions to reduce inappropriate behaviors. The second stage is defined as teaching foundational skills, using the discrete trial method to teach academic and life skills. This includes matching and identifying objects, mimicking actions, appropriate play skills and following and discriminating between given directions. The third stage involves communication intervention. Expressive language skills such as verbal imitation, identifying actions, objects and pictures are addressed. The last two stages continue to support the building of communication skills. The fourth and fifth stages focus on expanding communication by supporting and encouraging verbal peer interaction while focusing on turn-taking conversations.

Project TEACCH.

TEACCH (**T**reatment and **E**ducation of **A**utistic and **C**ommunication related handicapped **Ch**ildren) is a division of the Department of Psychiatry in the School of Medicine at the University of North Carolina-Chapel Hill. The program began through a federally-funded research grant and was expanded in 1972. The TEACCH model is a method of educating children diagnosed with ASD in the classroom. The focus of the model is to teach the child to function fully in the classroom as a child with autism, rather than attempting to cure or recover from autism. The curriculum for the TEACCH model is very inclusive as it addresses specific areas of concern for the student. Harris and Handleman (2006) have written extensively about the program and indicate:

> Programs for children with autism usually follow developmental or a behavioral curriculum and these may sometimes be blended. The developmental curriculum offers a standardized framework for constructing individualized educational programs. Specialized behavioral curricula are designed to consider the learning characteristics for the child with autism, usually highlighting one particular area, such as communication. (p. 11)

Mattson and Minshawi (2006) reported seven guiding principles of the TEACCH model: (a) provide educationally-oriented skill training so that the child can adapt to the environment; (b) include the parents in the training so that there is generalization across the home and school; (c) use continuous assessment when developing individualized educational programs; (d) promote a highly structured environment; (e) emphasize skill acquisition; (f) adhere to a cognitive behavior therapy treatment model; and (g) use cross-disciplinary training.

Lord, Bristol, and Schopler (1993) state that the TEACCH approach recognizes that

every child differs in the rate and nature of developmental areas across skill levels. For example, a child diagnosed with ASD may have language skills far below that of his same age peers, but display age-appropriate motor skills. This model contends that the instructional planning must take into account these differences. The second important feature of the TEACCH paradigm involves the family. This model recognizes the importance of the family's environment and how it supports the needs of the child. The developed program may include goals and objectives for the child as well as for family members. Lastly, this model emphasizes that there is a direct relationship between assessment and intervention. Formal testing, observations, and data collection from parents and teachers is valued. These data are essential in developing the child's intervention plan, which is based on what the child is able to do in daily life circumstances.

In a study conducted by Ozonoff and Cathcart (1998), 22 children diagnosed with ASD were selected to participate in a study of the TEACCH model. The children who attended a day program were randomly selected to participate in either the experimental group, which received TEACCH-based home programming, or the control group that did not. All participants were tested pre and post intervention with the Psychoeducational Profile-Revised (PEP-R). The home visit component lasted 10 weeks and consisted of a weekly, one-hour parent-therapist visit. The home visit included one therapist who worked directly with the child, focusing on communication and instructional skills. During this period, a second therapist, working behind a one-way mirror with the parent, discussed the training. Additionally, a therapist visited the home at least once to observe the parent and child engaged in the teaching. The control group did not receive any home treatment intervention. According to the authors, the treatment group improved significantly compared to the control group in the areas of imitation, fine and gross motor and nonverbal conceptual skills. The results indicate that the home visit component is

effective in promoting the progress of the child with ASD.

Team-based models.

Consumer Advocacy Model.

In his article on effective instruction in the autistic classroom, Tincani (2007) states that intervention choices for children with ASD have been influenced by the Consumer Advocacy Model, also referred to as CAM. The focus of the advocacy group is to provide parents and school staff with expert information so that, as a team, they can make informed decisions. However, Tincani is very clear that when parents and professionals are seeking evidence-based practices, using the Consumer Advocacy Model as the single strategy to guide the intervention can create problems. Because the philosophies and values of the decision makers can result in the choice of this intervention model, which can also suggest that the teachers' and parents' choices lack a framework for the intervention. In addition, the team must take into account how the intervention will be compatible with: (a) current reform programs in the school, (b) legal mandates of IDEIA, (c) the ability of the staff to implement the strategies with reliability, and (d) the resources available.

Contextual fit model.

Contextual fit is a team-based intervention approach in which the team members, including the parents, collaborate on identification of the students' targeted behaviors, assessment and intervention as well as the implementation of the strategies in and outside of the classroom environment. Tincani (2007) notes that a number of variables can result in the failure of an otherwise effective intervention when they are used in a public school setting. A major problem with this model is the lack of expertise of teachers and paraprofessionals in implementing highly specialized program, without the necessary supervision and training to

ensure success. In addition, the author notes that if teachers are preoccupied with other district-mandated curriculum and testing and administrators are unable to provide the necessary resources, the intervention will not yield desired results.

Preparing Preschool Teachers for the Inclusion Classroom

When defining the inclusive classroom, Odom (2000) states "An inclusive setting refers to the full-time placement of children with disabilities in a classroom with typically developing peers. Within the inclusive setting, children with disabilities are participating in the same activities and routines as typically developing children" (p. 594). According to Hansen and Gable (2007), until the 1990's many states did not require teachers of preschool children to acquire pre-service or higher education. However, the need for teachers who are equipped with the knowledge, abilities, and skills necessary to teach the young child with autism is rapidly increasing. Additionally, Crisman (2008) asserts the following:

> Teachers and paraprofessional selection is critical for the success of students with autism, especially the selection of the special education teacher. This must be someone who has a passion for working with these students because the physical, emotional, and professional demands can sometimes be overwhelming. Special education teachers are required to be advocates for students with autism at all times. (p. 30)

There have been important changes in federal and state legislation, including the IDEA, and parent advocacy has resulted in the need for qualified, well trained pre-school teachers. Wall (2004) expressed, "The levels of training, expertise, knowledge and skills of the practitioners are more important than the physical nature of the setting or whether it is a mainstream or special setting" (p. 138).

In a study by Sluss (1999), three school-based early childhood teacher preparation

programs were examined. The study included university faculty who were involved in each teacher preparation program and public school teachers who were working in each school site. All three programs included: (a) the physical housing of the teacher preparation program at school sites, (b) the focus on preparing early childhood teachers, and (c) the inclusion of professional development and practical experiences at the sites. In-depth interviews of both faculty and teachers were conducted. Interviews focused on teachers' personal and professional experiences as related to their preparation for teaching in the early childhood environment.

The results of the study indicated that both university faculty and the public school teachers realized that their roles in teacher preparation were complex and demanding but constructive. University professors indicated that the preparation programs, which were conducted as school-based programs, were unlike conventional campus-based programs. Faculty members shared that they felt connected to the teaching practice and understood how objectives did or did not relate to teachers' needs or concentration. As a result, the over-all perception from both the academic teacher worlds was that the resulting collaboration, while at times difficult, was extremely valuable and provided them with a better insight into the needs of the classroom teacher. The complexity of the collaboration involved both the cultural and organizational differences in the university and school environments. One major barrier to true and meaningful collaboration involved the issue of time. From the classroom teachers' standpoint, there was a transformation in how they viewed their responsibilities. Sentiments shared by one interviewed teacher included the feeling that the teachers played a significant role in the preparation of the new teachers participating in the programs. In addition, because they were experienced teachers, they were best able to share their experiences with novice teachers.

An interesting outcome of this study was the revelation that the majority of the university

faculty members felt that early childhood teacher education programs should be available as a post-baccalaureate degree. The suggestion was that those candidates interested in teaching in the early childhood arena should first earn a degree in a content area and then pursue additional training. No teacher involved in this study agreed with the idea of a five-year program. The university members also felt that the pre-service teachers should receive additional training in child development in the university environment. The teachers, however, generally disagreed with this proposal. While the teachers agreed that the pre-service teachers should have a strong foundation in child development, they felt that could realistically be achieved in a high quality, four-year program that balanced the theory with the practice. This idea is further supported in an article written by Grossman and Williston (2002) who state:

> Pre-student teaching experiences are not always designed to complement academic preparation for the early childhood student, nor do they always add an important dimension to the educational process. While the academic setting emphasizes students' acquisition of knowledge and cognitive growth, the early childhood setting should emphasize the direct application for students' knowledge through supervision by competent classroom teachers. (p. 103)

There are numerous approaches designed to help the pre-service teacher prepare for the early childhood classroom. Grossman and Williston (2002) cite modeling, observing teachers in action, discussing scenarios, direct instruction, reading professional journals, writing practices and supervised practice in the classroom as important strategies for student teacher success.

Teacher preparation for the child with ASD.

The prevalence of increased diagnosis has become a key matter of interest for public school systems. For these students to be successful learners, it is imperative that they have the

opportunity to experience an effective early intervention program. Because many of these students will receive the majority of their education in the public school setting, teachers, paraprofessionals, specialists and administrators must be provided training that is evidence-based as best practice for the young child with autism.

With the increased frequency of children being diagnosed on the autism spectrum, public school systems as well as universities recognize the importance of teacher preparedness. The University of North Carolina at Chapel Hill recently received an $8 million grant to conduct research on preschool programs for children with autism, as well as develop a professional development center. The goal of the research project is to produce more teachers who are effectively trained to teach this population of students. Of the grant, $3 million is projected for the Frank Porter Graham Child Development Institute in order to research specific teaching methods. The other five million dollars will establish a professional development center designed to create nationwide teaching modules (Samuels, 2007). The function of the professional development program will be to provide a method of sharing effective practices and as well as to offer teachers access to existing resources.

The service delivery model for the child with ASD is as complicated as the disorder itself. There are many factors that can impact the chosen instructional model or treatment of ASD, including the diversity of the disability itself which can impact choices made. There is also a common strand that parents, teachers, administrators, therapists and paraprofessionals must agree on the program to be implemented. In an article written by Tincani (2007), he states that "Teachers and paraprofessionals often lack the training necessary to implement a specialized approach without considerable support from related service providers or consultants. Without support, evidence based interventions are unlikely to be implemented as intended" (p. 47).

Persons diagnosed with autism can fall within a wide range of abilities, from severe impairment to the possession of high intellectual skills. Because of this wide range of abilities, there is controversy in the selection of methods and strategies that have not been validated. Simpson (2005) states:

> Parents and professionals connected to children and youth with ASD have been singularly and exceptionally prominent in their willingness to consider and advocate use of unproven and controversial interventions and treatments, including strategies and methodologies that supposedly lead to attainment of skills, knowledge, and progress that are well beyond those characteristically found with established effective-practice methods. (p. 141)

In many cases, autism has been labeled an enigmatic disability with no clear explanation or common, unanimous form of treatment. The problem is further complicated because certain skills are lacking in the child with ASD such as communication and social development. As in most educational environments, communication and appropriate social skills are vital to the success of the child. Therefore, it is of the utmost importance to ensure that the administrators, teachers and teacher assistants are committed to the successful functioning of the student within the inclusion classroom.

An inclusive setting refers to the full-time placement of children with disabilities in a classroom with typically developing peers. Within the inclusive setting, children with disabilities are participating in the same activities and routines as typically developing children (Odom, 2000). In an article on inclusive programming for the child with autism, Crisman (2008) states "A program for students with autism cannot be successful without continuous professional learning. All staff members must be trained" (p. 30). Crisman acknowledges that there are

many factors that support a collaborative effort in teaching this population. Peer support is essential to the success of the autistic child and is equally beneficial to the peer. Children learn the value of diversity and they gain the capacity of compassion. The team approach is also imperative to the success of the integrated program. Teachers, administrators, paraprofessionals, therapists, parents, and other school staff influence the success or failure of a program. Additionally, behavior plans that focus on motivators and positive interventions are vital to the instructional program. Leatherman (2007) contends that there are several significant factors that can impact the success of the inclusive preschool classroom, as well as affect how teachers perceive their classroom. These factors include: (a) the availability of support services including the accessibility of therapists and other peers, (b) materials and physical space, (c) administrative support, (d) adequate staff, (e) program policies, and (f) teacher attitudes toward children with disabilities.

In a study conducted by Leatherman (2007), eight teachers in an inclusive preschool setting participated in a two-phase study. The first phase involved the teachers being interviewed to gain information on their perceptions of the inclusive classroom. The second phase included a different set of teachers and compared and contrasted the pre-service and in-service teachers' attitudes towards inclusion. The author's report on the second phase of her research is relevant to this study. The participants were either teachers in the university or community college early childhood program, or in a pre-kindergarten classroom of the state's public school system. All participating teachers: (a) taught for at least one year in an inclusive classroom, but did not have a formal degree in special education, (b) expressed positive feeling towards the idea of teaching young children with disabilities, and (c) expressed they had positive experiences in the inclusive classroom. Leatherman's study design was based on a social

constructivist theory. Kroll, (2204) states "Constructivism, or constructivist theories, represent a multiplicity of ways to think about learning and development, and consequently about teaching" (p. 200).

This Leatherman (2007) study was designed to address those teachers who had expressed positive views about the inclusive classroom. The report wanted to focus on analyzing the positive outlook of the inclusive classroom so that teachers and administrators could see the significance of the inclusive classroom. The researcher used open-ended interviews in order to gain insight into the teachers' inclusive classroom environment. The design focused on gaining the participants' perceptions of inclusion, as well as the factors and resources that impact the inclusive classroom. Each case was analyzed and categorized by themes or patterns. The research questions were: (a) How does the teacher perceive her inclusive classroom? and (b) What are the factors or resources associated with a successful inclusive classroom from the teachers' point of view?

