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TEACHER EFFICACY, TEACHER BURNOUT, AND ATTITUDES
TOWARDS STUDENTS WITH AUTISM

By

Joshua Benjamin Skuller
B.S.O.T., Spalding University, 2001
M.Ed., University of Louisville, 2003

A Dissertation
Submitted to the Faculty of the
Graduate School of the University of Louisville
In Partial Fulfillment of the Requirements
for the Degree of

Doctor of Philosophy

Department of Teaching and Learning
University of Louisville
Louisville, Kentucky

May 2011

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A Dissertation Approved On

March 29, 2011

by the following Dissertation Committee:

Debra K. Bauder, Dissertation Co-Director

Stephen K. Miller, Dissertation Co-Director

Thomas J. Simmons, Dissertation Co-Director

William M. Penrod

Samuel C. Stringfield

DEDICATION

This dissertation is dedicated

To my parents,

John and Marsha Skuller

My grandparents,

Merle and Dorothy Kaplin,

And

Myra and Nathan Goldman,

My aunt and uncle

For the encouragement and support

You have given me over the years.

ACKNOWLEDGEMENTS

Writing a dissertation is a life changing experience that actually requires the skills learned in kindergarten: share your information, wait your turn, and value everyone's opinion. Through using these three basic skills, I have become an improved researcher and have developed a respect and patience for the research process, which can be rather lengthy at times. This dissertation would not be possible without two very important people.

To Debra Bauder, AKA my dissertation mom, I have acquired patience, even when the research or other components of the dissertation did not seem to be going as planned. She maintained a positive and upbeat attitude which she would pass on to me, even if it meant grounding or time outs. Deb helped me grow as a researcher by helping me to conduct deeper searches into literature to find additional results that would lead to a richer dissertation, a skill that will be used in the future.

To Steve Miller, I have learned much more about the writing process and that many drafts later, a dissertation does look more polished than the first few drafts. My visual perceptual motor skills have also greatly improved with each revision to the dissertation bringing more "arrows" to follow as we worked to piece each chapter together and get a refined, logical flow. Though it was hard at times, Steve and I developed a great understanding of each other as we clocked many hours at the local McDonald's to ensure that we had a great finished product. To Steve, I am now able to say "Me writes pretty!"

Next, I want to thank Tom Simmons who like Deb was with me from day one of

my entire doctoral career. Tom provided thoughtful insight and encouragement as content expert on the committee. In addition, a sincere thank you to the other two members of my committee--Bill Penrod and Sam Stringfield. Their contributions are both valued and appreciated.

Finally, I would also like to thank my friends and coworkers who over the years have encouraged me to continue writing and would occasionally ask me how far along I was, encouraging me to persevere and finish up. I want to personally thank each and every one of you.

ABSTRACT

TEACHER EFFICACY, TEACHER BURNOUT, AND ATTITUDES TOWARDS STUDENTS WITH AUTISM

Joshua Benjamin Skuller

March 29, 2011

Students with autism require a variety of supports to be successful in classrooms. Because of this, special education teachers need additional training to address these needs along with balancing the demands of the rest of their caseload. This daunting task can often lead to lower levels of efficacy (general teaching and personal teacher) and increased levels of burnout. The Teacher Efficacy Scale-Short Form (Hoy & Woolfolk 1993), Teacher Burnout Scale (Seidman & Zager, 1987), and Autism Attitude Scale for Teachers (Olley et al., 1981) were chosen for this study.

The Olley et al. work was modified to reflect current trends in language, remove efficacy-based questions, and add several new questions; the scale was renamed the Teachers' Attitudes about Autism Scale. The final questionnaire, Autism Education Survey (AES), consisted of the three scales plus environmental factors. The central research question reflects the purpose of this study: What is the effect of teacher efficacy and teacher burnout on educators' attitudes towards students with autism?

After human subjects approval, the survey was administered to the 684 teachers who fit the profile, those special education teachers in a large urban district in a south central state who held LBD and moderate/severe disability certificates; 267 (39%)

responded. Descriptive statistics; psychometric work (factor analysis, Cronbach's alpha, and interscale correlations), and multiple regression were conducted.

The results for Research Question 1 demonstrated that the environmental factors are essentially independent of attitudes towards autism with the exception of hours spent in an autism workshop. Analysis for Research Questions 2 and 3 revealed that for special education teachers dealing with autism, both general teaching efficacy and personal teacher efficacy were significant for Autism-Inclusion and Autism-Supports. For Teacher Burnout, the Attitudes Towards Students and Coping with Stress were the most significant of the four subscales. In Research Question 3, the hierarchical regressions produced essentially the same results as RQ2, except that the environmental factors (entered first) were basically rendered nonsignificant when the professional characteristics were added, demonstrating that Teacher Efficacy and Teacher Burnout are the stronger predictors of teachers' attitudes about autism. The implications of the results are discussed.

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CHAPTER I

STATEMENT OF THE PROBLEM

Introduction

Another challenge of school was learning rhythm, an impossible task for me. Mrs. Clark would have us sit in a circle and she would sit at the piano. “Now, children, listen to the beat.” She’d play a few bars. “Now, clap your hands in time with the music.” I couldn’t do it. When the class clapped, my hands were apart.

“Temple. Pay attention.”

Mrs. Clark played again and again I was out of “clap.”

“Why are you acting this way? You’re spoiling it for everyone,” she said. (Grandin & Scariano, 1986, p. 26)

The above scenario is from Grandin and Scariano (1986), *Emergence: Labeled Autistic*, the biography of Temple Grandin, a well-known and very successful woman who has the diagnosis of autism. She had many difficulties in school such as the above mentioned “rhythm lesson” that took place in her kindergarten class. Temple’s mother had gone to school prior to this event with the purpose of explaining her daughter’s condition to her teacher. Her mother felt it was important to help Mrs. Clark understand Temple’s diagnostic label and how to assist her before she attended school. It appears that Mrs. Clark did not have the training or understanding of how to work with Temple in the classroom. Furthermore, this teacher did not appear to have a good understanding of the many quirks that many individuals with autism often display, thus quite possibly causing a negative attitude towards the differences that Temple was displaying due to her disability.

Temple had attended kindergarten at a time when autism was not very well

understood and Mrs. Clark could have been from the school of thought that all kindergarteners should learn at the same rate and do the same things together. With Temple being out of “clap,” the lesson was ruined for everyone. Had Temple been a kindergarten student today, there is a greater possibility that Temple would have been provided research based interventions that would have assisted her with understanding how to act appropriately during this lesson. For example, she might have been assigned a peer buddy or a collaborative resource teacher might have been in the classroom to assist in Temple’s success and allow her to be in “clap.”

Characteristics of Autism

The Autism Society of America (ASA) has come up with a definition of autism: a severely incapacitating lifelong developmental disability that appears during the first three years of life (Simpson & Zions, 2000, p. 6). Autism is frequently called a *spectrum disorder* meaning that the characteristics of the disability may present in various combinations from very severe to very mild. ASA states that autism is thought to be a neurological disorder that affects functioning of the brain and occurs in approximately one out of every two hundred fifty births. Autism is four times more common in boys than in girls and affects all racial, ethnic, and social backgrounds. With early intervention and treatment, the cost of lifelong care can be reduced by two thirds (Simpson & Zions).

To receive the diagnosis of autism, children must meet certain qualifications from the *Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition* (DSM IV, as cited in Simpson & Zions, 2000). They must meet at least two of the following criteria from this list (Simpson & Zions, p. 3):

- Significant qualitative impairment in the use of nonverbal behaviors such as eye-to-eye gaze, facial expressions, body postures, and social interactions.

- Failure to develop developmentally appropriate peer relationships.
- Failure to spontaneously seek out others for the purpose of sharing enjoyment, interests, or achievement.
- Poor social or emotional reciprocity.

Children must also meet one or more of the criteria for this list on communication to be eligible for the diagnosis of autism (Simpson & Zions, p. 3):

- Delay in or total lack of spoken language development (not accompanied by compensation attempts and alternative modes of communication such as gestures.)
- Significant impairment in the ability to initiate or maintain with others in person with adequate speech.
- Idiosyncratic or stereotyped and repetitive language.
- Lack of developmentally appropriate and varied spontaneous social imitative or make believe play.

School districts use autism as an educational category of disability and many students receive a medical diagnosis as well as the educational label. Thus, a child may receive a medical diagnosis of pervasive developmental disorder-not otherwise specified (PDD-NOS), but will be served under the category of autism at school since that represents the best fit for his or her needs.

Prevalence

The number of students who are entering school with the diagnosis of autism has mushroomed over the years, therefore causing Autism Spectrum and Pervasive Developmental Disorders (ASD & PDD) to become an increasing national concern. As the numbers of students beginning school with the diagnosis autism increases, so does the need for research and the creation of additional strategies to meet the unique needs of these students as they enter the classroom.

According to the U.S. Department of Education (2006), the following states were showing an increase in identified students with autism: Alabama, California, Hawaii, Idaho, Indiana, Maine, Maryland, Minnesota, Nevada, North Carolina, Ohio, and Tennessee. In Montana, students who fall in the age range of 3-5 years can be identified as a Child with Disabilities (CWD) rather than an actual label, so it is possible that students with autism could be placed in this category. New York is another state that follows this trend by assigning all 3-5 year olds with disabilities to the category of Developmental Delay (DD). Some states such as Idaho, Indiana, and Maryland have expanded the autism category to include all students with ASD such as Asperger syndrome. Maryland and North Carolina have also documented an increase in diagnosis, as families are moving into these states to access programming for their children with ASD. These states are also reporting an increase in identification as more school districts are reporting an increase in their awareness of disability, eliciting better evaluations, and providing better training being given to the teachers.