Five themes, all supported by the teacher interviews, emerged from the interview material The first theme revealed that the teachers felt that the inclusive classroom was the best place not only for all children to learn, but for the teachers as well. The participants indicated that they believed that they grew professionally and became better teachers. The second theme focused on the need for professional development. Since the inclusive classroom typically accommodates children with a wide range of disabilities, the participants felt they needed training and additional education that was direct and specific to the special needs population. For the third theme, teachers indicated that inclusive classrooms must provide positive experiences that foster success for the students. The fourth theme focused on teachers' need for support from administrators and peers. The fifth theme indicated teacher support of the creation of inclusive classrooms. The

author found that the majority of the participants in this study credit the success of the inclusion program to their personal positive attitudes about working with the special needs population. In conclusion, the study found that when teachers have a positive attitude towards inclusion, the classroom environment is conducive to all children.

Recent legislative reforms such as NCLB, the legal mandates of IDEIA, and the LRE provisions have required school systems to identify effective strategies for teaching children with disabilities, including autism. Many of these provisions support inclusive practices. Loiacono and Allen, (2008) acknowledge that there is a current trend in special education that supports inclusive education. They state:

> Parents of children with autism, whose children are placed by their respective committees on special education in district based inclusive and self-contained classrooms, are asking (upon advisement from the National Institute of Mental Health) if special educators have received the necessary training and experience to successfully work with children and adolescents with autism. (p. 121)

It is important that when developing the IEP of a child with autism, the committee which typically includes the general education teacher, special education teacher, administrator, specialists, and parents is able to come to agreement on the IEP content. It is not however, uncommon that differing philosophies, ideas, and resources impact the development of the IEP.

When preparing teachers to provide effective instruction to preschoolers with autism, it is vital that the professional development be specific and consistent as indicated in the study conducted by Lerman, Vorndran, Addison, and Kuhn (2004). In their study, the authors' purpose was to evaluate whether teachers could learn multiple strategies in a short amount of time, acquire certain skills more rapidly than others, and select one prompting strategy over

another when free to choose. The study included four teachers and six preschoolers diagnosed with autism who were enrolled in an early intervention summer program.

Prior to the instruction of the preschoolers, the teachers participated in sessions designed to teach specific skills which had been the focus of extensive studies of children with developmental disabilities. The skills included those used in preference assessment, direct teaching, and incidental teaching. The teachers were also able to choose from numerous procedures taught to them when they were working with their students in the classroom environment. Teacher behavior data were collected during role-play sessions, followed by lectures and the evaluation of the teacher's performance. Post-instruction observations were obtained after the teachers completed the workshops and were paired with a preschooler who was attending the summer program.

Three times a week, the pairs were observed. The teachers were provided a list of target behaviors, tasks, and materials specifically selected for each child and were asked to perform a specific skill such as direct teaching with most-to-least prompting (but could select the task, materials and target behavior). This allowed the researchers to determine if the teacher maintained the skills during the direct teaching phase and to examine the teacher's choice of prompting techniques in the absence of feedback.

Lastly, the generalization phase was implemented to evaluate the teachers' skills across several children and tasks. Three of the teachers worked with a different child who was enrolled in the summer program. The results of the study indicated that during baseline role-play for the preference assessments, the teachers implemented less than 65% of the steps accurately. The researchers noted three limitations of this study including: (a) the combination of numerous strategies were merged into each assessment condition to increase performance improvements, (b) strategies that support skill-acquisition programs were excluded, and (c) the effectiveness of prompts was not

evaluated for skills that showed an improvement under reinforcement conditions.

Teaching the preschooler with autism.

The common strand in the literature reviewed indicates that children with autism learn in atypical manners, which leads to instructional approaches that may or may not be considered "best practices." In addition, teachers may feel the need to veer away from conventional strategies and develop methods that are as individual as the child. In a 2006 article, Tutt et al. state:

> Just because a child presents in a way that challenges conventional pedagogical wisdom and just because some things seem to 'work' where others do not, teachers should not be distracted from basic principles of education that transcend mere matters of teaching procedure (p. 70).

Zager and Shamow (2005) state that when teaching the child with ASD, attention to the following is important for the success of the child: (a) a trans-disciplinary team approach in the delivery of the education program is necessary; (b) intensive, continuous early intervention is vital in order to develop crucial language and social skills; (c) the opportunity for inclusive learning environments is important to the development and success of the child with ASD; (d) instruction that is provided in the natural environment that the student will ultimately function in is important while also providing access to intensive programming as needed; and (e) applied behavior analysis (ABA) principals should be systematically utilized.

The Early Social Interaction Project.

The Early Social Interaction (ESI) Project was an intervention endeavor designed for the young child at risk for ASD and their families. The study recruited children who participated in the First Words Project, an ongoing longitudinal, prospective study that screens a general

population sample of children under age 2 years to identify children at risk for ASD and other communication problems. The project focus was a family centered natural environment approach. Other major components of this study included (a) routine-based intervention, (b) individualized curriculum, and (c) parent-implemented intervention. The effects of an ESI parent-implementation intervention on social communication were investigated on a group of two-year olds with ASD who participated for one year. The study also measured the difference between social communication and language stages between the ESI participants and a contrast group of toddlers who enrolled in an early intervention program at three years of age and who were suspected of having ASD. The ESI model was designed to individualize social communication goals, identify family routines for targeted goals, monitor the progress of the child, and teach and support the parents in order to effectively implement the intervention. Home visits were a vital part of the project. While visiting the home environment, the specialists were able to conduct training in precise locations of the home as determined by the specific goals of the child's plan. This process also allowed for the important component of routines, which when in the home environment, was realistic in the program design and execution. Therapists used objects, toys, and materials that were familiar or customary to the child, which further sustained the goal of following the child's routine. As stated earlier, the naturalistic intervention strategies were a key component to this study. Social communication goals were introduced to parents using this method of delivery. Parents were taught to encourage their child to imitate social communication using a variety of strategies including but not limited to turn taking, waiting, modeling, natural reinforcers and time delay.

Participants of the program included a total of 12 parent-child groups that integrated children with typical development and those with a developmental delay. The environment in

which the children interacted was a typical preschool setting. The routine of the day was organized around an opening activity, book time and new play centers each week. While the playgroup offered parents the opportunity to see how their child reacted in such an environment, it also provided additional support by the interventionists. This included handouts that described topics and information that the parents could use to support the peer interaction of their child. Individual support, such as coaching, responses to questions and modeling, was also made available.

Regarding the study's first research question that addressed pretest to posttest gains, the results revealed significant within-group differences with large effect sizes for 11 of the 13 social communication measures. The second question focused on the between-group differences in measures of social communication. In the three social signals measures, the rate of communication measure, and the three communication functions and understanding measures, the ESI group performed significantly better than the contrast group. The third research question addressed whether there were group differences in measures of social communication between the ESI group prior to receiving ESI and the third year contrast group. The third year contrast group scored significantly better with large effect sizes on all three measures of communicative means and on actions to others in play. The researchers also compared the results of the third year contrast against the ESI group prior to receiving ESI services. They found that the ESI group performed better on pretend play actions and communicative function, which may imply that maturation, has an effect as these two skills, which are frequently the basis of an early intervention program. There was no statistically significant difference between the third year contrast group and the ESI group pre-ESI on the three levels of social signals, rate of communication, the three measures of communicative functions, understanding and inventory of

actions.

The last research question focused on whether there was a difference within and across the groups' measure of language stage. The data indicated that the percentage of children with verbal skills in the ESI group at pre- intervention increased from 5.9% to 76.5% at post intervention compared to the third year comparison group, which increased to only 55.6%. Therefore, this study indicated that the children who participated in this study and received early intervention services were more likely to acquire and maintain language and social skills than those who did not receive services. It also empowered the parents of the children with a range of strategies to support their child's acquisition of social communication skills. The findings of this study suggest that the ESI model may be a viable option for providing IDEA Part C early intervention services to the young child with ASD and their families.

The integrated preschool special needs classroom.

The literature in this review, including the works of Zager and Shamow (2005) and Lerman et al. (2004), consistently suggests that the integrated environment best serves the special needs child study. This assumption is further supported by prerequisites defined in IDEIA, which requires each state to ensure, to the greatest extent possible, early intervention services that are provided to children with disabilities in their natural environment with their normally developing peers. Additionally, there is ample support that the typically developing child benefits from the integrated classroom environment. Lenkowsky (2001) wrote:

> All the research to date shows that children without disabilities benefit just as much as children with special needs. Due to small classes, individualized attention, and specially trained, certified teachers and therapists, typical children also improve in their social, motor and language skills. (p. 38)

CHAPTER 3 RESEARCH METHODS AND PROCEDURES

This chapter describes the research methodology including the purpose of the study, research questions, methodological approaches, selection of the participants, instrumentation, and the process for data collection and analysis. A brief discussion of the theoretical framework is also included. The study is a program evaluation, which incorporates a mixed methods design using both qualitative and quantitative data. The qualitative data were gathered through interviews and document analysis, and the quantitative data consist of survey responses. The data were analyzed using analysis of variance or ANOVA, a statistical process for creating concurrent comparisons between two or more means. The ANOVA generated values that, when tested; determine whether a significant relation existed between the variables.

Purpose of the Study

The purpose of this study was to evaluate a district's professional development program designed to improve the knowledge, skills, and abilities of teachers in providing for the young child diagnosed on the autism spectrum or identified with a developmental delay that presented with autistic-like characteristics. In order to fully evaluate the program, it was necessary to assess the knowledge, skills and abilities of the teachers and to identify the information teachers needed to promote the development of preschoolers who had been identified as autistic or who presented with autistic characteristics. According to Gusky (2000), "Regardless of their theoretical orientation, curriculum developers and evaluators at all levels today generally recognize the importance of assessing participants' use of new knowledge and skills" (p. 180). School systems are responsible for providing teachers with professional development that is designed to add to the educator's body of knowledge in order to result in evidence of an increase in student achievement. It is an investment in time, money and resources from which

administrators expect a positive return.

In order to conduct the study, the researcher requested and received approval from the Virginia Polytechnic Institute and State University's Institutional Review Board (IRB). (See Appendices A and B.) The targeted school system also required a formal request in order to grant approval to conduct the research study. The researcher completed the Research Request Form from the targeted school system (Appendix C). This request was presented to the Associate Superintendent of Instruction for approval, according to the policy of the school system. A description of the study and its purpose, participants, length, methodology, communication of the results, and potential study report were included in the request.

Research Questions

The following research questions guided this study:

1. What are the primary characteristics, objectives, and standards of the professional development program being studied that is designed to provide pre-school special education teachers with the knowledge, skills and abilities necessary to meet the needs of children with autism or those children exhibiting autistic behaviors?
2. Do participants in the professional development program perceive that the professional development provided them with the knowledge, skills and abilities necessary to meet the needs of children with autism or those children exhibiting autistic behaviors? To what degree are perceptions affected by prior training and experience in the classroom?
3. To what degree do program descriptions align with teacher perceptions of the professional development?

Theoretical Framework

Provus' Discrepancy Model (Provus, 1969)provided the theoretical framework for this study of the evaluation of the quality and effectiveness of the professional development provided for teachers. This model of program evaluation allows the researcher to investigate the professional development program and assess whether its implementation is consistent with the program's design as well as to determine the teachers' perceptions of their level of knowledge, skills and abilities.

Malcolm Provus' Discrepancy Evaluation Model.

Provus (1969) viewed evaluation as the process of agreeing upon program standards, determining whether a discrepancy exists between the program and the standards governing that aspect of the program, and using discrepancy information to identify weaknesses of the program. His goal was to obtain sufficient information about the operation of new programs in order to make the necessary changes in the early stages of the planning of the programs. Provus believed in the importance of evaluation to systematically improve programs and ensure educational benefit and fidelity.

Provus explained:

> Ultimately, programs will improve only if teachers, administrators, and students in most of America's classrooms become involved in a comprehensive effort to review and improve their own work. Such an effort requires careful study by a school staff of their program operations, a detailed analysis of program inputs and processes, and the verification that the programs are in fact operating as people believe them to be operating. (1969, p. 1)

Provus developed the following equation to assess, implement, and make the necessary

changes in the program under study:

I (P) = O

In the equation, I equals the input (I), P is the process (P) and O is the outcome (O). Teachers, students and administrators are considered the input (I). Their interaction in the classroom was defined as the process (P). The result of the input and process equaled the outcome (O). This series of steps was referred to as the "IPO" technique. Provus suggested that the difference between the goal of the program and the outcome should be minimal. Further, Provus believed that the key intention of any program evaluation should be to understand better the relationships of its equation. When program evaluators have the information of what inputs, processes, and outcomes are involved, the program is better understood, defined, operational, and productive. For the purpose of this paper, the IPO technique was used to describe the staff program being evaluated.

For the purpose of this study, the Provus model for program evaluation was implemented. Provus considered discrepancies to be the essential clue in program evaluation as he explained "Discrepancies point out differences that exist between what program planners think is happening in the program and what's actually happening" (1969, p. 11). In his work, Provus stated,

> Evaluation at its simplest level may be seen as the comparison of performance against a standard. When evaluation is viewed as a process for program development, stabilization and assessment, as is the case of the Discrepancy Evaluation Model, there are five such relevant comparisons. (p. 9)

Each stage, performance, and standard is presented in the Table 1.

Table 1

Provus' Evaluation Stages

Stage	Performance	Standard
I	Program Design Input Dimension Process Dimension Output Dimension	Design Criteria
II	Program Operation	Program Design Input Dimension Process Dimension
III	Program Interim Products	Program Design Process Dimension Output Dimension
IV	Program Terminal Products	Program Design Output Dimension
V	Program Cost	Cost of Other Programs with Same Product

Provus deemed that at each stage, some indicator of performance is obtained which is compared with a standard that serves as the criterion of performance. In his research, Provus recommended that when discrepancies occur, either program performance or program design standards should be changed. The Provus Discrepancy Evaluation Model is a well-tested, commonly accepted, effective model to use in evaluating academic programs. For the purpose of this study, Provus' first three stages of his model were incorporated. The program terminal and cost analysis phases were omitted. In Stage IV of the Provus model, the standard refers to the terminal objectives of the program design. Its purpose in an evaluation is to assess whether the design of the program achieved its major objectives. Stage V refers to the program cost, which was not a component of the study. These two phases were omitted as they were not relevant to the research study. This model provided the researcher and, hopefully, the school division with valuable information and useful recommendations. The first three evaluation questions correspond to Provus' stages of evaluation.

Application of the discrepancy model to the present study.

Both qualitative data (program manager interviews and document review) and quantitative data (teacher surveys) are used in this study's application of the Provus' model. The relationship of study elements in the discrepancy model is displayed in Figure 1.

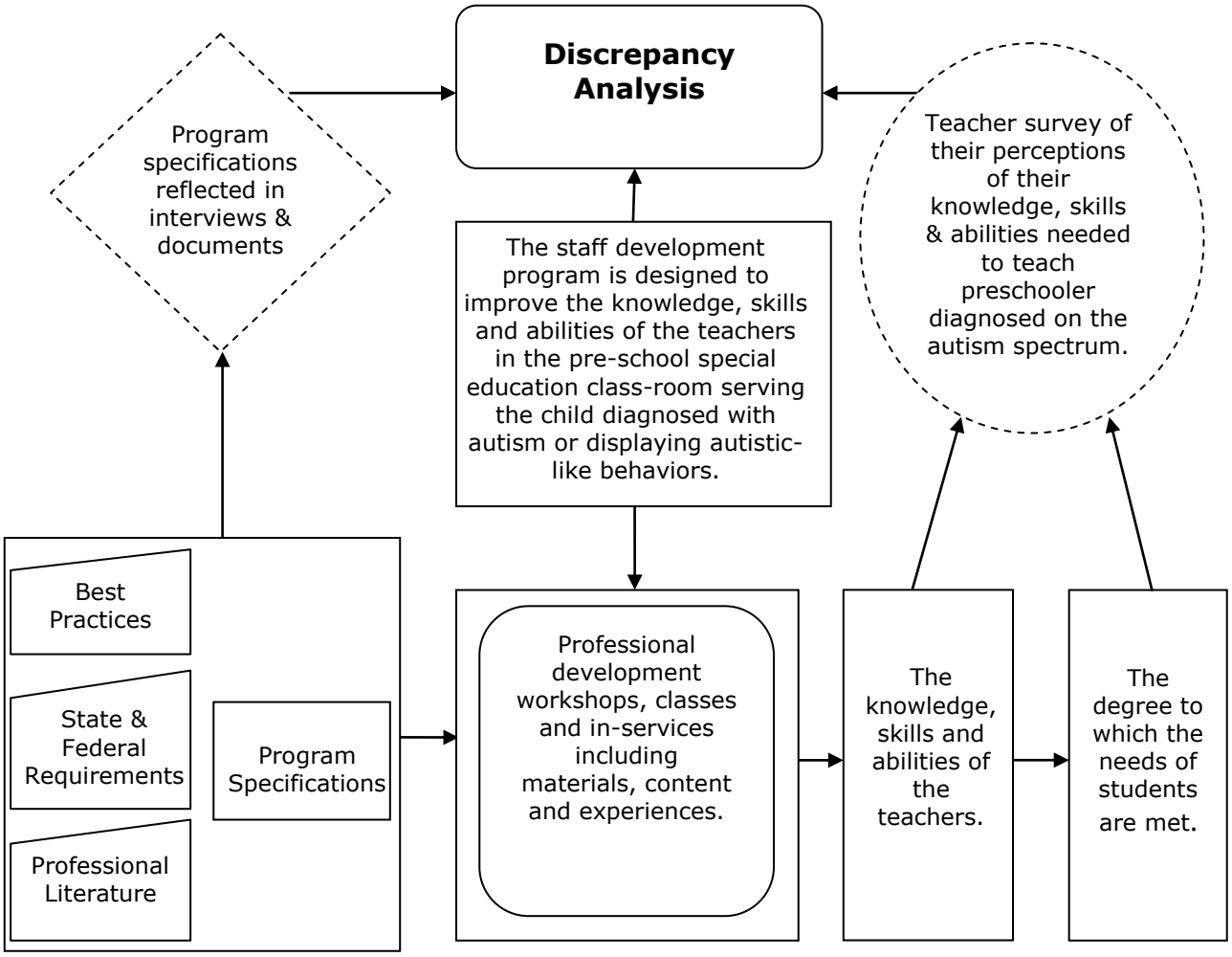

Figure 1 Overview of study framework

Data Collection and Analyses

Interviews and document review–Provus' Stage I program design and expectations.

The first research question addresses Provus' Stage I. The question is:

Research Question 1: What are the primary characteristics, objectives and standards of a professional development program designed to provide pre-school special education teachers with the knowledge, skills and abilities necessary to meet the needs of children with autism or those children exhibiting autistic behaviors?

Following Provus' Stage I, the researcher used data from the interviews and the analysis of documents obtained from the program managers in order to determine the primary characteristics, objectives, and standards of the program. The central office staff, including the Director of Special Education and the Preschool Special Education Coordinator, provided detailed information on the county's special education program, special education preschool program, and autism program.

Interview protocol.

The researcher submitted a letter formally requesting participation of the Director of Special Education and the Preschool Special Education Coordinator in the study. They were asked to respond to a set of interview questions during a semi-structured interview. Interview questions for the program managers are listed in Table 2.

Prior to the scheduled conferences with the administrators, the researcher provided each with a copy of the interview questions and requested permission to audio tape the interviews. The administrators were assured in writing that their answers would remain confidential. The purpose of audio taping the interview was to confirm accuracy of the answers provided. The interviews took place in the school division administrative buildings, at the convenience of all parties. Upon completion of the interviews, the researcher reviewed and transcribed the interview questions, answers, and comments. Copies of the interview results were made available to the administrators in order to validate their answers and ensure that the transcriptions

accurately reflected their responses.

Table 2

Program Manager Interview Questions

Interview Questions
What are the standards, goals and objectives of this program?
Please define the standards, goals and objectives in behavioral terms.
Are there financial implications that impact the professional development offered?
What state and federal mandates impact the professional development offered to the teachers?
What is the role of the principals whose schools' house the preschool program? (Program manager I only)
How do you see the role of the principals whose schools' house the preschool program? (Program manager II only)
What are the situations that the achievement of the objectives is apparent?
What are the program expectations or standards for educators who teach autistic children or the child who exhibits autistic like behaviors in the special education classroom?
How many children in the preschool program have been identified as autistic?
How many have been identified as having behaviors on the autistic spectrum? (Program manager I only)
Of the children in the preschool program, how many have been identified as having behaviors on the autistic spectrum?
How many children have graduated from the preschool program and been identified as autistic?
How many students are placed in a self-contained autistic class? (Program manager II only)
After reaching kindergarten age and no longer qualifying for preschool services, how many students are placed in a general education classroom with resource services? (Program manager II only)
What is the long-term success rate of students who are placed in the general education classroom?
Are teachers provided professional development specific to the needs of the autistic child?
Please describe the information provided. (Program manager II only)
Does the special education department provide professional development in the various therapies available for the child who presents with autistic characteristics?
What is the rate of teachers who remain as teachers of the preschool special education program?
Is there any further information that you would like to share?

The researcher also examined the professional development documents and workshops provided by the special education department to the preschool special education teachers. Additional documents supplied to the researcher by the Director of Special Education and the

Preschool Special Education Coordinator was reviewed. Documents included agendas and handouts from scheduled professional development workshops, a copy of the skill competencies from the Virginia Autism Council, Child Find referral and screening documents, as well as the Preschool Speech and Language Development Guidelines.

Following Provus' Stage I, the researcher obtained the design and standards of the professional development program through the interviews of the two program managers and the document review. The information provided: (a) a description of the special education preschool teachers, (b) the design of the professional development program, (c) the program goals, and (d) the processes necessary to meet the objectives of the preschool program. The interview questions focused on the intent of the administrators who designed the professional development program. During the interviews, the researcher probed the managers' expectations of the program as well as the standards for educators who teach young children diagnosed on the autism spectrum or exhibiting autistic behaviors in the early childhood special education (ECSE) classroom. This initial step in this study involved gaining information and insight from the program's administrative staff. The administrators also provided district documentation of the professional development course being evaluated in this study.

Analysis of Qualitative Data.

Strauss and Corbin (1998) noted that by using qualitative data, the researcher is able to better understand the meaning behind details and thought processes. Bogan and Biklen (1992) characterized qualitative data analysis as a method of, or process of, systematically arranging interview transcripts, notes, materials, and documents to strengthen understanding and allow for the management of what was revealed. Trochim (2001) stated: "Coding is nothing more than assigning some sort of short-hand designation to various aspects of your data so that you can

easily retrieve specific pieces of data" (p.164). He also added that coding is a method of sorting and categorizing qualitative data. In an attempt to assure that the data collected were valid, the researcher reviewed the data in an effort to discover any inconsistencies, for the purpose of achieving transferability, and to ensure the quality of the data. The researcher defined the specificity of the interview data and coded the information using words and phrases so that all information would remain intact and accessible. This process allowed the researcher the ability to analyze Stage I data. The analysis resulted in a concise list of specifications and expectations for the professional activities. This analysis was used to develop a survey of teachers' perceptions regarding professional development.

Teacher surveys–Provus' Stage II program operation.

The results of the teacher survey address the second research question.

Research Question 2: Do participants in the professional development program perceive that the professional development provided them with the knowledge, skills and abilities necessary to meet the needs of children with autism or those children exhibiting autistic behaviors? To what degree are perceptions affected by prior training and experience in the classroom?"

Stage II of this study focused on the professional development program operation. Essentially, this part of the study addressed what participants perceived to be the reality of the professional development program, i.e., did the training occur as designed and did it have the desired effect.

Survey methodology.

An anonymous survey, administered via the Internet, allowed teachers an opportunity to express their perceptions of the professional development program. Gay and Airasian (2000)

stated, "Quantitative description or survey research involves collecting data in order to answer questions about the current status of the subject or topic of study" (p. 11). The quantitative data (survey results) were designed to provide the researcher, as well as the central office and school-based administrators, with important information concerning the perceptions of their teaching staff regarding their professional development needs. The qualitative data provided an understanding of the overall purpose of the professional development program and created a framework regarding the preschool program's purpose, goals, standards and objectives. The survey results allowed the researcher to examine closely how the participants thought, felt, and reacted to the issue of preparedness for teaching in the preschool special education classroom. It was the expectation of the researcher that the participating administrators, teacher input, opinions, and ideas would provide valuable information and insight which would add to the body of knowledge regarding the special education program.

Description of survey sample.

The target audience for the survey was 30 special education preschool teachers who provided instruction to children who had been labeled autistic or who presented with autistic-like characteristics. The teachers were all employed in early childhood special education classrooms in a large Mid-Atlantic school district, in addition to the special education preschool classrooms attended by children with various disabilities, there were early childhood special education-autism (ECSE-A) programs housed in three elementary schools in the same district. The preschoolers who attended the ECSE-A program had been previously unsuccessful in the ECSE class and displayed more significant maladaptive behaviors that were consistent with children on the more severe end of the autism spectrum. Only teachers who were (a) currently teaching in a preschool special education classroom, and (b) had students in their classroom who presented

with autistic-like characteristics or were diagnosed on the autism spectrum were included in the study. An anonymous survey allowed teachers the opportunity to confidentially rate their perception of the professional development program and its effectiveness in their everyday classroom instruction.

Survey design.

According to Gay and Airasian (2000),

> Surveys are used in many fields, including political science, sociology, economic, and education. In education their most common use is for the collection of data by schools or about schools. Surveys conducted by schools are usually prompted by a need for certain kinds of information related to the instruction, facilities, or student population. (p. 277)

The researcher followed the survey development steps identified by the Rand Corporation (2000). The researcher defined the objective of the survey, included the population, the type of information accumulated, and the desired outcomes. The results of the two central office administrator interviews, the analysis of the professional development documents, and the results of the draft survey were all incorporated in the development of the teacher survey.

The initial step in developing the survey required the researcher to define what was to be measured, in this case, the teachers' perception of preparedness in instructing the autistic preschooler or those children exhibiting autistic-like behaviors in the special education preschool classroom. Prior to the survey administration, to validate the survey partially, two preschool teachers from the researchers' school took the draft survey and provided input and suggestions. One teacher was a probationary teacher (three years or less experience) and the other was a mid-career teacher (four to fifteen years experience).

The survey instrument itself was constructed using an interval level response format.