The December 1st child count for students receiving special services in the state of Kentucky (Kentucky Department of Education [KDE], 2005) indicates a total of 2,068 students who are being served under the educational category of autism. In 1992, there were only fifty-three students in Kentucky identified as having autism. This is a difference of 2,015 students who have been labeled over this span of thirteen years, an increase of 3,802%. The 2005 break down for students labeled with autism is shown in Table 1. It is important to note that the majority of students with autism are in the later elementary to early middle school years, followed by middle to high school aged students.

Table 1

Age Level and Number of Students Diagnosed with Autism in Kentucky

Age level	Number of students
3-5	270
6-11	970
12-17	756
18-21	172

Kentucky uses the category of Developmental Delay (DD) to label some students between the ages of three and nine unless they have a category that better fits their needs. There are sometimes students who receive the category of DD who do in fact have autism. For a variety of reasons they did not receive that label at first diagnosis, but at the time of the students' three-year reevaluation for determination of eligibility for continuation of services. Thus it is likely that the educational diagnostic label of autism increases as children are served for their disability.

Kentucky also uses the category of autism as the label for all students who fall on the autism spectrum as well as students who have other disorders that fall under the pervasive developmental disorders umbrella including Asperger syndrome, childhood disintegrative disorder, and pervasive developmental disorder-not otherwise specified (PDD-NOS). Rett's disorder also falls under the umbrella of pervasive developmental disorders, but is served under a different category in Kentucky.

Educating Children with Autism

There are three basic tenants regarding the education of children with autism: early

intervention, geographic location, and educational teaching methods. First, early intervention is the key to promoting success for many students with autism (Itzhak & Zachor, 2011). Early intervention services such as First Steps, Head Start, and local preschools provide services that are offered in many states for a variety of children with disabilities.

Second, an important consideration in the education of students with autism is geographic location. For example, large urban school districts have students ranging from more affluent backgrounds to those whose families must deal with issues related to high poverty (Morrier, Hess, & Heflin, 2008). Large school districts may be able to offer specialized programming for students with autism. These district resources allow educators to identify and offer services to all of the students with special needs. Unfortunately these same resources may not be available in smaller districts or rural areas.

Third, even in the best scenario, e.g., residing in a large urban school district with access to early intervention services, children with autism must be afforded qualified teachers who have an understanding of the unique methods that are needed to instruct this population. This issue is developed in depth below.

Educational Methods

There are many instructional methods to teach students with autism. The top two approaches are the use of Applied Behavioral Analysis (ABA) and the instructional methods developed by Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH). Both of these methods are very common in classroom programs for students with autism and sometimes many other disabilities (Jennett, Harris, & Mesibov, 2003). Teachers who present with the knowledge of instructional strategies and feel that they have a theoretical basis for the programming being used in their

classrooms were often found to have higher self-efficacy and to experience less burnout (Jennett et al.). Knowledge of instructional programming allows teachers believe that they actually have a solution for what they are doing; consequently they spend less time feeling as though they are grasping for straws and more time instructing the students. Miller, Bronwell, and Smith (1999), in their survey of 1,576 special education teachers in Florida, found that teachers feel less overwhelmed by the significant challenges of their students when they perceive that they have the support to do their job, know what is expected of them, have opportunities to improve their skills, and feel empowered to make important decisions about their classrooms.

Diane Browder (2001) in her book, *Curriculum and Assessment for Students with Moderate and Severe Disabilities*, suggests that teachers have a systematic instruction plan for each IEP goal for each student. This plan shows the target skill that the student is working on, when the skill is to be taught, and the objective for the skill. The materials that are needed, the setting and teacher responsible for the skill, and the number of trials for the student are also listed. The next step is to list the levels of prompting that the student will need to complete the task independently, including the instructional technique supplemented by a fading schedule so the student does not become dependent on the prompts. Feedback is also listed to demonstrate what is done for correct responses, a fading schedule for the praise/reinforcer, and how to correct errors. Finally, a plan for generalization of the skill is listed, plus any additional notes as needed.

Browder (2001) also demonstrated methods for data collection on each IEP goal based on the systematic instruction plan. Learning how to collect data on the IEP goals allows teachers to see the progress made and to reevaluate their instruction. Newer teachers may need some assistance to do this until they build up experience in their classroom.

Designing an educational program for students with autism requires a gestalt approach that incorporates many different strategies and techniques (Simpson & Myles, 1998, p. 91).

Characteristics of Teachers Working with Autistic Children

When working with a child with autism, the nature of the curriculum and materials used for learning are both important; however the teaching style adds to the effectiveness of the instruction (Simpson & Myles, 1998). Teacher dispositions and practices are reflected in the dynamics of any classroom; these can range from the very obvious (the appearance of the classroom) to the more subtle (philosophic differences about the nature of special needs children and how best to help them). The latter often determine what type of learning experience the students have. Further, teachers differ in their demeanor; some are loud and bright while others are quiet and more reserved. Their classrooms often reflect their personalities.

Teacher Dispositions

Teachers who are successful with children with autism possess dispositions such as flexibility, organization, and persistence (Scheuermann & Webber, 2002; Simpson & Myles, 1998). In addition, these educators should have in-depth understanding and skills with respect to mastery of applied behavioral analysis and developmental theories, mastery of data-based instruction, and commitment to the student's right to the most effective treatment (Scheuermann & Webber). Teachers with these characteristics can work to make a highly structured learning environment, which children with autism need in order to thrive (Simpson & Myles; Simpson & Zions, 2000).

Teacher Experience

Teacher experience is one of the key components vis-à-vis the instruction of students with autism. How long have the teachers been in the classroom? Is there a way for

the more experienced teachers to network with the brand new teachers? As Browder (2001) notes, the first year for a teacher is the most critical to their retention. Are they receiving the support they need to deal with the challenging behaviors that some of their students might have? Support can be offered to teachers in many different ways. Some teachers are paired with an experienced teacher, forming an agreement that they spend so many hours together throughout the course of the year.

Teacher Support

When organizing the classroom, many teachers try to have a primary focal point or theme to guide them in setting the tone for the year. How do teachers of students with autism achieve this? Are their efforts specific to each individual or do they have a common theme that they work to adapt for each student in their class? Having command of an appropriate instructional method is the prerequisite for achieving this flexibility.

The support that new teachers receive comes from several different sources. Besides mentor teachers, there should be support from the administrators at their schools. All too often administrators, who frequently have no knowledge of special education themselves, ignore these programs and students in their schools, giving those teachers a feeling that their work is not important to them. This can result in teachers doing the bare minimum to get by, rather than creating a dynamic learning environment. Support from the central office administration and the board of education is important as well. District wide training and support groups represent strategic means for teachers to meet, share ideas, and resolve issues that arise in the classroom. No teachers should ever have to feel that they are doing all of their work alone.

Currently, there is an increase in emergency provisionally certified teachers in special education who are entering the classroom (Quigley, 2010). These newcomers are

usually enrolled in an alternate certification program to obtain their teaching certification, but still need some outside support. Many of these beginners hold a bachelors degree or higher in something other than special education or education at all, and although the passion is there for them to work with this population, they still need considerable assistance to have an adequate foundation of theoretical approaches and practical skills to run their classroom program as they complete their certification.

Kentucky Programs

In Kentucky, first year teachers participate in the Kentucky Teacher Internship Program (KTIP). This program pairs the first year teachers (interns) with a mentor who works with them in classroom design and setup, program implementation, data collection, IEP writing, and whatever else the new teacher might need to have a successful experience. These teachers are also observed by their principal three times throughout the year during instructional time, the teacher mentor spends three full days in their class observing lessons, and a university professor, also assigned to the team, does three observations. Thus the new teacher is observed nine times, each time receiving an evaluation with advice and feedback on how to improve their program.

Jefferson County Public Schools (JCPS), the largest district in Kentucky and the most urban, also offers an additional program called Quality Teachers In Partnership (QTIP). The design is similar to KTIP in that emergency/provisionally certified special education teachers are paired with experienced teachers as mentors. The teachers spend time together outside of school hours working on plans for the classrooms and designing lessons. QTIP is a companion to the alternate certification programs in which all of these teachers are enrolled. After these teachers complete QTIP and their first year of teaching, they are then ready for KTIP. But after intensive assistance of QTIP and KTIP, how much

additional training and support do the teachers receive?

Teacher Burnout

Currently, there is a high rate of professional turnover in special education. Many teachers leave the profession because of too much paperwork, lack of administrative support, not enough supplies, too many students, too little collaboration with colleagues, and even lack of parental support (Brownell, Smith, McNellis, & Miller, 1997). Brownell et al. commented on the fact that not all teachers who leave the field are disgruntled and that many had left for other job opportunities (in and out of education), certification requirements, family influences, positions no longer needed and therefore not reoffered, and retirement. Too often when these problems continually repeat themselves, teachers begin to feel like there is no way out. Burnout results.

When working with students with autism, teachers need to use special strategies. Even when utilizing this programming, is it possible that they still continue to meet barriers in the instruction of these students in the classroom. Furthermore, students with autism may take longer amounts of time to pick up skills than typically developing peers and may also exhibit behaviors that interfere with their learning. There are many barriers that teachers confront when educating children with autism. Considering that the difficulties that these students experience in social settings can be disruptive to others in that environment, the demands to help these pupils puts tremendous pressures on the teachers of this population. With such overwhelming responsibilities, it is little wonder that these struggles carry the risk of teacher burnout.

While burnout can be a major problem for all teachers, it is likely to be intensified in a special education classroom. Burnout has been described by Maslach and Jackson (1981) as a syndrome with three dimensions: emotional exhaustion, depersonalization, and

reduced feelings of personal accomplishment. Although all special education teachers are potentially at risk because of the challenging caseloads they have to work with, teachers of students with autism may be especially at risk (Jennett et al., 2003). This could very well be due to the nature of the disability and all of the additional supports and strategies needed to implement successfully the educational programming and needs for students with autism.