Trochim (2001) identified the interval level response format as one of the most common types of traditional 1–4 rating scales. The potential scale items were generated and the items were rated using a typical four level, bipolar Likert scale such as (a) little or none, (b) a slight improvement, (c) some improvement, (d) a great improvement. The survey began with a definition of the study and directions for completing the survey. It was anticipated that informing the teachers of the purpose of the survey would encourage their participation. The researcher included contact information in the case that a respondent had any questions concerning the completion of the survey. The researcher used an Internet survey format to obtain the teachers' perceptions and concerns related to their preparedness for instructing the preschooler who had been identified as autistic or had autistic-like behaviors in the special education preschool classroom. Additionally, Cronbach's Alpha was calculated for each scale to determine the reliability or internal constancy of each scale in the survey. The final survey is included in Appendix E.

Gaining access to teachers.

In accordance with the participating school systems' policy, the researcher followed the survey procedures defined by the school system. The request to conduct the survey was made to the research office by submitting the Survey/Test Request Form. In accordance to the procedures described by this department, the researcher submitted the survey request form. The details of the study were documented, including a clear description of the study, targeted participants, purpose of the study, length of the study, methodology, communication of results and potential subsequent reports. The researcher downloaded this form from the school system's webpage. The timeline for survey administration development, distribution, data collection, analysis, and reporting was negotiated with the research office. It was required that the draft

survey be submitted to the research office at least two weeks prior to its distribution. Once final approval from all parties had been obtained, the survey was administered.

Survey administration.

All gathered data, including the interview results from the two central office administrators, professional development materials, and the results of the sample survey were incorporated in the production of the teacher survey. The researcher used a web-based Content Management System available to the researcher as an employee of the school system. The researcher used the system to upload the survey as well as to download teacher responses. The researcher incorporated the use of the Internet to extend the survey to the identified teachers. The Rand Corporation (2000) further supported the use of the Internet:

> The Internet is profoundly changing the way we communicate with one another. One of the most recent new uses of the World Wide Web is as a survey platform. Internet-based surveys, although still in their infancy, are becoming increasingly popular because they are believed to be faster, better, cheaper, and easier to conduct than surveys that use more-traditional telephone or postal mail methods. (p. xiii).

Once approval had been granted from the IRB and the research department of the designated school system, the preschool teachers were contacted via the school division's email system. The 50 teachers who met study criteria were informed of the purpose of the study via the letter from the researcher requesting their participation (Appendix F). To ensure that all teachers had optimal opportunity to participate, the preschool teachers were invited to participate by way of the anonymous Internet survey. Hoonakker and Carayon (2009) stated "The large number of people connected to the Internet also means an enormous potential pool of survey respondents" (p. 349). Therefore, it was the assumption that the Internet would enable the

researcher to easily contact the selected teachers as well as conduct the survey more efficiently and effectively. Further, the decision to use the Internet was directly related to the fact that the target audience's e-mail addresses would be easily obtained through the Supervisor of Administrative Information Technology of the participating school system. In order to locate participating teachers, the researcher obtained a roster of the preschool teachers from the Preschool Special Education Coordinator and the email addresses of the selected teachers from the Supervisor of Administrative Information Technology. This allowed the research to ensure all eligible teachers had been selected and to cross check for authenticity. A letter of introduction along with the survey (Appendix E) was sent to the selected teachers. The researcher distributed the survey in accordance with the policies of the school system and the procedures approved by the IRB of Virginia Polytechnic Institute and State University. It was anticipated that the researcher would be able to collect all responses within a two-week period.

Triangulation–Provus' Stage III Discrepancy Analysis.

Provus' Stage III or the program interim product is addressed by the third research question.

Question 3: To what degree do program standards align with teacher perceptions of the professional development?

Participants had the opportunity to respond to this question since Survey items were designed to relate to the professional development offerings and aligned with the program descriptions provided during the administrator interviews.

For the purpose of this study, it was anticipated that the researcher would triangulate the various forms of data, including the interview material, document examination, and survey responses, thus increasing the credibility and validity of the results. Merriman (2002) stated that

triangulation occurs when researchers use multiple data collection methods. To analyze the data for discrepancies between the administrators' intentions and the teachers' perceptions, the focus of this phase of the study, the survey data were coded by the researcher for common themes. In order to analyze the survey data, the researcher first downloaded the survey data into an Excel file and then converted it into a format that could be read using the Statistical Package for the Social Sciences (SPSS) software package. Trochim (2001) indicated that descriptive statistics provides the researcher with simple summaries of samples and measures. Correlations between sample demographics (experience and prior training) and scaled responses to the survey were calculated.

Survey results could then be compared with the program expectations provided during the administrator interviews. In this way, the researcher would be able to identify discrepancies or differences that resulted from the analysis of the relationship between the program processes (expected program outcomes) and interim products (survey responses of participating teachers). The descriptive statistics assisted the researcher in summarizing the data.

Open-ended question

Gay and Airasian (2002) maintain "It is also desirable to include an open-ended question for respondents to provide additional information" (p. 283). Thus, an open-ended section was included in the survey so that the participants could feel free to provide additional information that they felt would positively impact the professional development offered. Participants were asked to consider the materials, content, and methods commonly provided. The purpose of this comment section was to allow teachers to identify specifically and individually what professional development activities assisted them in better serving this identified student population. While this last question was not a part of Provus' model, it added valuable information to this study.

The researcher analyzed this information using descriptive statistics.

The description and summarization of all collected data, including the interviews, expectations expressed by the program administrators, reviewed documents, salient elements of the program, identified variables, survey results, and open ended comments provided the researcher with valuable information. It was the hope of the researcher that the respondents would use this opportunity to provide honest, unprompted feedback. It is also hoped that discrepancies between the process (defined program) and products (survey results) will assist the central office administrators in determining necessary program changes. Chapter 4 includes the results of the analysis of the data described in this chapter.

CHAPTER 4 RESULTS

This chapter reports the findings of the study. The first section includes the interview results detailing the program managers' expectations of the professional development. For coding purposes, "Program Manager I" is the Director of Special Education and "Program Manager II" is the Preschool Special Education Coordinator. The researcher used coding in order to attribute quotes to the individual administrators. During the interviews, the researcher investigated the primary characteristics, objectives, and standards of a professional development program that was designed to provide preschool special education teachers with the knowledge, skills, and abilities necessary to meet the needs of children with autism and those exhibiting autistic behaviors. The second section of this chapter provides a detailed description of the teacher responses to a Likert questionnaire detailing their perceptions of the professional development. The last section of this chapter provides the results of the triangulation of the data to determine whether, and to what extent, discrepancies occurred between Stages I and II of the Provus model.

As stated in Chapter 3, the researcher used the Provus Model of Program Evaluation. In this study, the researcher evaluated the professional development offered to the teachers. The goal of this study was to determine whether a discrepancy existed, and to what degree, between administrators' expectations of the professional development provided and the teachers' perception of the professional development opportunities offered. Provus considered discrepancies to be the essential clue in program evaluation as he explained, "Discrepancies point out differences that exist between what program planners think is happening in the program and what's actually happening" (p. 11). The *I (P) =O* (I=input, P=process, O=outcome) equation, developed by Provus to assess, implement and make the necessary changes in the

program under study, was used by the researcher. In this study, the administrators' expectations are defined as the input (I), the teachers' responses to the professional development are defined as the process (P), and the survey results of the professional development are defined as the outcome (O). Provus suggested that ideally the difference between the goal of the program and the outcome should be minimal. In his research, Provus recommended that when discrepancies do occur, either program performance or program design standards need to be changed. For the purpose of this study, the researcher incorporated the first three stages of the Discrepancy Evaluation Model. Two other stages of the Provus Model, terminal and cost analyses, were not included in this study.

Expectations of the Professional Development

Findings of the interviews.

The researcher interviewed Program Managers I and II. As stated in Chapter 3, the interview questions focused on the expectations of these administrators who designed the professional development. Each shared their thoughts, expectations and standards of the professional development provided for the teachers of preschoolers who are on the autism spectrum or who exhibit autistic-like behaviors in the early childhood special education (ECSE) classroom.

This section addresses the first research question: What are the primary characteristics, objectives, and standards of a professional development program designed to provide preschool special education teachers with the knowledge, skills and abilities necessary to meet the needs of children with autism or those who exhibit autistic behaviors?

The interviews of the program managers clearly revealed that there are specific expectations of the professional development opportunities offered to teachers. During the

interview session, Program Manager I discussed that state and federal mandates were highly considered when developing the various activities. Program Manager I said:

> We cooperate with the state and federal mandates. We must know the appropriate as well as current and best practices in working with the child with ASD. We must engage in on-going professional development or we may miss the opportunity to meet the needs of some of our students. We continue to communicate to the staff that they must stay current with the best practices or they may miss an opportunity to learn a strategy that may benefit a child. There are state and federal competencies and standards that staff who work with the disabled child must meet. The Virginia Department of Education recently sent out the Early Education Competencies (2008). We then match what the students need, to the knowledge and abilities of our teachers when designing professional development opportunities. The challenge is finding candidates who understand the needs of the very young child. (Researcher's field notes, February 2010, page 2).

Program Manger I also discussed in detail the importance of providing professional development that focused on a variety of subject areas. Program Manager II said:

> The goal of the ECSE program is to identify and serve the preschool child with special needs, ages 2-5 yrs. Areas of delays can be in one or more of the developmental domains: cognitive, motor, communication, adaptive and social skills. The intent of the program is to provide support that results in less or no support once the child reaches kindergarten age. (Researcher's field notes, February 2010, page 1).

Further, Program Manager II said that the division offers workshops in ABA principles, Discrete Trial, PECS, and floor-time activities. Other professional development opportunities included sessions in using evaluation tools for assessing students. While both program managers

spoke of the importance of providing professional development that is focused on the needs of the ECSE teacher, Program Manager II spoke to the fact that many preschool special needs teachers come unprepared to serve this unique population. She said:

> There is no certification for autism required for the preschool teacher. The state needs to move towards that requirement. We do have a set of expectations. Unfortunately, many teachers do not have a lot of experience working with the child with autism. (Researcher's field notes, February 2010, page 2).

During both interviews, the program managers indicated that teachers who work with students on the autism spectrum also have an extended contract of four extra days for additional professional development. This professional development occurs two days before the school year begins and two days at the end of the school year and has been ongoing for five years. All first year preschool teachers are required to attend monthly meetings for professional development. Other teachers (contract, probationary, and special education consulting teachers) receive quarterly professional development sessions. Special education consulting teachers also work directly with the classroom teachers. Teachers are encouraged to take advantage of additional professional development offered in "My Learning Plan," the school division's web-based professional development catalog.

Key areas.

Five key areas of the professional development emerged from the interview sessions with program managers: communication, behavior, academic, self-help and social skills. During the interviews, the managers indicated that the main objective of the professional development was to provide professional development that would improve teachers' knowledge, skills, and abilities so that they could effectively instruct the preschool child diagnosed on the autism

spectrum or who presented with autistic like behaviors. To meet this objective, the administrators indicated they designed and provided professional development opportunities focused on five skill areas: communication skills, academic skills, behavior, self-help skills and social skills.

Communication skills.

Throughout both interviews, when the managers were asked to discuss expectations of the preschool special needs program, two or more of the skill areas mentioned were not necessarily exclusive of each other. For example, when discussing communications skills, Program Manager I referred to the TEACCH model, but also referred to the fact that the TEACCH model also addressed other skills. She stated:

> Our goal is to provide early intervention so that any identified deficits specifically concerning language, cognitive and social skills are attended to. For example, we support the TEACCH approach and ABA (Applied Behavior Analysis) that way, when a parent makes a request; the teachers have a framework of understanding. We have found through our set up, if we provide intense support for our students in the areas of communication and social skills, when they "age up" the level of intervention will begin to decrease. Again, the goal is to provide services for the students that will address their communication, social and cognitive skills. (Researcher's field notes, February, 2010, page 1).

Within the area of providing professional development that focused on instruction, Program Manager II concurred stating

> Communication is the main focus to ensure that the non-verbal child is identified, and effective mode of communication is planned. Behavior, the goal of course is to achieve

appropriate behaviors inside and outside of the classroom. Effective Behavior Intervention plans are developed that are implemented and hopefully not needed when the child is of kindergarten age. (Researcher's field notes, February 2010, page 1).

Specific to the area of communication, Program Manager II shared her thoughts about developing IEPs when she stated:

> The teachers are looking for goal mastery of each child's IEP as well as their ability to communicate wants and needs. The preschool child must be able to communicate with peers and teachers. Basic skills such as being able to name objects in the classroom or referring to peers by name are good communication skills, but also good social skills."

Cleary, the program managers concluded that they wanted teachers to have the skills necessary to teach effective communication skills and that they designed the professional development to reach that goal. (Researcher's field notes, February 2010, page 2).

Academic skills.

When asked to define the program objectives in behavioral terms, Program Manager I mentioned the need to provide professional development that addressed the cognitive skill level of the preschool student. Program Manager II mentioned several academic skill areas during the interview. She stated that:

> In order to be successful in the classroom, students need skills that create a strong academic foundation such as being able to identify colors and shapes as well as basic sight words. Classroom activities should include teaching students basic counting, number identification and letters recognition. Teachers need to know how to design lessons that focus on those skills. (Researcher's field notes, February 2010, page 2).

The professional development that was provided included a series of workshops offered by a local education foundation in partnership with the school division. Teachers attended the workshop, which incorporated kinesthetic movement in the early childhood class as a way to extend math skills in the areas of number sense, classification, geometry, measurement, and math reasoning. The second workshop was on puppet play, which focused on developing teacher skills for promoting literacy and language development.

Behavior skills.

Both administrators supported the goal of providing teachers the professional development designed to identify and improve appropriate behaviors of the preschool child. Program Manager I mentioned that, while improving communication skills was important, an equally important goal of the preschool program was to identify any deficits in the social skill area and provide the appropriate professional development opportunities to the teachers.

Program Manager II concurred saying, "The intent of the program is to provide support that results in less or no support once the child reaches kindergarten age." Lastly, while the aspiration may be for the child to exit from the total special needs program; in many cases, the least restrictive environment is more probable. Program Manager I discussed the importance of the preschooler being able to leave the special education program with the necessary tools to be successful. She stated, "I am pleased when the students who are in the most intense program are able to exit the program and go to a kindergarten setting or a program for students with mild disabilities, as opposed to the child going right into an autism program". In order to facilitate this, Program Manager II said:

> Five years ago I offered teachers the opportunity to take advantage of the Board Certified Behavior Analyst Certificate Program (BCBAC) at Penn State University. This

> is a 15-credit program for teachers who seek advanced knowledge in the field of applied behavior analysis. Teachers were interviewed and chosen to attend the program. The school division paid for this opportunity. (Researcher's field notes, February 2010, page 3).

Self-help skills.

Students displaying atypical behaviors in the preschool special needs classroom frequently present without the skills to care for their own personal needs. Program Manager II discussed the need for students to be able to independently feed, dress and maintain appropriate toileting skills. She said:

> We need to encourage independence in all areas, but most importantly in the self-help area. In many instances, our children come to us with little to no self-help skills. It is common that a child will need "potty training". Some children have feeding issues that require the teacher and Occupational Therapist to work together. Oral sensitivity, oral fixation and Pica are problems we address. Dressing skills are also an area of focus such as distinguishing between the front and back of clothing and buttoning. These skills will foster independence and allow the child to get dressed with little help. The goal is to transition the child into the kindergarten classroom; therefore, the child must be able to take care of his or her personal needs. Teachers must be trained in strategies to teach these skills because consistency is the key to the students' maintaining these important life skills. (Researcher's field notes, February 2010, page 2).

Social skills.

While students who are placed in the preschool special needs classroom typically have a myriad of cognitive and behavioral deficits, they also need intervention in the area of social skill

acquisition, particularly young children on the autism spectrum. In the interviews, both program managers said that preparing the student in the area of attaining appropriate social skills is an important life skill and is a priority of the professional development offerings. Program Manager II stated:

> The standard or criteria that we use as a measurement of success is to replace atypical behaviors with more developmentally appropriate or typical behaviors seen in like age children. The ability to transition from one activity to the next and coping skills are also important. (Researcher's field notes, February 2010, page 1).

Additionally, it was said that the lack of social skills many special needs preschoolers display, such as uncontrolled tantrums, can negatively affect their success.

Review of documents.

This section highlights findings related to the document review. The researcher also reviewed documents from prior professional development activities such as the session on completing the Antecedent Behavior and Consequence (ABC) observation. After completing this process, teachers were able to develop a Functional Behavioral Assessment, which justifies the reasons for implementing a Behavioral Intervention Plan (BIP). The BIP is employed in the home and classroom environment, with the goal of changing negative behavior.

In conjunction with the review of the professional development agendas and to gain a greater understanding of the content of the professional development and the information shared by the program managers, the researcher attended several professional development workshops offered by the school division. All preschool special needs teachers are required to attend the beginning of the school year in-services. First year teachers attended nine ECSE meetings throughout the school year. All other probationary and continuing contract teachers attended

quarterly meetings during the school year. The researcher attended two half-day ECSE workshops. The presenters included Program Manager II and several autism specialist teachers. The first workshop addressed data collection processes and the second focused on providing effective home visits. The researcher also attended a workshop on using effective intervention strategies, again, led by Program Manager II and several autism specialist teachers. The participants learned methods that assisted them in recognizing and addressing challenging behaviors. Strategies included planned ignoring, penny transfer, redirecting, time-in, and peer partnering. The researcher also attended an ECSE meeting. Activities included the writing of the ESCE Mission Statement, preschool assessments, and information regarding the National Association for the Education of Young Children conference.

Perceptions of the Teachers

Demographics of respondents

Teachers' perceptions regarding whether or not they received effective professional development in all five areas (i.e., the desired outcomes) were measured by a web-based survey. A total of 30 preschool teachers completed the survey. The majority of teachers indicated that they had participated in 10 hours or more of professional development. Table 3 displays the number of hours of professional development offered by the school division in which teachers reported they participated.

Table 3

Descriptive Statistics for Teachers' Hours of Professional Development

Hours of Professional Development	n	Percentage
5 hours or less	6	20.0
5–10 hours	4	13.3

Hours of Professional Development	n	Percentage
>10 hours	20	66.7
Total	30	100

Over 50% of the teachers reported they had taught either less than 5 years or more than 20 years at the time of the survey. Table 4 displays the total number of years of teaching reported by respondents.

Table 4

Descriptive Statistics for Teachers' Years Teaching

Number of Years Taught	n	Percentage
<5	8	26.67
5–10	5	16.67
10–15	5	16.67
15–20	4	13.33
> 20	8	26.67
Total	30	100.00

In response to the item on teaching preschoolers identified as having special needs, 40% of the teachers indicated they had taught identified preschoolers for more than ten years. Twenty percent indicated they had taught identified preschoolers for two to three years. The responses of the other 40% were spread unevenly across the other response categories. Table 5 displays the responses to the number of years of teaching preschoolers with special needs children.

Table 5

Descriptive Statistics for Teachers' Years of Teaching Identified Preschoolers

Years Taught in Special Education	n	Percentage
1	3	10.00
2–3	6	20.00
4–5	2	6.67
6–7	3	10.00
8–9	4	13.33
>10	12	40.00
Total	30	100.00

All 30 participating teachers indicated that they were either licensed in special education (SPED) or held a provisional license. Table 6 displays responses to this item.

Table 6

Descriptive Statistics for Teachers' Current Virginia Licensure Status

Licensure	n	Percentage
Provisional in SPED	5	16.67
Licensed in SPED	25	83.33
Not licensed in SPED	0	0.00
Total	30	100.00

The majority of teachers who participated in the survey indicated that they held a Masters Degree in Special Education. Two teachers held a certification in the Board Certified Behavior Analyst Certificate Program (BCBAC) and two held a degree or certification in "Other".

Table 7

Descriptive Statistics for Teachers' Degrees and Certifications

Certification	n	Percentage
B.S. in Elementary Education	5	16.67
M.Ed. in Special Education	18	60.00
M. Ed. in other areas	3	10.00
BCBAC*	2	6.67
Other	2	6.67
Total	30	100.00

* Board Certified Behavior Analyst Certificate Program

Key areas.

The survey was divided into five sections that paralleled the themes that were identified in the interviews with the program managers and the review of documents. Participating teachers rated their knowledge of the five areas (communication skills, academic skills, behavior, social skills and self-help skills) using the designed survey and rating the items on a 4–point scale, ranging from (1) *little or no impact* to (4) a *great impact* on their teaching. The survey is displayed in Appendix E.

A perceived positive impact on the level of improvement in teachers' ability to teach an item was defined as a mean score of 2.5, which was the mid-point on a 4 point scale. The results of the survey addressed the second research question: Do participants in the professional development program perceive that the professional development provided them with the knowledge, skills and abilities necessary to meet the needs of children with autism or those children exhibiting autistic behaviors? The results of the survey responses are discussed for each of the five key areas.

Communication skills.

The communication subscale items addressed the teachers' perceptions of their increased knowledge in teaching specific communications skills, specifically their ability to teach games, questions, colors, requests, prepositions, and story-telling. The item rated the highest (M= 2.93; SD=1.08) was the item regarding instruction when teaching questioning skills. The item rated the lowest (M=2.57: SD=1.16) was story telling. Overall, the communication skills scale, which consisted of 6 items, received a mean score of 2.76, indicating that the teachers believed that the professional development regarding communication skills had a positive impact on their teaching skills. Table 8 displays the means and standard deviations for each of the communication skills.

Table 8

Descriptive Statistics for Ratings of Increased Knowledge in Teaching Specific Communications Skills

Communication skills	Mean	Standard Deviation
Games	2.70	1.09
Questions	2.93	1.08
Colors	2.70	1.12
Requests	2.91	0.97
Prepositions	2.67	1.12
Story	2.57	1.16
Total Scale	2.76	1.00

Academic skills.

Teachers rated the professional development provided in teaching six specific academic skills, including counting, one to one correspondence, identifying numbers and names, identifying colors, shapes and objects. The item rated the highest (M= 2.67; SD=1.25) was teaching number identification. The item rated the lowest (M=2.30: SD=1.20) was teaching warning words. In the comment section, one teacher said, "Some of the skills listed on this

survey would not be appropriate for preschoolers, such as identify basic written warning words." A total mean scale score of 2.56 for this scale (with a standard deviation of 1.22) indicated that the overall professional development did create a positive impact on teachers' knowledge, skills and abilities in this area of instruction. Table 9 displays the means and standard deviations for each of the academic skills.

Table 9

Descriptive Statistics for Ratings of Increased Knowledge in Teaching Specific Academic Skills

Academic Skills	Mean	Standard Deviation
Counting	2.60	1.28
One to One	2.63	1.18
Co ID Numbers	2.67	1.25
ID Names	2.00	1.19
ID Colors	2.53	1.22
Warning	2.30	1.20
Total Scale	2.56	1.22

Behavior skills.

When analyzing the survey results in the area of behavior, teachers rated the impact of the professional development on their instruction when teaching preschoolers to make choices rated highest out of all areas of the survey (M= 3.23; SD=0.86). The lowest item was teaching preschoolers how to exhibit appropriate body posture (M= 2.27; SD=1.11). While teaching preschoolers to maintain eye contact received a score of 2.50, one teacher commented:

> Maintaining appropriate body posture and eye contact would usually not be addressed. We usually teach children with autism to look in the direction of the person they are talking to instead of using eye contact, since eye contact can be very distressing to these children. I'm not sure what you mean by appropriate body posture, if this is a sensory

need, we would address it with sensory integration activities. (Researcher's field notes, February 2010, page 2).

On the other hand, teaching preschoolers to make choices received the highest score of 3.23. Overall, results indicate a total means scale score of 2.73 (SD=1.03). The data indicated that teachers' perception of the professional development positively influenced their teaching practices. Table 10 displays the means and standard deviations for each of the behavior skills.

Table 10

Descriptive Statistics for Ratings of Increased Knowledge in Teaching Specific Behavior Skills

Behavior Skills	Mean	Standard Deviation
Requests	3.00	0.91
Play	2.63	1.03
Participate	2.83	1.02
Choice	3.23	0.86
Posture	2.27	1.11
Greet	2.70	1.14
Eye Contact	2.50	1.11
Safety	2.67	1.12
Total Scale	2.73	1.03

Self-help skills.

Teachers rated their perception of the professional development offered in the self-help area lowest of all assessed areas. The four items assessed included teaching dressing, toileting, feeding and requesting help, which all received a mean score of 2.10 or lower. Teachers rated the impact on their instruction when teaching feeding skills highest (M= 2.10; SD=.995). Teachers rated the professional development that focused on teaching preschoolers independent dressing skills lowest (M=2.07: SD=.907). One teacher said of the professional development not

provided by the county:

> The most helpful information I have received has come from a series of 4 feeding conferences I attended, given by T-TAC. After attending, I did suggest the ECSE teachers could use this information. I have also attended several outside conferences on Autism, Developmental and Behavioral issues, etc. Many of these I paid for myself. (Researcher's field notes, February 2010, page 3).

The low scale score mean (M=2.09) indicate that the effect of professional development offered to teachers had minimum influence on their teaching ability. Table 6 displays the means and standard deviations for each of the self-help skills.

Table 11

Descriptive Statistics for Ratings of Increased Knowledge in Teaching Specific Self Help Skills

Self-Help Skills	Mean	Standard Deviation
Dress	2.07	.907
Toileting	2.10	.923
Feeding	2.10	.995
Request Help	2.10	.845
Total Scale	2.09	.75

Social skills.

The last area surveyed focused on the professional development provided to the participating teachers in the area of social skill development. Teachers rated the impact of the professional development on their instruction when teaching preschoolers to take turns the highest (M= 2.93; SD=1.05) in this scale. The item rated the lowest was the item regarding teaching empathy (M=2.37: SD=1.10). Overall, the self-help skills scale, which consisted of five items received a mean score of 2.67, indicating that the teachers perceived that the professional

development regarding self-help skills had a positive impact on their teaching skills.

A teacher commented "Less theory and more practical, specific techniques. Any new ideas for teaching social skills besides modeling would be appreciated". Another teacher said:

> I'm interested in strategies to help children with autism increase their social skills and behavioral strategies, I feel like I have had very specific staff development in ABA nomenclature and data collection, but not as much "typical environment" social scaffolding. (Researcher's field notes, February 2010, page 2).

The means and standard deviations for each of the self-help skills are displayed in table 12.

Table 12

Descriptive Statistics for Ratings of Increased Knowledge in Teaching Specific Social Skills

Social Skills	Mean	Standard Deviation
Delay	2.63	1.03
Outburst	2.53	1.01
Sharing	2.90	1.09
Turns	2.93	1.05
Empathy	2.37	1.10
Total Scale	2.67	1.205

Analysis of variance (ANOVA).