Children with autism, especially those who are low functioning, exhibit unique characteristics that pose singular challenges for teachers. They typically present with deficits in cognition, communication, and socialization and are unmotivated to interact with others and the environment in general (Scheuermann, Webber, Boutot, & Goodwin, 2003, p. 198). Due to lack of ability to socialize and extreme behaviors such as aggression, noncompliance, and self-abuse, many teachers have a difficult time feeling the same degree of closeness to students with autism as they do with their other students. Because these psychic rewards are a major part of the benefits of teaching (Lortie, 1975), teachers of students with autism may be deprived of a substantial source of professional esteem.

Teacher Efficacy

Teacher efficacy, simply put is the belief that a teacher feels capable of affecting a student's performance and teaching to high standards (de la Torre Cruz & Cassanova Arias, 2007; Soodak & Podell, 1996). This notion is especially important, given that education systems are now faced with the challenge of dealing with a student population that is increasingly diverse (de la Torre Cruz & Cassanova Arias). Teacher efficacy derives directly from Bandura's theory of self-efficacy. In this model, Bandura proposed two cognitively based sources of motivation: outcome expectations and efficacy expectations (Bandura, 1977; Soodak & Podell). Outcome expectations refer to a person's estimation that a given behavior will lead to a specific outcome whereas efficacy expectations refer to

the individual's belief that he or she is capable of demonstrating the behaviors necessary to achieve the outcome (Soodak & Podell, pp. 401-402).

Efficacy expectations vary on several dimensions that have important performance implications. First, they differ in magnitude, meaning that when tasks are ordered in levels of difficulty, the efficacy expectations of individuals may be limited to the easier tasks, extend to the moderately difficult tasks, or include even the most taxing performances (Bandura, 1977). Bandura (1982) also stated that efficacy in dealing with one's environment is not a fixed act or simply a matter of knowing what to do. Rather, it involves generative capability in which cognitive, social, and behavioral skills must be organized into integrated courses of action to serve innumerable purposes (p. 122). Simply said, self-efficacy is a person's view that they are capable of doing certain tasks. It also deals with how much expertise a person exhibits and how long they are willing to continue doing an aversive task (Bandura, 1982).

Teacher efficacy can be split into two different dimensions, personal teaching efficacy and teaching efficacy. Personal teaching efficacy involves the teacher's own belief in having the ability to affect a student's learning positively, while teaching efficacy focuses on the ability of teachers as a profession to impact student learning (Moeller & Ishii-Jordan, 1996, p. 301). Hoy and Woolfolk (1993) found that factors that contribute to high personal teaching efficacy were teacher education level, influence of the principal, and academic emphasis on the curriculum. General teaching efficacy is greater when morale and collegial support are high in the school setting. For a teacher of students with autism, or any severe disability for that matter, support from the administrator as well as obtaining a higher degree will assist in the teacher feeling that they have the ability to reach their students and help them to progress. When teachers feel that they need help,

support from the colleagues and high morale (schools with a positive climate of culture) are beneficial to faculty in feeling that all of their students, regardless of level of functioning, will have the ability to learn and to participate in the school experience. When teachers are able to see that progress is being made in the classroom, they will then feel more efficacious.

The Problem Defined

As the years progress, more and more students with autism are walking through the doors of schools in the districts all over the country. Now that more students with ASD are entering the classrooms, autism is becoming a more common word in the vocabulary spoken by special educators, as evidenced by the states which are reporting increased numbers of students who are diagnosed with autism (U.S. Department of Education, 2006). Accordingly, many teachers are reaching out to find or create more resources to assist this growing population of students.

Teacher shortages exist in school districts all over the United States. Although the total number of teachers available is not always problematic, there is a shortage of qualified teachers in specific subject areas and locations (Little & Miller, 2007). The content areas of math, science, and special education are the most acute areas of need; inner cities and rural areas have the greatest difficulties finding certified teachers. Beyond these general manpower issues, there is evidence that specific areas of special education have even more critical needs, including qualified teachers to serve students with autism and other severe disabilities (Beatson & Prelock, 2002; Cegelka & Alvarado, 2000; Foster, 1980).

The problem of teacher shortages in special education is twofold. First, as more states are becoming educated about students with ASD and are developing better ways to

identify these students (U.S. Department of Education, 2006), better recruitment is needed for professionals who are willing to work with these and other students in low incidence populations. As these students enter the classrooms, they need to have the proper staff in place to assist with the implementation of their IEP. One strategy to find these teachers has been the proliferation of alternate certification programs in which provisionally certified teachers are entering the classrooms as they attend courses at a university in order to obtain complete certification.

Second, turnover becomes an issue as teachers leave the profession prematurely. Billingsley and Cross (1991, 1992), Brownell and Smith (1993), and Brownell, Smith, McNellis, and Miller (1997) have all noted that many special education teachers leave the profession due to problems that vary from lack of supplies to limited progress for their students to lack of support from colleagues. Teachers need the ability to collaborate with colleagues as well as administrators and parents in order to run a successful special education classroom. If they are not able to access this level of assistance, then they face the risk of going into survival mode, a circumstance that increases the possibility of burnout, which then can cause them to leave the field of special education altogether.

Adequate support is important for experienced teachers as well as those who are learning their craft. Closely connected to burnout is the teacher's personal success in working with these special needs population. More successful individuals receive more rewards and recognition, a stronger sense of accomplishment, and are therefore are more likely to persist in their careers. Teacher efficacy is a significant aspect of this success. It is important to look at teacher's attitudes towards their students as well as their level of efficacy to demonstrate just how comfortable they are feeling in the classroom at this point in time.

Student Demographics and Special Class Placement

In Jefferson County Public Schools (Kentucky), there are currently three different types of low incidence (disabilities that occur infrequently) classrooms offered through the school district. Students placed in a Functional Mental Disability (FMD) classroom typically have an intelligence quotient (IQ) of fifty-five or less. Students identified as FMD typically are served in this type of a classroom, consisting of systematic instruction and learning opportunities that occur throughout the school day. Many of these students also fall on a range of what would traditionally be known as trainable mental disability down to severe and profound disabilities.

The second type of classroom is known as Multiple Disability (MD). Students who are placed into this type of setting are generally considered to have more than one disability (e.g., functional mental disability and other health impairment). Because of the additional support for working with both of the disabilities, students are able to get the most benefit out of their educational program. Many times students with autism are placed into this type of a classroom due to the multiple disabling features inherent in the diagnosis. Many students in a MD program still exhibit trainable levels of intelligence. The final low incidence placement in the school district is in an autism classroom. These rooms have a very small ratio of students to teachers and are designed to take students on the lower functioning end of the autism spectrum and work with them in an intensive program that uses principles from Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) and applied behavior analysis (ABA) as well as other theories throughout the day.

Students with autism are not found just in low incidence classrooms throughout the school district. They are placed in classrooms according to their level of functioning. There

are many students with autism who are in the general program with additional instruction and collaboration provided to them through a resource teacher. Students who have a much more difficult time in the general program but are still very high functioning might be placed into a self-contained classroom for students with learning disabilities to assist with receiving the general core content in a smaller environment. Regardless of the type of educational setting in which a student with autism is placed, teachers need adequate support and training to implement the IEP in the best possible way.

Another important consideration in the education of students with autism is location. Large urban school districts have students ranging from more affluent backgrounds to those whose families must deal with issues related to high poverty. As mentioned before, autism affects individuals regardless of race, gender, nationality, or socio economic status. Much of the research that has been done involves middle to upper class Caucasian families (Wilder, Dyches, Obiakor, & Algozzine, 2004), leaving out the families who would be considered working class or poverty. Many other families who could be classified as multicultural have been left out of this research as well. Bailey, Skinner, Rodriguez, Gut, and Correa (1999) stated that African American and Latino families have a lower probability of utilizing specialized services for their disabled students. Having a child with a disability could also involve a stigma in some cultures such as South Asian families; consequently they might not ask for any services (Raghavan, Wisner, & Patel, 1999). One advantage large school districts are able to offer is specialized programming for students with autism. These district resources allow educators to identify and offer services to all of the students with special needs. Unfortunately these same resources are not available in smaller districts or rural areas.

Purpose

Thirty years ago, Olley, Devellis, Devellis, Wall, and Long (1981) wondered about the attitudes and experiences of teachers who were receiving students with autism into their classes for the first time. Their concern led to the creation of the Autism Attitude Scale for Teachers. As discussed above, if special education teachers have more positive attitudes about instructing students with autism and are provided with the supports needed for their program, they will feel more efficacious about their work. In turn, one aspect of burnout, career satisfaction, is less likely to be problematic. Special needs teachers with positive attitudes will likely spend more time in the classroom and have higher retention rates rather than looking for regular education positions or even exiting the profession.

Positive attitudes are not only critical for the retention of teachers, but also to keep some continuity with the students. With high rates of teacher turnover, replacements will inevitably be inexperienced, lacking knowledge and trust of students. Teachers need to have a positive sense about instructional delivery. Thus when faced with the challenge of educating students with autism, educators need adequate support and training. With success comes a higher sense of teacher efficacy, lower risk for potential burnout, and greater professional retention. In general, these factors--burnout and self-efficacy--should be reflected in teachers' attitudes toward students with autism.

For this study, all of the teachers held a teaching certificate in either moderate to severe disabilities or learning and behavior disorders. The research sought to determine if teachers' demographic factors and professional characteristics had an impact on their attitudes about autism. The results could provide school districts information to help support both new and seasoned teachers. Thus, the central research question for this dissertation is: What is the effect of teacher efficacy and teacher burnout on educators' attitudes towards students with autism?