An ANOVA was conducted to determine if respondents differed on scale scores depending on their years of experience. Results for three of the five scales surveyed (behavior, communication, and self-help) indicated that years of experience did not yield significant differences at $p<.05$. Responses for two scales (academic skills and self-help skills) were found to vary with years of experience. On the academic scale, teachers with six-to-seven years of experience rated items significantly lower than did teachers with either four-to-five or eight-to-nine years of experience. Table 13 displays the mean scores for the academic scale by categories

of years of experience and table 14 displays the results of the analysis for academic skills and years of experience. A Tukey-Kramer HSD was calculated and revealed no significant pair wise differences.

Table 13

Mean Scale Scores for Academic Skills by Experience Category

Years Experience	Mean Square	Standard Deviation
0–2	2.13	0.47
2–3	1.57	0.25
4–5	2.75	0.38
6–7	1.25	0.47
8–9	2.55	0.30
10+	2.18	0.20

Table 14

Source of Variance for Academic Skills by Years of Experience

Source	DF	Sum of Squares	Mean Square	F Ratio	Probability >F
Academic Skills	5	5.75	1.15	2.65	0.0483
Error	24	10.43	0.43		
C Total	29	16.19			

The researcher also found a significant difference when comparing years of experience with the teacher responses in the area of self-help skills. These data indicated that teachers with four-to-five and eight-to-nine years of experience rated items in the area self-help skills significantly higher than teachers with two-to-three and six-to-seven years of experience. Table 15 displays the mean scale score for self-help skills, table 16 shows the results of the ANOVA, and table 17 displays the results of the post hoc test.

Table 15

Mean Scale Scores for Self-help Skills by Experience Category

Years Experience	Mean Square	Standard Deviation
0–2	2.12	.47
2–3	1.57	.25
4–5	2.75	.38
6–7	1.25	.47
8–9	2.55	.29
10+	2.18	.20

Table 16

Source of Variance for Self Help Skills Years of Experience

Source	DF	Sum of Squares	Mean Square	F Ratio	Probability >F
Self Help Skills	5	5.75	1.15	2.65	0.048
Error	24	10.43	0.44		
C Total	29	16.19			

Table 17

Results of Student's t Post Hoc Analysis

	4–5 years	8–9 years	10 years	0–2 years	2–3 years	6–7 years
4–5 years	-1.11	-0.79	-0.32	-0.62	0.24	0.26
8–9 years	-0.79	-0.86	-0.37	-0.71	0.18	0.16
10 years	-0.32	-0.37	-0.58	-0.99	-0.05	-0.11
0–2 years	-0.62	-0.71	-0.99	-1.36	-0.54	-0.49
2–3 years	0.24	0.18	-0.05	-0.54	-0.73	-0.77
6–7 years	0.26	0.16	-0.11	-0.49	-0.77	-1.36

Note: A positive value indicated a significant difference in the professional development provided for teachers with 2-3 years and 6-7 years of experience in the area of self-help.

A review of the significant differences revealed for years of experience and teacher responses in academic and self-help skill areas do not appear to be meaningful but may result because of the low sample size and the uneven distribution of teachers in the various categories

of years of experience. Table 18 displays the distribution of the teachers across the six categories of years of experience.

Table 18

Teacher Years of Experience

Years Experience	N
0–2	2
2–3	7
4–5	3
6–7	2
8–9	5
10+	11

Discrepancy Analysis

As indicated earlier in this chapter, Provus suggested that the difference between the goal of the program and the outcome (the discrepancy) should be minimal. The researcher compared survey results to the program expectations as defined by the Program Managers in Stage I. This section addresses the third research question: To what degree do program standards align with teacher perceptions of the professional development?

Key areas.

The data collected revealed a noticeable discrepancy between the program managers' expectations and teachers' perception in only one area, the area of Self-Help, which received a total score of 2.09. The other areas, communication, academics, behavior and social skills, all received total scale scores of 2.50 or higher, indicating the program standards did align with the teachers' expectations of the professional development provided. Each area is discussed separately.

Communication skills.

The program managers mentioned that providing professional development to the

teachers that enables them to teach the non-verbal preschool child appropriate and effective communication skills was a critical objective of the program. Teachers rated items that related to providing instruction to preschoolers (e.g., being able to communicate with peers and teachers in social settings, both inside and outside of the classroom) highly. All areas within the communication domain received a mean score of 2.50 or greater, with a total scale score of 2.76. These results indicate that the professional development was perceived by the teachers as having a positive impact on their teaching skills, thus a discrepancy did not result in this area.

Academic skills.

Both program managers expressed the importance of providing professional development designed to improve teachers' ability to teach academic skills to the special needs preschool student. Specifically, they indicated that professional development should assist the teacher when instructing the student in certain cognitive skill areas such as identifying colors and shapes, counting objects, and identifying numbers and letters. The survey results of teachers' perception of the professional development provided, it was clear that the professional development had a positive impact. The mean scores for the academic scale were 2.50 or higher in five out of the six areas assessed. The one area that was rated lower was the area of teaching children to identify warning words, which received a mean score of 2.30.

Behavior skills.

Interviews conducted with both program managers included mention of the need for teachers to prepare the preschool child for the eventual exit from the preschool program. During the interviews, the program managers indicated that the professional development provided must give teachers the necessary skills to teach students appropriate behaviors in order to be successful. Professional development opportunities offered in this area included the Board

Certified Behavior Analyst Certificate Program (BCBAC) that provided specific behavior intervention strategies. When examining the survey data, the participating teachers rated the professional development in this area as productive. Seven out of the eight items in the behavior area received mean scores of 2.50 or higher. The total scale score of 2.73 indicated that teachers perceived the professional development had a positive impact on their teaching skills.

Self-help skills.

The program managers indicated the importance of providing training for teachers in strategies specific to providing instruction to the preschooler to maintain their independence. The program managers clearly stated that the special needs preschooler needed to learn skills that provided the independence necessary to participate in the kindergarten classroom or LRE. However, the teachers' ratings of the professional development in the areas of teaching appropriate dressing, toileting, feeding, and requesting assistance resulted in a mean score of 2.10 or lower in all areas. A Total Scale score of 2.09 on a 4-point scale further indicates that the professional development had a nominal effect when compared to other assessed areas within this study. The results indicate that the professional development was perceived as having a minimal effect on teachers' ability to provide instruction in the self-help area

An ANOVA determined that teachers with four-to-five and eight-to-nine years of experience rated items in the area self-help skills significantly higher than teachers with two-to-three and six-to-seven years of experience, indicating that group of teachers felt the professional development provided in the area of self-help had a positive effect on their teaching.

Social skills.

Replacing atypical behaviors with more developmentally appropriate was indicated a priority when the program managers were interviewed. In order for the special needs

preschooler to be successful in the center-based classroom or in the LRE, the child must learn appropriate (social-adaptive) behaviors. The survey results indicated that the teachers' perceived that the professional development provided them with sound strategies. Important social skills, such as teaching the special needs preschooler to share, take turns, refrain from outbursts, and be able to wait (delay) all received a mean score over 2.50. The discrepancy between teachers' perception of the professional development regarding behavior and the expectations of the administrators was minimal.

Summary of discrepancy analysis.

As stated earlier, Provus (1969) proposed that, when a discrepancy exists between a program and the standards governing the program, using discrepancy information can assist in identifying any weaknesses of the program. When discrepancies occur, either program performance or program design standards need to be changed. Provus also stated that the difference between the goal of the program and the outcome should be minimal. The input (I) was the administrators' expectations of the professional development in the areas of communications, academics, behavior, self-help and social skills for teachers. The process (P) was teachers' responses to the professional development, and the outcome (O) or survey results was the professional development provided to the teachers. The overall results of the data obtained indicated few discrepancies. The third research question of this study stated: to what degree do program standards align with teacher perceptions of the professional development?

The results of the data indicated that the program standards closely aligned with the teachers' perceptions of the professional development provided, with the exception of the area of Self-Help. Additionally, the researcher conducted non-independent t-tests, calculated between

all pairs of scale scores. The Self-Help scale was significantly (p (t)<.05) lower than the other four scales. There were no significant differences among the other five scales. (See table 19).

Table 19

Results of Non-Independent t-tests Between Survey Scales

Scales	Scale Means	Difference	t	p(t)
Behavior vs. Communications	2.73 2.76	0.03	029	0.77
Behavior vs. Academic	2.73 2.56	0.17	1.48	0.15
Behavior vs. Social	2.73 2.67	0.06	0.71	0.48
Behavior vs. Self-Help	2.73 2.09	0.63	4.28	0.00*
Academic vs. Communications	2.56 2.76	0.20	1.80	0.08
Academic vs. Social	2.56 2.67	0.12	0.96	0.37
Academic vs. Self-Help	2.56 2.09	0.46	2.44	0.02*
Social vs. Communications	2.67 2.09	0.08	0.69	0.50
Self-Help vs. Communications	2.09 2.76	0.66	4.07	0.00*
Self-Help vs. Social	2.09 2.67	0.58	3.65	0.00*

The researcher applied the *I (P) =O* formula, and it was clear that a discrepancy did not occur in four out of the five areas with only one area, self-help skills, having a small degree of discrepancy and there was alignment between the program standards and teachers' perceptions. Figure 2 displays the mean scores for the five content areas identified as key for professional development programs aimed at providing teachers of children with autism and autism-like behaviors. The vertical broken line indicates the mean score used to distinquish identify

discrepant (<2.5) versus nondiscrepant scores (2.5). In his research, Provus recommended that when discrepancies do occur, either program performance or program design standards need to be changed.

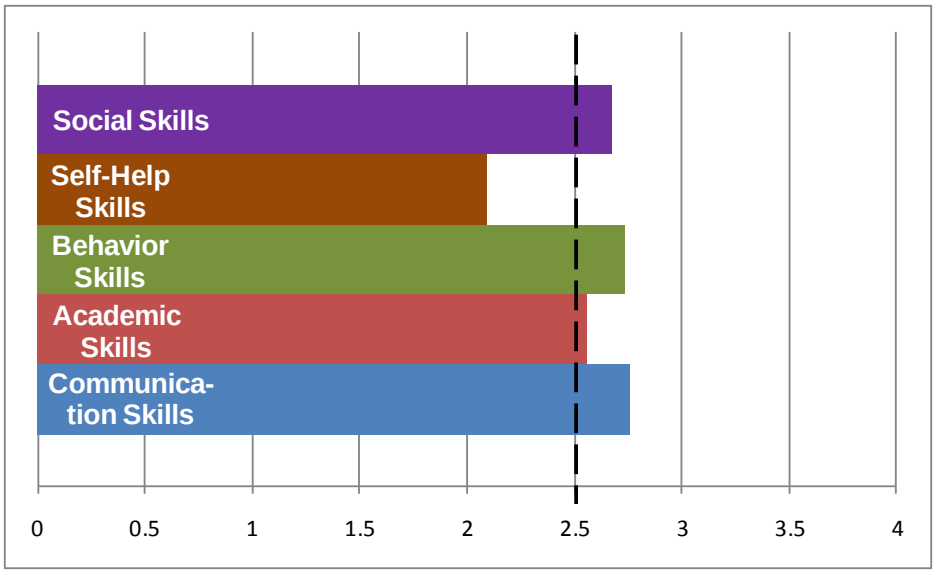

Figure 2 Mean Scale Scores of Key Content Areas

CHAPTER 5 DISCUSSION OF FINDINGS

The purpose of this study was to evaluate the professional development provided to teachers of preschoolers diagnosed on the autism spectrum or identified with autistic-like behaviors.

Themes

The five themes or key areas that emerged from the program manager interviews along with those found in the literature are used as a framework for this discussion of the findings.

Communication skills.

The survey results indicated that teachers rated their perception of the professional development with the highest total scale score (2.76), indicating their increased knowledge in teaching specific communication skills. Specifically, teaching the preschooler to answer simple questions received a mean score of 2.93, the highest score attained. The lowest score was in teachers' rating their improvement in teaching the preschooler to retell a simple event or story, which received a mean score of 2.57. This indicates that teachers perceived that the professional development greatly influenced their ability to teach this population of students and positively impacted their instruction. During the interview, Program Manager I indicated, "our goal is to provide early intervention so that any identified deficits specifically concerning language, cognitive and social skills are attended to". (Researcher's field notes, February, 2010, page 1).

Program Manager II also stated the importance of effective communication for the identified preschooler when she stated:

> Communication is the main focus- to ensure that the-non verbal child is identified; an effective mode of communication is planned. Basic skills such as being able to name objects in the classroom or referring to peers by name are good communication skills, but

also good social skills. (Researcher's field notes, February 2010, page 1).

Teachers also responded to the need for professional development that addressed the non-communicative preschooler. One teacher commented "Higher level training on new strategies and therapies. Not the same PECS or board maker or ABA, but other ideas/ studies that we should be aware of to try in class." (Researcher's field notes, February, 2010, page 1).

The literature review documented a variety of therapies, including DTT, which is designed to increase communication as well as other vital skills. Skokut et al. (2008) described using the discrete trial method to provide academic, communication intervention, and life skills. Expressive language skills such as verbal imitation as well as identifying actions, objects and pictures were assessed in this study. In the area of increasing communication skills, the Skokut study identified the importance of the expansion of communication skills by teachers encouraging verbal peer interaction between students, including turn-taking conversations.