Research Questions

This study contains data which represents two types of Independent Variables: Environmental Factors (Personal Identity, Educational History, and School Setting) and Professional Characteristics (Teacher Efficacy and Teacher Burnout). The scores from the Teachers' Attitudes about Autism Scale represent the Dependent Variables: Inclusion/Exclusion, Supports Needed, and Behavioral Issues. The model hypothesizing influence among these variables is depicted in Figure 1.

The following empirical research questions address those relationships.

1. For special education teachers who work with students with autism, to what extent is there a relationship for the Environmental Factors (Personal Identity, Educational History, and School Setting) with Professional Characteristics (Teacher Efficacy and Teacher Burnout) and with Teachers' Attitudes about Autism?
2. For special education teachers who work with students with autism, to what extent is there a relationship for Professional Characteristics (Teacher Efficacy and Teacher Burnout) with Teachers' Attitudes about Autism?
3. For special education teachers who work with students with autism, to what extent is there a relationship for Professional Characteristics (Teacher Efficacy and Teacher Burnout) with Teachers' Attitudes about Autism, controlling for the Environmental Factors?

Figure 1. Relationships among Environmental Factors, Professional Characteristics, and Teachers' Attitudes about Autism.

Significance of the Study

Teacher efficacy is one of the most frequently discussed topics in the field of education. Much of the work on efficacy began with Bandura's (1977) formulation of self-efficacy as personal judgments, mediated cognitively, of self capability. These personal appraisals are based upon performance outcomes, experience, perceptions of social ratings, and implicit understanding (Schunk, 1985). As Bandura (1982) notes, "self-referent thought also mediates the relationship between knowledge and action[,]... how people judge their capabilities and how, through their self-percepts of efficacy, they affect their motivation and behavior" (p. 122). Bandura (1982) then makes the distinction between personal self-efficacy (what the individual perceives him/herself capable of) and collective efficacy (what the group or collective can accomplish).

Gibson and Dembo (1984) extended Bandura's (1979, 1982) distinction between personal and collective efficacy to teachers' self-efficacy with two dimensions: (a) how teachers' beliefs bring about change in their students, or personal efficacy, and (b) how these beliefs can overcome external influences on the student, or teaching efficacy. Gibson and Dembo created the Teacher Efficacy Scale (TES) which allowed researchers to link teacher efficacy with teacher behaviors. Hoy and Woolfolk (1993) took this a step further to compare teacher efficacy with the organizational health or climate of a school. At this point in time most of the research has examined general education teachers. In the field of special education, studies of teachers who work with a wide variety of higher incidence disabilities are common, but very little research looks at teacher efficacy for those who help students with autism.

First, much of the research on autism focuses on educational methods. Cattell-Gordon and Cattell-Gordon (1998) discuss ways to develop an effective applied behavior

analysis program for young children with autism still at home. Smith (2001) discusses ways to incorporate discrete trial training into the classroom and lists benefits of creating a program around this instructional technique, i.e., decreased behavior. Clark and Smith (1999) and Winterman and Sapona (2002) discuss the physical environments of the classroom and what can be done to support their social skills. Yet very few studies focus on whether or not teachers feel confident (efficacious) about how they carry out a program for their classroom. It is also important to note that the majority of these studies are also qualitative in nature or represent a synthesis of current research. The current study utilizes quantitative methodology to examine teacher efficacy specifically for special educators who work with children with autism.

Second, many of the special education teacher inventories are based on a burnout inventory and an efficacy scale. For example, Jennett, Harris, and Mesibov (2003) investigated efficacy and burnout among teachers of students with autism and studied how the teachers felt about their programs when they had a philosophical basis to their teaching. The teachers were given the Maslach Burnout Inventory, and the Autism Treatment Philosophy Questionnaire was created for this study. Weber and Toffler (1989) also used the Maslach Burnout Inventory in their study of teachers of students with moderate, severe, or profound mental retardation. Egyed and Short (2006) demonstrated the use of both the Maslach Burnout Inventory and the Teacher Efficacy Scale to research why a teacher chooses to refer a student who demonstrated disruptive behaviors for special education services. All of these studies had different dependent variables than the current study and only Jennett et al. focused on autism as a topic. To date, there is no research that combines the use of an efficacy scale and a burnout inventory with the Autism Attitude Scale for Teachers to determine how teachers feel about working with their students with autism.

Third, Kentucky is generally recognized as a leader in comprehensive school reform (Petrosko, 2000). In addition, partly because of the certification requirements for teachers who work with students with autism, the state is among the most advanced in integrating students with autism into general education classrooms. Because of this, new teachers, as part of the Kentucky Teacher Internship Program (KTIP), are asked to demonstrate the ability to create core content-based lessons and adapt them through layered lesson plans that are used to reach students of all levels within their classrooms. Increasingly, therefore, more students with autism are being served through the general education classroom by a LD resource teacher or in a self-contained classroom for students with learning disabilities.

Fourth, because of the certification requirements of teachers who work with autism in the large urban district sampled in this study, it is possible to provide comparative data on those professionals with learning disability (LD) certification (high incidence) versus those with moderate/severe certification (low incidence). This is crucial; as mentioned before, the diagnosis of autism does not automatically place a student in the low incidence classroom setting.

Limitations of the Study

Students with autism can walk through the door of any type of classroom in any school district. Services can be delivered through: collaboration in the general classroom with a resource teacher, pull out to a resource room, a self-contained classroom for students with learning and mild disabilities, a self contained classroom for students who need to focus on functional life skills, and even placement in a special school. This study focuses on teachers who work with students with autism. These professionals typically have one of two types of assignments. The first class category would be for teachers who

work in classrooms for students with low incidence disabilities, because there is typically a higher concentration of students with autism in these classes. These teachers must be able to program for all of their individual needs as well as for students with other disabilities. The students with autism who are placed into these classrooms are also typically on the more severe end of the spectrum with more needs for cognition and behavioral supports.

The second class category would be in the general classroom. There may only be one student with autism for whom the teacher needs to program and often a resource teacher (for students with learning disabilities) may only have two or three students with autism on their caseload. The students in these types of classroom settings are often served by a teacher certified in learning and behavioral disorders and are commonly known as the LD (learning disability) teacher. The students diagnosed with autism who are placed in the general education classroom are often considered to be higher functioning and therefore benefit from taking part in the core content throughout the day in the regular classroom. The LD teacher might collaborate or even co-instruct in the classroom to ensure that their students are accessing the curriculum and make modifications as needed. LD teachers might also pull students with autism into a smaller resource setting for a portion of the school day to practice learned skills and also to work on social skills to allow for more success in the general room. For the student who benefits from the core content curriculum but also needs the smaller resource type setting throughout the day, a self-contained placement might also be offered. In this situation, a LD teacher instructs a class of no more than ten to fifteen students (depending on grade level) and all students work on the same type of assignments which are catered to their needs, thus achieving the outcomes of what is taught in the larger classrooms.

This quantitative study is based on a questionnaire to teachers. Although the data

should provide good information about teacher efficacy, burnout, and Attitudes towards students with autism, it will not be enriched with the experiences and points of view of teachers that can be created through qualitative interviews and observations of their classrooms. A separate study would be necessary to generate this level of knowledge about teachers' feelings and how they relate to students with autism.

This study was done in a large metropolitan school district located in Louisville, Kentucky. The information comes from this one area only. There are many other school districts throughout the state of Kentucky, mostly rural and small towns. It is quite possible that teachers might have different perspectives on educating students with autism compared to a large urban district. This research also represented one very small area of the United States. Different states have different educational policies and different requirements for a student to qualify under a categorical disability. Generalization to other states, which might generate additional or even contrasting information compared to Kentucky, is limited.

Definition of Terms

For the purpose of this investigation, the following terms are defined. These terms are generally consistent with the vocabulary used in special education nationwide.

Asperger syndrome: Discovered by Hans Asperger (1944), individuals with this disorder typically have higher communication skills but deficits in social skills. One of the key features of this disorder is a special interest area in which individuals achieve extraordinary levels of performance in a certain area (Winter-Messiers, 2007, p. 141).

Autism: A disorder in which individuals show significant social interaction impairments, communication problems, and repetitive, stereotypic, and restricted interests and activities. This disorder is typically diagnosed before the child is thirty-six months old

(Simpson & Zions, 2000, pp. 2-3).

Autism Spectrum Disorder: Refers to a wide spectrum of neurodevelopmental disabilities that have three core features: impairments in social interaction, impairments in verbal and nonverbal communication, and restrictive and repetitive patterns of behavior (Wetherby & Prizant, 2000, p. 1).

Childhood Disintegrative Disorder: These children have similar characteristics when compared to those with autism including social interaction, communication, and behavioral issues. The main difference is the age of onset. While a child with autism is diagnosed before the age of thirty-six months, the child with childhood disintegrative disorder experiences normal growth and development for two to ten years before they experience loss of functioning (Simpson & Zions, 2000, p. 4).

Developmental Delay (DD): In the state of Kentucky, a student can receive the categorical label of developmental disability if they are younger than nine years of age. The student must also demonstrate that they have not acquired skills in the areas of cognition, motor development, self-help/adaptive skills, communication, or social-emotional development. The student also demonstrates a deficiency between present levels of performance and expected levels of performance for their age (Kentucky Department of Education, 2007c).

Emergency/Provisionally Certified Teachers: An individual with at least a bachelor's degree in a field other than education. These individuals are given an emergency certificate or "waiver" which allows them to teach in a classroom while attending a certification program. Certification is usually obtained through an alternative certification program, which offers an expedited route to full certification through a university (Scheuermann, Webber, Boutot, & Goodwin, 2003, p. 198).

Free Appropriate Public Education (FAPE): Special education and related services that are provided at public expense under public supervision and direction and without charge. FAPE includes students at the preschool, elementary, middle, and secondary school levels; services are provided in conformity with the individual educational plan (IEP) that meets requirements in the federal regulations (Kentucky Department of Education, 2007a).