The review of the literature supports the goal of increasing and improving the communication skills of the identified preschooler. The lack of effective and appropriate communication skills was documented in the literature as a major area of concern for children with autism. Zager and Shamow (2005) found that in order to address the needs of the student diagnosed with ASD, teachers must address, among other things, essential language and social skills for children with autism. Tutt et al. (2006) indicated that children with autism, who lack communication skills, typically present with delays in other skill areas.

The Wetherby and Woods (2006) Early Social Interaction Project (ESI), referred to in the literature review, measured the difference in the social communication and language stages between the ESI participants and a group of toddlers who enrolled in an early intervention program at three years of age. The ESI model, designed to individualize social communication

goals, identified family routines for targeted goals, monitored the progress of the child, and taught and supported the parents in order to effectively implement the intervention.

The TEACCH model, referred to in the literature by Harris and Handleman (2006), was also identified in the interview results with the program managers. The goal of this model is to teach students effective communication and behavior skills so that they can both communicate and display appropriate behaviors in the classroom as well as in outside environments. Both program managers discussed the value of the TEACCH model and indicated that one goal was to equip teachers with professional development opportunities that would enable them to use the TEACCH model to teach effective communication skills to preschool special needs students enrolled in the program.

Behavior skills.

The survey results indicated that teachers rated their perception of the professional development in the area of teaching specific behavior skills second highest with a total scale score of 2.73. In seven of the eight skills teachers rated teaching the preschooler to make choices the highest mean score of 3.23. The lowest mean score (2.27) was maintaining appropriate body posture. One teacher commented, "Maintaining appropriate body posture and eye contact would usually not be addressed." Both program managers communicated that teaching effective behaviors to the preschooler with ASD is a priority. Program Manager II supported this concept when she said, "Behavior—the goal of course is to achieve appropriate behaviors inside and outside of the classroom. Effective Behavior Intervention plans are developed, implemented, and (hopefully) no longer needed when the child is of kindergarten age." (Researcher's field notes, February, 2010, page 1).

The results of this study support the findings of the literature review, which consistently

points out the importance of children with ASD learning appropriate behaviors, which necessary to the child's success. The literature review included an examination of Daily Life Therapy developed by Dr. Kitahara in 1969, which uses physical activities designed to release the child's endorphins in an attempt to reduce hyperactive or autistic type behaviors. This concept was supported both throughout the interviews with the program managers and in the comments of the surveyed teachers. The seminal study of Dr. Ivar Lovaas (1987) of young children with autism focused on changing the maladaptive behaviors of the young participants. Since then, focusing on developing appropriate behaviors of the child with autism has been a priority for educators.

Academic skills.

The survey results indicated that teachers rated their perception of the professional development regarding teaching specific academic skills with a mean scale score of 2.56, the third highest finding. The one area that scored the lowest was teaching children to identify warning words, which received a mean score of 2.30. However, the professional development that created the most positive impact was teachers' ability to teach the preschooler to identify numbers 1 to 10, which received a score of 2.67. One teacher, however, indicated that she wanted "Higher level training on new strategies and therapies. Not the same PECS or board maker or ABA, but other ideas/studies that we should be aware of to try in class." Overall, participating teachers indicated that the professional development influenced their ability to teach the preschool student with autism.

Program Manager II clearly indicated that academic skill building was clearly an area of importance when designing the professional development. She indicated:

> In order to be successful in the classroom, students need skills that create a strong academic foundation such as being able to identify colors and shapes as well as basic

> sight words. Classroom activities should include teaching students basic counting, number identification and letters identification. (Researcher's field notes, February, 2010, page 2).

She further supported opportunities for teachers to study ABA procedures beyond the opportunities offered by the school system. Program Manager I also indicated her support of ABA saying, "What we want is for our staff to be knowledgeable of the different therapies. For example, we support the TEACCH approach and ABA, that way, when a parent makes a request, the teachers have a framework of understanding academics". (Researcher's field notes, February 2010, page 4).

The literature also supports the need to support educators in this area of teaching academic skills. For example, the Lerman et al. study (2004) indicated that it is vital that specific and consistent professional development be provided so that teachers could learn multiple strategies in a short amount of time, acquire certain skills more rapidly than others, and select one prompting strategy over another.

Self-help skills.

The survey results indicated that teachers rated their perception of the professional development the lowest in all areas assessed. A total scale score of 2.09 in the area of self-help skills indicated that the effect of the professional development offered to the teachers did not positively influence their teaching ability. The lowest item, teaching preschoolers to dress themselves independently, received a mean score of 2.07. Conversely, the three other items, requesting help, toileting, and feeding skills all received a mean score of 2.10. The teachers' perception of the professional development provided does not appear to have made a positive impact on their ability to teach self-help skills. Preparation of teaching self-help skills to the

child with ASD was rated the least effective of all skill areas.

Program Manager I encouraged the teaching of self-help skills to the special needs preschooler. She said that the school division matches the skill competencies of the Virginia Autism Council to the professional development provided. This document includes specific skill sets and expectations for students to learn effective self-help skills that encourage independence. One teacher commented that a conference on feeding skills provided by the Virginia Department of Education's Training and Technical Assistance Center was the most effective professional development she experienced. According to this particular teacher, this opportunity was not provided by the school system, but a conference she paid for herself.

Meyers and Johnson (2007) discussed the importance of pediatricians, educators, and therapists working collaboratively to promote independence by decreasing behaviors that may impair the independence of the child with ASD. It is common for these students to lack the skills related to caring for self, including toileting, feeding, dressing or asking for assistance.

Social skills.

The survey results indicated that teachers rated their perception of the professional development in the Social Skill area with a mean score of 2.67 (SD=1.05). An assessment of individual items in this area, revealed that teachers rated their perception of the professional development regarding turn taking and sharing the highest resulting in mean scores of 2.93 and 2.90, respectively. Teaching empathy received the lowest mean score of 2.37. One teacher commented "Less theory and more practical, specific techniques. Any new ideas for teaching social skills besides modeling would be appreciated." These results indicate that the professional development activities had a significant influence on teachers' instructional abilities. A total scale in the social skill area received a mean score of 2.67, with a standard deviation of 1.05.

During the program managers' interviews, they both agreed regarding the importance of teaching the preschooler skills that encourage age-appropriate, socially acceptable behaviors. Program Manager I said, "It is important that teachers understand the importance of enhancing both communication, cognitive, and social skills, and to use the data to make educational decisions". Program Manager II agreed:

> The teachers are looking for goal mastery of each child's IEP as well as their ability to communicate wants and needs, appropriate peer interactions, attention to task, and the ability to follow simple directions. The ability to transition from one activity to next and coping skills are also important. (Researcher's field notes, February 2010, page 2).

Teachers who participated in this study commented that they needed less theory and more practical, specific techniques in the area of teaching social skills. Both program managers in their interviews consistently said that the preschool student must learn the developmentally appropriate behaviors to be successful in the kindergarten classroom.

The ESI Project, a naturalistic intervention focused on individualized social communication goals, family routines for targeted goals, the monitoring of the progress of the child, and teaching and supporting the family in the intervention. These skills were included in this study as a part of the teacher survey.

Teaching the special needs preschooler appropriate social skills is an important factor in their level of success in the classroom. The literature mentions social skills as important to the social development of the student. In their study on attending behaviors, Larkin and Gurry (1998) stated that instruction can be compromised when the student is not on task or is making inappropriate vocalizations or actions.

Conclusions

Teachers need continuous, systematic, and intentional professional development. The literature review, the interviews with the program managers, results of the survey, and the comments made by teachers participating in the study all support this conclusion. Guskey (2000) stated that education is not a static occupation and that teachers must engage in professional development that includes a variety of methods from observations, in-services, curriculum reviews, and professional readings.

The study began with the question "What are the primary characteristics, objectives, and standards of the professional development program being studied that is designed to provide pre-school special education teachers with the knowledge, skills and abilities necessary to meet the needs of children with autism or those children exhibiting autistic behaviors?

The four themes that emerged are supported by the literature and form the basis of the professional development program that was evaluated. Teacher responses to the survey indicated that, for the most part, the professional development program was perceived as preparing teachers to work effectively with the young child who is on the autism spectrum or has autistic-like behaviors. Through the review of the literature, the results of the interview and survey comments, the researcher was able to identify those primary characteristics of an effective professional development program for preschool special education teachers working with the child with autism.

Limitations

Several limitations were identified in the implementation of this study. To begin with, the researcher utilized only one local school system in the research. Therefore, findings may not generalize to other district within the state or elsewhere. Second, only two central office

administrators of that system were interviewed which limits generalization of findings to other administrators in other districts. Third, the total number of teachers who participated (n=30) was modest thereby limiting the findings to other groups of teachers.

Implications for Future Improvement

As the ECSE program continues to grow and develop in the local agency participating in this research, it may be useful for the program managers to review the data of this study when assessing the professional development provided to the teachers in the area of self-help skills. This one area received the lowest total scale score, 2.09, indicating that there may be a need to revise the current professional development. The preschooler diagnosed with ASD or presenting with autistic-like behaviors must obtain the appropriate self-help skills that encourage independence and self-reliant behaviors.

The analyses of teachers' years of experience and teacher responses in the five scales surveyed revealed significant differences at $p<.05$ on two scales (academic skills and self-help skills). On these two scales, teacher with six-to-seven years of experience rated items significantly lower than did teachers with either four-to-five or eight-to-nine years of experience. The implication of these results could be that the teachers in the four-to-five and eight-to-nine years of experience may have the benefit of experience when working with such a diverse student population. In addition, because these two groups rated the items higher, another implication could be that they felt a greater need for these skills and therefore found that aspect of the professional development more meaningful. That suggestion, however, does not seem to resolve the question as to why the teachers with six-to-seven years of experience would rate both areas the lowest of all groups. One conclusion could be the relatively low (n=2) number of teachers in that category. Indeed, it appears that the most probable explanation for the findings

regarding years of experience and teacher responses is that, because of the small sample (30) and the uneven distribution of teachers in the various categories of years of experience, no meaningful patterns can be ascertained in these findings.

Lastly, the program managers may want to reconsider the delivery of workshops and in-services. Instead of delivering information that encompasses all teachers, they may consider differentiating the professional development to the experience level of the teachers. When assessing programs, Provus believed that when program managers have the information of the inputs, processes, and outcomes that are involved in a professional development program, then it is better understood, defined, operational, and productive. Provus also stated that when discrepancies do occur, they point out differences that exist between what program planners think is happening in the program and what is actually occurring. It is the intention of the researcher that the results of this study provide program managers with the information to make changes that will enhance the professional development program.

In the comment section of the survey, teachers took the opportunity to share their thoughts, suggestions, commendations, and frustrations regarding the ECSE professional development program. One teacher said, "I would like more hands on training in the classroom. When a problem arises, I feel that support is not always there".

On the other hand, a teacher stated:

> I have felt that the quality of my instruction has improved by taking advantage of training opportunities both in and outside of [the] County. Although my teaching skills have improved, I would like to see a variety of training opportunities for more experienced staff. Often information is given on a more introductory level and more experienced staff wants more in-depth information. Review is good, but our time would be better spent

expanding what we know to better our skills. (Researcher's field notes, February 2010, page 1).

Recommendations for Further Study

Guskey (2000) supports professional development that is intentional, systematic, and continuous. Further, he stated that professional development should enhance teachers' knowledge, skills, and attitudes that, in turn, may improve student achievement. It is the expectation of the researcher that the Provus Evaluation Model provides the school division with valuable information and useful recommendations that will continue to support and enhance the professional development offered to the ECSE teacher. For future research of this specific program evaluation, it is suggested that this study be replicated in two years to investigate if significant changes in the teachers' perceptions of the professional development provided have occurred or whether discrepancy remains.

Additional research could include studying larger groups, including a variety of different school districts, as well as contrasting small and large districts to see if the limitation of resources or geographic barriers may result in larger discrepancies between objectives and perceptions of program effectiveness.

Changes within the autism community are constant and the needs of the identified student are many. Further research may include the same objectives or the initiation of a study focused solely on the characteristics of the preschooler with autism. This would provide program managers with valuable information as they continue to develop and improve the professional development provided to teachers of young children with autism or autistic-like behaviors.

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APPENDICES

Appendix A IRB Submission

IRB

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Informed Consent for Participants
In Research Projects Involving Human Subjects

Title of Project

A Program Evaluation of a Special Education Preschool
Program Serving Children with Autism or Autistic-Like Behaviors

Investigator
Angela Gwynne-Atwater

I. Purpose of this Research/Project

The purpose of this study is to ascertain the perceptions and experiences of preschool special education instructors regarding the level of preparedness in teaching the young child who has been diagnosed on the autism spectrum or has been identified with a developmental delay that presents autistic-like characteristics. The quality and the effectiveness of the professional development that is provided for the teachers will also be examined. Once approval is granted by the Institutional Review Board (*IRB*) of Virginia Polytechnic Institute and State University, I will begin the process by interviewing the Director of Special Education and the Preschool Special Education Coordinator. The survey will be developed and the researcher will contact the preschool teachers. At present, there are 50 preschool teachers who will be invited to participate in this study.

II. Procedures

I am requesting your consent to interview as part of my research. Prior to the scheduled interview session, I will provide you a copy of the interview questions. The session will take approximately 20 minutes. Additionally, I am also seeking your verbal consent to audio tape the interview session in an effort to guarantee authenticity. Lastly, I will provide you copy of the interview results. Your name will be omitted from the written interview protocol.