Functional Mental Disability (FMD): Students in Kentucky qualify for this categorical label if they demonstrate cognitive functioning at least three standard deviations below the mean (average being 100 therefore an IQ of 55 or less) and adaptive behavior also being three standard deviations below the mean. These students demonstrate a severe deficit in academic performance including acquisition, retention, and application of knowledge. This disability is typically manifested during the developmental period (Kentucky Department of Education, 2007d).

Individual Educational Plan (IEP): Under the Individuals with Disabilities Education Act (IDEA) all students must have an individual educational plan. The IEP is a written commitment that the student will receive needed special education and related services. All written statements in this document are provided by the IEP team through the use of assessments conducted in all areas of the student's disability. The IEP consists of: statements of the student's present levels of educational performance; a statement of the annual goals; special education and related services to be provided; a statement of any modification in the administration of district wide or state wide assessments; projected dates for the duration of services; statement of how progress will be measured; statement of transition services beginning at age 14; and any additional considerations for the student's unique needs. The IEP meeting is an annual process (Browder, 2001, pp. 31-33).

Individuals with Disabilities Education Act (IDEA): The law that governs the special education services provided to students through their IEP, in order to achieve a free and appropriate public education. Parental consent is required for any assessment and changes that will be made to a student's IEP. All evaluations must be completed within 60 days of the signed parental consent. Parents are also required to provide consent for all special education instruction to begin. As long as any students are deemed to have a disability, they will be served with an IEP in the least restrictive educational environment (Hyatt, 2007, pp. 131-136).

Least Restrictive Environment (LRE): IDEA stipulates that students with disabilities are entitled to appropriate educational services in settings that best meet their individual needs and offer the greatest opportunities for contact with students without disabilities (Simpson & Myles, 1998, p. 241).

Multiple Disabilities: In the state of Kentucky, students qualify for the categorical label of multiple disabilities if they have two or more disabilities. The student's disability cannot solely be the combination of deafness and blindness. The disability cannot be a combination of speech/language impairment and another disability. The combination of the two disabilities must cause a severe enough impairment that the needs cannot be met through special education designed solely for one impairment (Kentucky Department of Education, 2007e).

No Child Left Behind (NCLB): The primary purpose of NCLB is to ensure that students in every public school achieve important learning goals while being educated in safe classrooms by well-prepared teachers. To increase student achievement, the law requires that school districts assume responsibility for all students reaching 100% proficiency on tests assessing reading and mathematics by the 2013-2014 school year

(Yell, Drasgow, & Lowery, 2005, p. 131).

Paraprofessionals: Paraprofessionals are an important part of most educational settings. They serve in a variety of roles including classroom manager, classroom assistant, observer of behavior, and teacher of specific skills. Their duties may range from providing custodial care to being instructors (Simpson & Zions, 2000, p. 81).

Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS): A subtype of autism spectrum disorders, this is a somewhat vaguely defined diagnostic classification used to refer to children who have many of the impairments of the disabilities on the ASD however do not have the complete criteria for one single disorder (Simpson & Zions, 2000, p. 6).

Summary

The number of students with autism entering the public schools is growing. Because this increased need is greater than the number of teachers graduating from special education preparation programs and focusing on autistic children, school districts are offering emergency/provisional certifications to graduates who have a degree in a field other than education. These individuals attend classes to work on their teacher certification while assuming duties within their classroom. These new teachers are entering service with limited preparation as to how they need to arrange their classrooms and instruct their students while maintaining balance in their personal lives throughout their first year of teaching. Support is needed to help them achieve success and feel confident in their classroom.

The Autism Attitude Scale for Teachers (AAST) was created in 1981 to measure the attitudes of teachers who, at that time, were about to receive students with autism into their classrooms for the very first time. The AAST is scored so that higher responses

equate to better attitudes regarding instruction of students with autism. Since then, autism has become a common term in classrooms across the United States.

This research investigated data from the Autism Education Survey, designed to look at Environmental Factors (Personal Identity, Educational History, and School Setting) and Professional Characteristics (Teacher Efficacy and Teacher Burnout) and compared these scores to the dependent variable for the study, Teachers' Attitudes about Autism. This information could be very useful to school districts in planning professional development and other forms of support for their special educators. This study is limited, though, by the fact that data are being collected from a single urban school district in Kentucky, and that other school districts throughout the state could generate differing opinions.

Overall, this study utilizes data collected from educators who are currently instructing classrooms for students with low incidence disabilities or learning disabilities as these classrooms typically encounter students with autism on a daily basis. Specifically, the central research question for this dissertation is: What is the effect of teacher efficacy and teacher burnout on educators' attitudes towards students with autism?

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The purpose of this chapter is to provide a review of the pertinent literature related to this study. Five major areas are addressed: (a) definition of autism spectrum disorders (ASD), (b) history of autism spectrum disorders (c) sensory processing issues, (d) pedagogy for children with autism, (e) teacher training for instructing students with autism, and (f) teacher attitudes and children with autism. Finally, a summary has been included to review information presented in this chapter.

This review used prior research and interviews that have been conducted with students with autism and other severe disabilities. Research on teacher attrition was reviewed to gain insight as to why teachers choose to leave the profession. Along with information on teacher attrition, research was conducted on the best practices for instructing a child with autism with careful attention also being paid to the sensory processing needs of a child on the autism spectrum. Teacher efficacy and burnout were examined to round out the information presented as to why a teacher might choose to leave the classroom. Further analysis about teacher Attitudes towards students in their classrooms with disabilities is presented. Along with quantitative studies, information was gathered from literature reviews and qualitative studies to gain a better perspective on teacher efficacy, burnout, and attitudes towards their students with disabilities (including autism spectrum disorders).

Definition of Autism Spectrum Disorder

Although first described in 1943, autism spectrum disorder (ASD) was not recognized by the U.S. Department of Education as a handicapping condition until 1991 (Ruble & Dalrymple, 2003). Until that time, students with ASD were educated in special education settings with a variety of other categorical disability labels (i.e., mental retardation, communication disorders, and behavior disorders). Many of these special education placements did not fit the educational needs of individuals with autism.

There are currently three primary areas of functioning that are considered when determining whether or not a child shows signs of autism characteristics (Quill, 2000; Simpson & Myles, 1998; Simpson & Zions, 2000; Weatherby & Prizant, 2000). First, children with autism fail to develop age appropriate interpersonal relationships and tend to be unresponsive or abnormal in their responses with other people. The second consideration is language. Virtually all children diagnosed with autism have some level of speech and communication problems and fail to develop oral language skills according to expected milestones. Behavior is the third consideration when diagnosing a child with autism, for example, insistence on sameness, attachment to peculiar objects, self-stimulating behaviors, odd play (spinning wheels on a car rather than making a car “drive”), and inappropriate laughing or other emotional responses (Quill; Simpson & Myles; Simpson & Zions; Weatherby & Prizant) can be observed.

A more concise definition of the essential features of autism spectrum disorders is listed in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) (Weatherby & Prizant, 2000):

1. Impairment in social interaction, manifested by impairment in the use of nonverbal behavior, lack of spontaneous sharing, lack of socioemotional reciprocity, and/or failure to develop peer relationships.

2. Impairment in communication, manifested by delay in or lack of development of spoken language and gestures, impairment in the ability to initiate or maintain conversation, repetitive and idiosyncratic use of language, and/or lack of pretend play.

3. Restricted repertoire of activities and interests, manifested in preoccupation with restricted patterns of interest, inflexible adherence to routines, repetitive movements, and/or preoccupation with parts of objects. (p. 1)

Because of the heterogeneity in autism, a diagnosis does not dictate a specific treatment; rather each child requires an individualized approach to intervention even if there are commonalities in the disabilities. (Beatson & Prelock, 2002; Ruble & Dalrymple, 2002). Therefore, students with autism present a broad spectrum of cognitive abilities and skills and require individualized teaching strategies and curricular consistency in teaching, and the use of a variety of instructional strategies is critical. It should also be noted that autism is a life long disability and achieving changes in behavior may require relatively long periods of time (Ruble & Dalrymple).

In order for a child to be classified as having the disability of autism (all students on the autism spectrum fall under this category) the child must:

(a) have a developmental disability, generally evident before age 3, significantly affecting verbal and nonverbal communication,

(b) have a developmental disability affecting social interaction,

(c) the student's deficits are not primarily the result of an emotional-behavior disability,

(d) evaluation information confirms there is an adverse effect on educational performance,

(e) evaluation information confirms that lack of instruction in reading and/or math was not a determinant factor in the eligibility decision, and

(f) evaluation confirms that limited English proficiency was not a determinant factor in the eligibility decision. (Kentucky Administrative Regulations: 707 KAR 1:002, 2008, p. 3)

History of Autism Spectrum Disorders

Autism was first identified in 1943 by Dr. Leo Kanner, a child psychiatrist at Johns Hopkins University (Bryson, Rogers, & Fombonne, 2003; Kanner, 1946; Mesibov, Adams, & Schopler, 2000; Neumarker, 2003). It was in 1943 that Kanner began to study eleven children who seemed to have the common symptoms of childhood schizophrenia minus the hallucinations and family histories of mental illness (Mesibov, Adams, & Schopler, 2002). Kanner also noticed that individuals with early childhood schizophrenia typically did not have problems at an early age as these eleven students in his study. This observation led him to believe that the exhibited behaviors were a different type of disorder. In 1964, Kanner reported about 23 children who exhibited extreme withdrawal and inability to form the usual relations to individuals from the early beginnings of life. He designated the condition “early infantile autism” (p. 161).

Kanner’s (1943) definition focused on the relationship of the child and his or her mother. He felt that autism was an emotional disorder caused by inadequate parenting, especially from the mother (Bryson, Rogers, & Fombonne, 2003; Mesibov et al., 2000; Tonge, Dissanayake, & Brereton, 1994). Following Kanner’s initial description of autism and into the 1970s, “the dominant view was that autism was psychological, and that treatment should focus on the psychopathological consequences of faulty parenting” (Bryson et al., p. 207). However, in today’s view of ASD, the diagnosis of autism is dependent upon matching descriptions of the child’s current behavior patterns and course of development with the diagnostic criteria (i.e., early onset, restricted repertoire, stereotypic movements) (Tonge et al.).

Since Kanner’s original description of autism, the definition has been based largely on its prototype, also known as classic autism (Bryson et al., 2003, p. 207). A continuum

model has been created for all of the pervasive developmental disorders, which include autism, Asperger syndrome, pervasive developmental disorder-not otherwise specified, childhood disintegrative disorder, and Rhett syndrome (Neumarker, 2003). Interestingly, while Kanner was studying autism, at that time in Vienna, Hans Asperger was studying the same disorder (Neumarker; Ramachandran & Oberman, 2007). By coincidence, each individual gave the same name to the disorder, autism from the Greek term “autos” meaning self (Ramachandran & Oberman). The main reason for Kanner receiving the “fame” for the term autism first was due to the fact that he published in English. Asperger wrote in German and his information was unknown to the non-German speaking population (Neumarker).

Asperger studied four boys and described them in a paper written in 1944 entitled “Autistic Psychopathy” (Baskin, Sperber, & Price, 2006). These children had normal intelligence and language development, but also exhibited autistic-like behaviors (Kirby, 2009). The students had trouble with social integration, however they were noted for their precocious speech as they spoke like little adults. This particular population was also diagnosed around the “age of six or seven which is later than the diagnosis of classic autism” (Baskin et al., p. 102). Asperger also contributed to the spectrum with his study of individuals with a concentrated special interest that enabled them to achieve extraordinary levels of performance in a certain area (Winter-Messiers, 2007). These areas have become known as “special interest areas,” ranging from weather to game shows, and are a key component in the description of Asperger syndrome (Winter-Messiers). Asperger syndrome should not be confused with savant syndrome, in that savantism is not a recognized medical diagnosis. To clarify the difference between AS and savantism, Treffert (2009) defined autistic savantism as a rare condition in which persons with

developmental disorders (including autism spectrum disorders) have one or more areas of expertise, ability, or brilliance that are in contrast with the individual's overall limitations (Kirby).

Characteristics of Children with Autism

Children with autism may have limited speech and lack other formal or conventional means of communication. Some individuals do appear to acquire informal and idiosyncratic behaviors that are used to communicate basic regulatory functions such as requesting and rejecting (Keen, Woodyatt, & Sigafos, 2002). The key is to teach the students to move beyond this phase and help them to work to a more functional communication system. Also, social engagement is critical in the pursuit of a good quality of life (Bernier, Webb, & Dawson, 2005). Children with ASD typically have difficulty generalizing learned behaviors from one setting to another. It is of particular importance that they are afforded the opportunity to develop their social competencies in naturally occurring settings (Kaiser, Hester, & McDuffie, 2001; Sperry, Whaley, Shaw, & Brame, 1999) in order to have the social skills to function successfully within their respective environments (home, community, and employment).

Once in the school setting, young children with autism often have academic, behavioral, and social difficulties. Often times school personnel working with children with ASD don't understand how to address these difficulties. In their study, York, von Fraunhofer, Turk, and Sedgwich (1999) demonstrated that with an increased awareness of autism, participants were able to identify features exclusive to students with ASD such as social difficulties, communication difficulties, obsessive behavior traits, and poor eye contact. This awareness enabled the participants to work more effectively with students with ASD.

Children with ASD typically demonstrate dysfunction in perceptual and sensory processing as well as in communication and neurological functioning, resulting in a variety of functional skill limitations in communication, social interaction, behavioral regulation, and play (Watling, Dietz, Kanny, & McLaughlin, 1999). These behaviors are part of everyday functions. Therefore, dysfunction strategies that address sensory, communication, and social skills should be embedded into their daily routine.

Many students with ASD may display stereotypic (ritualistic) behaviors to help cope with changes in their environments. There are four main types of ritualistic behaviors (Quill, 2000, pp. 19-20):

1. Regulation of sensory stimulation used to tune out visual, auditory, tactile, and kinesthetic stimulation that is overwhelming and uncomfortable.
2. Expression of anxiety to create order amid chaos.
3. Rituals that are a manifestation of impaired cognitive functioning--due to inability to shift focus and to generate novel patterns of behavior.
4. Expressions of poor inhibition, a neurological impairment used to reduce anxiety, prevent changes, and maintain interactions or express excitement.

Children often need to be taught replacement behaviors to help them deal in a more appropriate manner, especially in situations that may be the catalyst for the stereotypic behaviors to occur.

Although the literature often portrays very low functioning students with autism with common characteristics, all students who fall on the autism spectrum have unique needs that must be addressed. For example, a child with Asperger syndrome may have a variety of needs such as sensory processing irregularities and visual cues to allow them to better understand their world. These behaviors usually need to be addressed on a daily basis. Children with Asperger syndrome tend to be high functioning (they present with the

ability to do academics and are able to communicate); therefore they are placed in general education classrooms in order to receive the best education possible (Bullard, 2004). However children with Asperger syndrome require support to address their sensory needs. Cognitive mechanisms such as attention, organization, memory and problem solving would need to be identified in their educational program. These cognitive mechanisms usually operate with information from the sensory systems and a balance of threshold demands need to be understood (Dunn, 2001). When these threshold demands are not met, often the children with Asperger syndrome will tend to have difficulties, often perceived as aberrant behaviors. In addition, adolescents with Asperger syndrome usually have difficulty with executive functions, meaning that they have trouble with planning, organizing, shifting attention, and multitasking (Myles & Adreon, 2001).

Sensory Processing Issues

Sensations from the environment provide individuals with information to facilitate the development of skills (Westling & Fox, 2000). Individuals receive this information through a variety of systems that are placed throughout their bodies. The *somatosensory* system (tactile) responds to touch input through sensors on the skin (Myles, Cook, Miller, Rinner, & Robbins, 2000). The *proprioceptive* system responds to the positioning of the body in space and the movement of muscles (Myles et al.). The *vestibular* system, found in the ear, works to position the head in space (Myles et al.). The *gustatory* (taste) and *olfactory* (smell) systems use chemical receptors to discriminate sensory input (Myles et al.). The *visual* system uses receptors found in the eye to decode and transmit images found in the environment (Kronwitz, 1998, 2003; Parham & Mailloux, 1996; Westling, & Fox). Lastly, *auditory* system uses receptors found in the ear to process sound (Kronwitz, 1998; Kronwitz, 2003; Parham & Mailloux; Westling, & Fox). It should be noted that the

auditory is the most common area of sensory differences for individuals with autism (Tomchek & Dunn, 2007).

Sensation

Winnie Dunn, in her 2001 Eleanor Clark Slagle lecture, stated that “sensation is the common language by which we share the experience of being human; it provides us a common ground for understanding” (p. 608). Every individual relies on sensory experiences to help interpret the world. Each person has a unique way of interpreting that sensory stimulation. The central nervous system operates in a way that seeks to maintain a state of equilibrium. If sensory information begins to interfere with this balance, the neurological system may generate a “fright, fight, or flight” response or reaction thus resulting in tantrum, rage, meltdown, or shutdown (Myles & Adreon, 2001; Myles et al., 2000). Sensory input has the potential to evoke a number of reactions, often interpreted as behaviors. In order to deal with all of this sensory input, the central nervous system helps the body to achieve certain thresholds, which enable modulation of all stimulation. There are two main types of thresholds:

1. Habituation. The cells in the CNS recognize a function and shift to accommodate the familiarity causing more information to be required before an action occurs. When habituation is created, the threshold for action is raised.
2. Sensitization. The brain recognizes the stimulus as important or potentially harmful; thus the CNS generates a heightened response. (Cook & Dunn, 1998, p. 204)

Sensitization is an important function because it enables individuals to remain aware of their contexts and can trigger responses when the situation seems to warrant one.

Sensory integration depends on extensive stimuli to allow the brain to integrate more than one area together and thus allows the individual to produce an adaptive response. Adaptive responses are powerful forces that drive development forward. When a

child makes an adaptive response that is more complex than any previously accomplished response, the brain attains a more organized state and its capacity for sensory integration is enhanced (Parham & Mailloux, 1996). Individuals with autism spectrum disorder (ASD) need to be able to develop effective accommodations that enable them to work around some of the “bad computer code” that sends them inaccurate messages about their environment (Brownell & Walter-Thomas, 2001).

The neocortex is involved in higher functions such as sensory perception, generation of motor commands, spatial reasoning, conscious thought and language (Science Daily, n.d.); therefore there is a dependence of the neocortex upon adequate organization at the brain-stem level, especially as it relates to sensory issues, an important aspect for individuals with ASD. Basic brain research demonstrates the importance of the brain stem in organizing auditory and visual processes. (Ayres, 1972b). The lack of interactions and coordination of the brain may be attributable to the lack of adaptiveness of a brain’s response (Ayres, 1972a), thus affecting an individual’s ability to adaptive to sensory input.

Sensory Processing Difficulties

When difficulties with sensory processing are present, an individual may present with a variety of behaviors. Individuals may react to touch in different ways, for example, stiffening when they run their hand under cold water. This is characterized as tactile defensiveness or resistance to touching objects and textures and should be treated as a sensory difference rather than a behavior (Westling, & Fox, 2000). Children with proprioception problems appear to be clumsy, distracted, and awkward as they are not receiving information about their body’s position in space (Bertone, Mottron, Jelenic, & Faubert, 2003; Parham, & Mailloux, 1996). Children with vestibular processing problems

often appear to be on the go due to seeking sensory input to help them realize where their head is in space. These students also may demonstrate low muscle tone, poor left to right discrimination, and lack of clearly defined hand dominance (Bertone et al.; Parham & Mailloux; Royeen & Mu, 2003). Sometimes if students have been on a special diet, they can become resistant to new tastes and smells as the olfactory and gustatory systems are sending off warnings (Westling & Fox).