III. Risks

There are no more than minimal risks involved in this study.

IV. Benefits

The resulting data of this study will be used to better understand teacher's needs, successes, and challenges within the preschool program. It is the hope that their input will help develop recommendations and professional development opportunities that are acceptable, fair, and beneficial to all preschool special education students, but especially those who have been diagnosed on the autism spectrum or who present with autistic like characteristics. Once all of the data has been analyzed, the results of the research will be shared with the department of Educational Leadership and Policy Studies at the Virginia Polytechnic Institute and State University (Virginia Tech) as well as XXXX County Public School's Departments of Instruction, Research, and Special Education without the names of any contributors. The researcher makes no promise or guarantee of benefits as a method of encouraging participation in this study.

V. Extent of Anonymity and Confidentiality

As the **principal** researcher, I will assure that your title, not your name will be used in this study. I also request, for authenticity, that our interview session be audio-taped. I will transcribe the interview sessions, and be responsible for the secured storing of the tapes. At the conclusion of this study, I will destroy the tapes. The teachers who participate in the survey will not need to use any identifiable information such as names or employee identification numbers to partake in the survey, thus further certifying anonymity. I believe there will be no reason to break the confidentiality of any parties.

VI. Compensation

The school system involved in this research study does not allow for the researcher to offer compensation to any participants. Therefore, currency or redeemable coupons will not be offered.

VII. Freedom to Withdraw

Participants in this study are free to withdraw at any time without penalty.

VIII. Subjects Responsibilities

I voluntarily agree to be interviewed as a participant in this study.

IX. Subject's Permission

I have read the Consent Form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent.

_____ Date_____

Subject signature

Should I have any pertinent questions about this research or its conduct, and research subjects' rights, and whom to contact in the event of a research-related injury to the subject, I may contact:

Angela Gwynne-Atwater	703-878-3745
angela.gwynneatwater@	
_____	_____
Investigator(s)	Telephone/e-mail
Travis Twiford	ttwiford@ vt.edu (757) 363-3930
_____	_____
Faculty Advisor	Telephone/e-mail

David M. Moore
Chair, Virginia Tech Institutional Review Board of the Protection of Human Subjects
Office of Research Compliance
2000 Kraft Drive, Suite 2000 (0497)
Blacksburg, VA 24060
\

540-231-4991/moored@vt.edu
Telephone/e-mail

[NOTE: Subjects must be given a complete copy (or duplicate original) of the signed Informed Consent.]

Appendix B IRB Approval Letter

VirginiaTech

Office of Research Compliance
Institutional Review Board
2000 Kraft Drive, Suite 2000 (0497)
Blacksburg, Virginia 24060
540/231-4606 Fax 540/231-0959
e-mail irb@vt.edu
Website: www.irb.vt.edu

MEMORANDUM

DATE: April 20, 2010

TO: Travis W. Twiford, Angela Gwynne-Atwater

FROM: Virginia Tech Institutional Review Board (FWA00000572, expires June 13, 2011)

PROTOCOL TITLE: A Program Evaluation of a Special Education Preschool Program Serving Children with Autism or Autistic-Like Behaviors

IRB NUMBER: 10-101

As of April 20, 2010, the Virginia Tech IRB Chair, Dr. David M. Moore, approved the new protocol for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report promptly to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at http://www.irb.vt.edu/pages/responsibilities.htm (please review before the commencement of your research).

PROTOCOL INFORMATION:
Approved as: **Expedited, under 45 CFR 46.110 category(ies) 6, 7**
Protocol Approval Date: **4/20/2010**
Protocol Expiration Date: **4/19/2011**
Continuing Review Due Date*: **4/5/2011**
*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

FEDERALLY FUNDED RESEARCH REQUIREMENTS:
Per federally regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals / work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

Appendix C Research Request Form

Please complete and email to the Research Office:
Research may not be conducted without written authorization and signature.

Name: Angela Gwynne-Atwater **Date of Request: February 3, 2010**
Address: XXXXX
City: XXXX State: XXXX
Zip Code: XXXXX
Telephone: XXXXX
Email: angela.gwynneatwater@

Description of Research Request
Please describe the research study, desired participants, purpose of study, length of study (start and finish dates), methodology, communication of results and potential subsequent reports. Please attach any instruments and/or protocols to be used in this study.

The purpose of this study is to ascertain the perceptions and experiences of preschool special education instructors regarding the level of preparedness in teaching the young child who has been diagnosed on the autism spectrum or has been identified with a developmental delay that presents autistic like characteristics. The quality and the effectiveness of the professional development that is provided for the teachers will also be examined. The researcher will use Provus' Discrepancy Model to evaluate the program. The rationale in selecting this model of program evaluation is that it will allow the researcher to investigate the program and assess whether its' implementation is consistent with the program's design as well as the level of teacher knowledge, skills and abilities. The methodology will incorporate a multi method approach of gathering both qualitative and quantitative data. The qualitative data will consist of the results of the interviews and document analysis, and the quantitative data will consist of the survey results.

It is anticipated that the researcher will obtain permission to conduct this study from ---------- Public Schools Department of Research, as well as the Institutional Review Board (*IRB*) of Virginia Polytechnic Institute and State University, February, 2010. Once approval is obtained, the research will begin with an interview with the Preschool Special Education Coordinator as well as the Autism Consulting Specialist. Prior to the scheduled interviews, the researcher will provide each with a copy of the interview protocol; as well as permission to audio tape both interviews. A copy of the interview questions is attached.

With the assistance of the research, special education and technology departments of the ---------- School System, the researcher will contact the preschool teachers. At present, there are 50 preschool teachers who will be invited to participate in this study. The researcher will use an internet survey research methodology to distribute the survey instrument. The survey instrument itself will be constructed using an interval level response format, or Likert Scale. The internet survey will be distributed by the end of April, 2010. A copy of the survey instrument is attached.

The process of collecting, analyzing and summarizing the data will occur during the months May and June, 2010. By incorporating the use of descriptive statistics, the researcher will be able to analyze and summarize the gathered data. The researcher will interpret the findings and provide the Departments of Instruction, Research and Special Education and participating teachers with the results.

University/College Affiliation: Virginia Polytechnic Institute and State University

Principal Investigator and/or Supervising Professor Name and Email:
Walt Mallory, Ed.D wmallory @vt.edu
Travis Twiford, Ed.D ttwiford@vt.edu

Course Number and Course Title (if appropriate):

EDAE 7994 Research and Dissertation

Program of Study (if appropriate):

Educational Leadership and Policy Studies

Thank you in advance,

Angela Gwynne-Atwater

Appendix D Letter of Approval from School District

Department of Instruction
Research Office

TO: Angela Gwynne-Atwater

FROM: Assistant Superintendent for Instruction
Ed.D., Director of Research

RE: Research Request

Date: January 21, 2010

Your request to conduct a program evaluation of a special education preschool for children with autism has been approved. On the questionnaire, Preschool Special Education Coordinator should be changed to Preschool Special Education Supervisor and Autism Consulting Specialist should be changed to Autism Consulting Teacher. In addition, please consult Autism Specialist, for systemic information.

As a courtesy to County Public Schools and the participants in your research, please provide a copy of your study and subsequent findings to the Research Office.

Contact Director of Research, if you have any questions.

Good luck with your project.

Cc:

Appendix E Teacher Survey

Directions: For each of the students skills listed below, please indicate the degree of improvement in your ability to teach that skill as a result of participating in professional development offered by the Special Education Preschool program. Select little or no improvement, slight improvement, some improvement, or great improvement, by marking the appropriate bubble.

Section 1 Teaching Communication Skills

1. Please rate your amount of improvement in teaching the following communication skills to the targeted population.

	Little or none	Slight	Some	Great
Play simple games	○	○	○	○
Answer simple questions	○	○	○	○
Identify primary colors	○	○	○	○
Respond to simple requests	○	○	○	○
Understand common prepositions (in, on, under, over)	○	○	○	○
Retell a simple event or story	○	○	○	○

Section 2: Teaching Behavior Management Skills

2. Your level of improvement in teaching behavior management skills to the targeted student population:

	Little or None	Slight	Some	Great
Comply with simple requests	○	○	○	○
Play appropriately with peers	○	○	○	○
Participate in group activities	○	○	○	○
Make choices	○	○	○	○

Maintain appropriate body posture				
Respond to social greetings				
Maintain appropriate eye contact				
Recognize safe practices				

Section 3: Teaching Academic Skills

3. The level of improvement in your ability to teach academic skills to the targeted student population:

	Little or None	**Slight**	**Some**	**Great**
Count to ten				
Display one-to-one correspondence				
Identify numbers 1 to 10				
Identify his/her own name and names of peers				
Identify primary colors, shapes and common objects				
Identify basic written warning words (stop, go)				

Section 4: Teaching social/emotional skills

4. The amount of improvement in your ability to teach social/emotional skills to the targeted student population:

	Little or None	**Slight**	**Some**	**Great**
Delay gratification for five minutes				
Refrain from inappropriate out-bursts				
Share and play appropriately with				

materials and or toys				
Take turns				
Show empathy to others				

Section 5: Teaching Self Help Skills

5. The amount of improvement in your ability to teach self-help skills to the targeted student population:

	Little or None	**Slight**	**Some**	**Great**
Dress self independently				
Use appropriate toileting skills				
Use appropriate cup, fork, spoon skills				
Request assistance				

DEMOGRAPHICS: Answers to the following questions will be held in strictly confidence and will not be shared with anyone except in summary form.

7. The school system offered staff development for in special education topics. In how many classroom hours have you participated? (Choose one)

- Five hours or less
- Between five and ten hours
- More than ten hours

8. How many years have you taught?

- Less than 5 years
- Between 5 and 10 years
- Between 10 and 15 years
- Between 15 and 20 years
- More than twenty years

9. How many years have you been teaching preschoolers diagnosed on the autism spectrum or presenting with autistic-like behaviors?

- ○ One year or less
- ○ Two to three years
- ○ Four to five years
- ○ Six to Seven years
- ○ Eight to nine years
- ○ Ten or more years

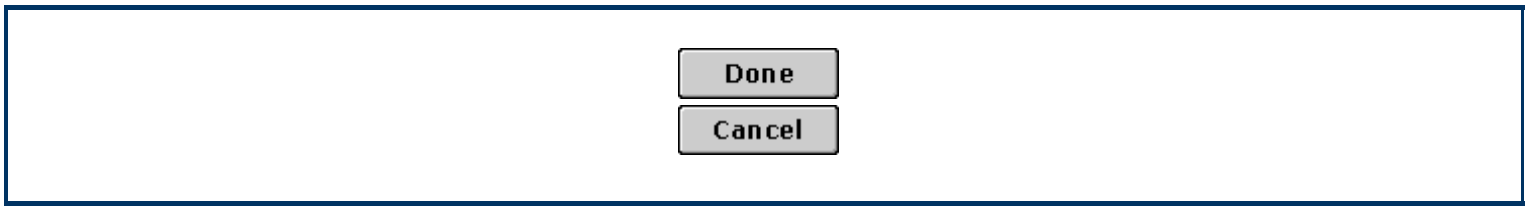
10. What is the status of your current Virginia teaching license? (mark only one)

- ○ Provisionally licensed for special education
- ○ Fully licensed to teacher special education
- ○ Professionally licensed but not endorsed in special education

11. Which of the following degrees and certification do you hold?

- ○ Bachelors Degree in Elementary Education
- ○ Master's Degree in Special Education
- ○ Master's Degree in an area other than special education
- ○ BCBA Certification in Autism
- ○ Other, please specify

12. Please provide any suggestions or comments that would improve the quality of special education staff development in this school system.*


Done
Cancel

Appendix F Letter of Invitation to Participate in the Survey

Dear Preschool Special Education Teacher,

I am requesting your participation in a research project that I am conducting entitled "An Evaluation of Teachers' Perception of Preparedness in Instructing the Autistic Preschooler in the Special Education Preschool Classroom". The rationale of this study is to ascertain the perceptions and experiences of preschool special education instructors regarding the level of preparedness in teaching the young child who has been diagnosed on the autism spectrum or has been identified with a developmental delay that presents with autistic like characteristics. Additionally, your participation in this study will identify of there is a difference in the perception of current preschool special education teachers of the professional development provided and the stated objective of the preschool program.

By participating in this survey and giving your feedback, you will have an impact on the future direction of the preschool special education program. If you choose to participate, please click on the survey link and begin taking the survey. The survey will take approximately 10-20 minutes to complete. This data will be used to better understand teacher's needs, successes, and challenges within the preschool program. It is my hope that your input will help develop recommendations and professional development opportunities that are acceptable, fair, and beneficial to all preschool special education students, but especially those who have been diagnosed on the autism spectrum or who present with autistic like characteristics.

Please complete the on-line survey within two (2) weeks. A reminder e-mail will be sent out three days before the survey closes. Once all of the data has been analyzed, I will share the results of my research with the department of Educational Leadership and Policy Studies at the Virginia Polytechnic Institute and State University (Virginia Tech) as well as XXX County Public School's Departments of Instruction, Research, and Special Education without the names of any contributors. Your participation is voluntary and all information will be confidential and anonymous.

Thank you for taking the time to provide this information. You can contact me via email at angela.gwynneatwater@ or phone (703) 957-4370 if there are questions with this study. The committee chairs for this dissertation are Dr. Walt Mallory, (wmallory@vt.edu) and Dr. Travis Twiford (ttwiford@vt.edu).