Although sensory avoidance behaviors (defensiveness) are very common in individuals with ASD, sensory processing problems are not limited to defensiveness (Kern et al., 2006). Sensation seeking is when individuals are working to add stimuli to their routine in an effort to meet their thresholds. Children with sensation seeking behaviors are very active, continuously engaging, and excitable (Bertone et al., 2003; Dunn, Saiter, & Rinner, 2002). Sensory sensitivity patterns present themselves in individuals as distractibility and hyperactivity; often such individuals are complainers. They notice many more sensory events than others and gripe about them with regularity (Dunn et al.). Sensation avoidance is when students create rituals (stereotypic behaviors) so that everything is predictable (Dunn, 2000). Children with sensation avoidance appear to be rule bound, ritual driven, and uncooperative (Bertone et al.; Dunn et al.). The individual's life and environments are constructed to keep input within manageable ranges (Dunn, 2000). Children who present with low registration patterns appear uninterested, self absorbed, and dull in affect; they often do not seem to notice what is going on around them (Dunn et al.). Children with low registration are often known as "bystanders" and often appear aloof and out of it (Dunn, 2009). Children who are "sensors" have very low sensory thresholds and, like sensory avoiders, they need very little input to benefit. Sensors often notice everything in their environments such as a light flicking and comment or complain

about it (Dunn, 2009).

There are four “A’s” of sensory processing that all individuals use on a day-to-day basis (Anzalone & Williamson, 2000):

1. Arousal--ability to maintain alertness and transition between the states of sleep and wake.
2. Attention--ability to focus selectively on a desired stimulus or task.
3. Affect--emotional components of behavior.
4. Action--the ability to engage in goal directed behavior. (p. 145)

Arousal is one of the key sensory components which effects an individual’s ability to work with the other three “A’s.” Strategies that are used to increase arousal (alerting) are chewing or sucking on sour candy or sitting on a movement cushion. Strategies that are used to decrease arousal (calming) are holding fidget toys, playing soft music, or dimming the lights. Participating in activities that supply deep pressure such as a firm hug or lying under a beanbag can also have a calming effect (Mulligan, 2001).

Sensory intervention strategies often involve the use of planned and controlled sensory experiences including but not limited to: vestibular, proprioceptive, and somatosensory activities such as swinging, deep pressure touch, and tactile stimulation (Dawson & Watling 2000). These strategies, also known as sensory modulation strategies, are some of the most common used in the classroom environment. Sensory modulation “allows a person to achieve and maintain an optimal range of performance and to adapt to changes in daily life” (Tomchek & Dunn, 2007, p. 197). Tomchek and Dunn go on to say that these strategies are needed with students diagnosed with ASD as they demonstrate difficulty with filtering and changing in response to sensory stimuli to form an adaptive response. For example, all schools use florescent lighting. While the average person is able

to block out the humming and flickering often caused by this type of lighting, it can be quite irritating to students with ASD as they suddenly cue into that and lose track of everything else that is going on (Kern et al., 2006). As a result, the use of fluorescent lighting may inhibit the ability for a child with autism to demonstrate their knowledge.

Priming is another method that can be used to assist an individual with sensory differences, by presenting the material or environment in a non-demanding manner, which helps to decrease anxiety and allow exploration (Dunn et al., 2002). For example, a child with autism might practice reading aloud in the quiet resource room and then participate in a whole group “read aloud” in the general class where there is more noise.

Sensory needs are complex and often do not present themselves in one specific way. Individuals with autism have multiple sensory needs that often need to be addressed to allow success in all environments. Recognizing these sensory processing contributions as a vital component of the complex developmental profile of people with ASD provides direction for intervention planning and assistance with being successful in the educational environment (Tomchek & Dunn, 2007).

Pedagogy for Students with Autism

Special education encompasses a vast and complex establishment that includes government regulations and case law, administrators and teachers, and teacher preparation programs (Kimball, 2002). It is not uncommon to see all of these different components of a special education program fall on the shoulders of teachers. With the coordination of teacher assistants, individual education plans (IEPs), mainstreaming, general education teachers, school administrators, and parents, the job of a special education teacher can almost look like the job of a business manager (McCoy, 2003).

Historically, special education teachers and general education teachers have been

known to have very separate roles. Special education teachers would assume responsibility of students with disabilities when they are in the special education settings while general education teachers assumed responsibility for the students when they attend the mainstream settings (Janney, Snell, Beers, & Raynes, 1995; Schumm, Vaughn, Haager, McDowell Rothlein, & Saumell, 1995; Simpson, de Boer-Ott, & Smith-Myles, 2003; Simpson & Myles, 1993). As the pedagogy of special education has evolved, so have the types of special education settings in which a student can participate to receive their free and appropriate public education (FAPE). The following serve as examples of the types of special education settings wherein students with disabilities might receive their instruction:

1. Self-contained classroom [segregated] contains students who have a particular or a number of disabilities (special class). Students spend the entire day in this type of classroom.
2. Integrated classroom where students in a special education class attend but join the regular education class (mainstreaming) for various activities.
3. Resource classroom--Procedurally students spend the majority of the day in a general classroom but are "pulled out" to receive instruction from a special education instructor in a resource room for a portion of the day.
4. Inclusive classroom--A typical regular education classroom where all students are included regardless of ability or disability. (Dixon, 2005, pp. 34-35)

The current paradigm shift to less restrictive models for educating students with disabilities was the result of Public Law 108-446, or the Individuals with Disabilities Education Improvement Act (IDEIA). IDEIA, as amended in 2004 (20 U.S.C. § 1400 et. Seq) strongly emphasizes the presumption that children with disabilities shall be educated in the general education setting as well as having access to and advancing in the general education curriculum (Hyatt, 2007). Because the general education teacher holds the expertise within the general curriculum and the special education teacher holds the expertise within the IEP process, IDEIA 2004 requires collaborative planning, routine

modification of instructional materials, and the inclusion of parents and peers as important components of the educational process (Council for Exceptional Children, n.d.; Doelling, Bryde, Brunner, & Martin, 1998).

Teacher-Child Relationship

The teacher-child relationship can affect a child's social status in the classroom, thus elevating the importance of this relationship (Robertson, Chamberlain, & Kaseri, 2003). This dynamic bond can often "make or break" the education experience for a student with disabilities. If a teacher perceives a student as a bad child, then all school members who come in contact with this student could possibly experience the same emotion. Researchers generally find that teachers have closer and less conflictual relationships with children who have fewer behavioral problems (Robertson et al.). A sensitive and responsive teacher is more likely to respond to children in a child-centered manner rather than adult-centered, displaying the ability to take the child's perspective (Rimm-Kaufman, Vorhees, Snell, & La Paro, 2003). Many responsive teachers make it their personal goal to be able to give 110% of themselves each and every day. Child-centered teaching is focused on the student's needs, abilities, interests, and learning styles with the teacher as a facilitator of learning (Estes, 2004). This classroom teaching method acknowledges student voice as central to the learning experience for every learner (Estes; Pedersen & Liu, 2003). Many of these teachers demonstrate the skill of resiliency, in other words, the ability to pick oneself up after a hard day and approach the next day with a positive attitude. These teachers often look at the cup as half full no matter what the scenario (Mastropieri, 2001).

Teacher attitudes toward inclusion, confidence in skills, and the ability to access resources may affect the success of the inclusion process. Teachers who were educated

many years ago may have less positive attitudes about inclusion (Bennett, Deluca, & Bruns, 1997). This can be especially difficult when educating students with autism, as all students on the spectrum tend to look different. Individuals with ASD are a heterogeneous group with such a wide variation in severity and types of symptoms that it is virtually impossible to conclude that one instructional method will work with each and every individual with the disorder. In order to choose the best method of instruction for each child, one must have been trained in more than one approach (Scheurmann, Webber, Boutot, & Goodwin, 2003). Although not an easy task, special education teachers need to be able to have a variety of skills that they can “pull out of their back pocket” to allow every student in the classroom to benefit from the instruction (Bureau of Labor Statistics, 2008).

Teaching children with autism spectrum disorder is not necessarily easy. Many teachers struggle with understanding how to instruct students with ASD. One of the reasons for teacher anxiety is that the behavior of these students can often become so severe that it is daunting to figure out the best teaching method for the classroom (Iovannone, Dunlap, Huber, & Kincaid, 2003). Jennett, Harris, and Mesibov (2003) demonstrated that the commitment to a teaching philosophy was positively correlated with teaching theory. Jennett et al. point out that a teaching philosophy allowed teachers to feel purpose when working with their special education students. The philosophy gave them a framework for instructing the students. For example, many teachers use either Applied Behavioral Analysis (ABA) or Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) to instruct the children in their classroom (Jennett et al.). Learning a new theory does not, however, come without its challenges. A study done by Grey, Honan, McClean, and Daly (2005) noted that although

teachers were initially adverse to ABA, towards the end of the training they reported that the use of functional analysis is highly beneficial and believed that systematic instruction could really effect change. This modification in attitude was empowering teachers to face challenging behavior (Grey et al.). Therefore, although the behaviors of autism can be somewhat severe and will challenge even the best school program, through the use of ABA, children can learn to function appropriately within their environments (Devlin & Harber, 2004; Simpson et al., 2003).

School Administration

Another important component in the special education programming for students with autism is school administration. Principals' responsibilities have increased to ensure successful learning opportunities for all students, including students who have disabilities (Bays & Crockett, 2007). Despite the fact that each student's IEP team makes placement decisions, the behavior and perceptions of the principal can strongly influence placement decisions (Praisner, 2003; Yell, Katsiyannis, Dragsow, & Herbst, 2003). This can become especially difficult if the principal is from the "old school" of teaching where there were not as many special education students visible in schools. Smith and Smith (2000) found that administrators, who taught before many special education practices were in place, would benefit from training about individuals with disabilities (i.e., autism) to understand better the concerns of their teachers. However, even with training, principals need to be well versed with the unique needs of individuals attending special programs. It is important that administrators have a good understanding of the needs of children with not only severe learning deficits but also severe behavior problems (Boscardin, 2007; Horrocks, White, & Roberts, 2008).

Instructional leadership is "a tool with the potential to help educators fulfill the

individualized purpose of the IDEA by ensuring that a qualified student receives a free appropriate public education that emphasizes special education” (Bays & Crockett, 2007, p. 145). Bays and Crockett further define special education (pursuant to IDEA) as “specially designed instruction in which the content, methodology, or delivery is specifically adapted to address unique needs that result from a student’s disability, and ensures access to the general curriculum so that the student can meet educational standards that apply to all children” (p. 145). Because all students are now required to meet the same educational standards regardless of severity of disability, principals must get involved. They can no longer afford to ignore instruction for certain groups of students, nor can they manage their schools according to personal or political whim (Horrocks et al., 2008; Lashley, 2007).

Principals traditionally have little experience in dealing with special education populations in their schools, and typically like it that way (Lashley, 2007). Their leadership for the teaching population in their school is important and they can strengthen the efficacy for all teachers by identifying exemplars of successful team performance and by making it easier for teachers to observe each other (Ross & Gray, 2006). By changing their views from “old school” thinking to more modern thinking, principals are able to help the special education teachers in their school have a much better experience. Hansen (2007) reflects on his experiences as an assistant principal and discusses how the general education teachers in his school all had support networks, but the special education teachers were all on an island by themselves with limited support. He went on to suggest that principals work to place teachers into groups or teams where they are all able to interact with each other, do problem solving, and observe each other teaching. Principals who have limited knowledge in special education can also work to appoint a teacher leader for that area. The

designation of these teacher leaders as rooted in the roles of “team leader” or “department chair” gives these individuals the ability to use their collective knowledge to make better decisions and commit themselves to enhancing student achievement (Billingsley, 2007; Crowther, Ferguson, & Hann, 2008).

Teacher Training for Instructing Students with Autism

A variety of practices have been constructed around the idea of teachers helping teachers as a form of offering support to educate “difficult” students. For many years, teacher assistance teams (TAT) have operated in schools across the nation (Bangert, & Cooch, 2001; Chalifant, Pysh, & Moultrie, 1979; Hayek, 1987; Ogletree, Bull, Drew, & Lunnen, 2001; Papalia-Berardi & Hall, 2007). These teams usually consist of consultants and other teachers who collaborate with general educators primarily to help them develop and apply effective instruction or behavior management methods (Westling, Herzog, Cooper-Duffy, Prohn, & Ray, 2006). This approach is often quite useful for general education teachers as many times there are special education teachers who sit in on these committees and possess a great deal of knowledge and experience. Often, however, newer special education teachers are in need of teacher assistance as well. Papalia-Berardi and Hall (2007) reviewed seven studies done on TAT and found that teachers desire direct support for their students by utilizing TAT; however, many ($n = 104$) were also dissatisfied with the team approach as they felt that this was merely a lengthened referral process which was an obstacle towards accessing special education services; others ($n = 105$) felt that the process was redundant and burdensome although they did like the aspects of interpersonal support that they received. Papalia-Berardi and Hall commented that from the general education teacher standpoint, successful social validity for TAT consisted of improved student performance and successful TAT implementation involved acquisition of

immediate assistance and resources via student access to special education resources.

Teacher Shortages

Chronic shortages of fully qualified special education teachers thwart efforts to deliver appropriate educational services to students with disabilities (Cegelka & Alvarado, 2000). This often leads to districts offering emergency or provisional certificates to individuals who plan to pursue a teaching certificate through an alternate certification program. Regardless of whether or not teachers are fully certified, they need to have support from other teachers, especially during their first year teaching. This is especially crucial with the addition of the No Child Left Behind of 2001 (NCLB) (Public Law 107-110) legislation that affects school district policies. NCLB is both comprehensive and powerful, changing the way public school students are educated in the U.S. NCLB affects all students who attend special education programs for part or all of their instruction by holding states and public schools accountable for improving students' achievement in reading and math. NCLB requires *all* students to meet state standards of proficiency (Ratcliffe & Willard, 2006). The law also appears to add a burden to special education by requiring that all teachers be highly qualified in their academic areas. As stated, highly qualified teachers "must hold at least a bachelor's degree from a four year institution; hold full state certification; and demonstrate competence in their subject area" (Berry, Hoke, & Hirsch, 2004). Highly qualified also refers to the fact that if a special education teacher is the teacher of record for a certain subject (teaching math or language arts in the resource room) then they must also be highly qualified for the subject that they are teaching (Zirkel, 2007). This adds more strain to teachers who then could be told that they have to add layers of content to become highly qualified in whatever discipline area that they are teaching.

Special educators are constantly feeling the “burn” of added pressures to them both through NCLB but also with the everyday business of their job. Special education teachers report their frustration with what is referred to as the “paperwork” of special education. (Klein, 2004; Schiller, O’Reilly, & Kirlin, 2003; Spensense, 2002). New special educators are remarkably similar in their responses to the required notifications, scheduling, and specificity of forms. They report being frightened by lawsuits or worse if they do not prepare the paperwork accurately and are stunned at the amount of time that it takes out of their days (Boyer & Lee, 2001; Klein; Schiller et al.). Paperwork is what often drives a special education program, and this is something that is not discussed or is briefly glossed over in many teacher-training programs (Boyer & Lee; Hillebrand, 2000). As one special education teacher remarked, “It was a very hard first quarter; it was beyond what I had heard first year teaching would be like, or what I even thought it could be like” (Boyer & Lee, p. 7). The challenges of being a new special education teacher encompass not only those common to all new teachers, but also those that are unique to the field (Boyer & Lee; Conderman & Katsiyannis, 2002).

Teacher Training

Research conducted over the past forty years has shown that interventions based on the principles of ABA are highly effective for remedying the deficits associated with autism (Fenske, Zalenski, Krantz, & McClannahan, 1985; Hewett, 1965; Lovass, 1987; Lovaas & Schreibman, 1971; Koegel, Koegel, Shoshan, & McNeerney, 1999; Koegel & Schreibman, 1977; Schopler, Mesibov, & Hearsey, 1995; Wolery, 1978). Most teachers receive relatively little, if any, instruction in evidenced-based practice for children with autism (Lerman, Vorndran, Addison, & Kuhn, 2004). This poses a very serious problem when taking into consideration the fact that the number of students diagnosed with ASD

entering the school districts is increasing. Mavropoulou and Padeliadu (2000) found that there needs to be increased in-service training related to autism for all teachers, whether in special or regular education. Teachers should also have the opportunity to understand the various factors contributing to the needs of each individual child with autism. However, the problem exists that school districts provide little class release time for teachers and continuing education is restricted to a handful of didactic workshops that cover a variety of topics throughout the academic year (Lerman et al.).

Additional teacher training for students with disabilities needs to be provided to early childhood teachers and not just to teachers in the kindergarten through twelfth grade population (Rimm-Kaufman, Voorhees, Snell, & La Paro, 2003). Early childhood classrooms are the first experiences that many students with disabilities have for their educational programs. Students with IEPs often begin their education at the age of three, and this is most commonly done within an inclusive preschool setting. In her study, Frankel (2004) noted that all of the preschool teachers lacked formal training in special needs. Preservice courses in special needs and inclusion are limited or non-existent in some basic early childhood diploma or associate degree courses. Since most young children with disabilities are being served in the general education classroom, the early childhood educators frequently serve as the primary teacher, often working in cooperation with early childhood special educators and other professionals (Dahle & Gargiulo, 2004). Inclusive classroom settings emphasize the importance of a school community where diversity is valued and individualized encouragement for learning and social interactions is provided to children with disabilities in typical preschool settings (Rimm-Kaufman et al.).

Romi and Leyser (2006) examined data on 1155 pre-service teachers enrolled in eleven different education colleges which offered training for students majoring in

elementary and junior high school education, special education, early childhood education, non-formal education, and child and youth care work. Their purpose was to examine the attitudes towards inclusion and self-efficacy beliefs of a large sample of teachers in Israel, both from Jewish colleges and Arab colleges. The researchers used a Hebrew version of the Teacher Efficacy Scale and the Opinions Relative to Integration Scale (ORI), a 30 item five point Likert-type scale. In addition to the two instruments, the participants also provided demographic information. The results of this study indicated that Jewish students expressed more support for inclusion than their Arab counterparts. Additionally, it was found that Arab students appeared to be less concerned about behavior problems in inclusive settings, but were more concerned by the lack of skills of many general education teachers. The Jewish pre-service teachers had significantly higher general teaching efficacy scores and higher scores on sense of efficacy in working with low-achievers than the Arab students, although the Arab group had higher personal teacher efficacy scores. The students who were majoring in special education were also more supportive of inclusion than general education teachers and were significantly more concerned with the lack of preparation and skills of the general education teachers for working with students who have special needs.

de la Torre Cruz and Casanova Arias (2007) studied a group of 339 prospective teachers in Spain who were studying infant to primary education. The purpose of their study was to adapt a version of the Teacher Efficacy Scale to the Spanish language and to also verify if the data obtained from the scale showed the existence of three efficacy dimensions: classroom management/discipline, personal, and general efficacy. The authors also checked whether the expectancies of efficacy of working teachers differed from those of prospective teachers.

de la Torre Cruz and Casanova Arias (2007) used a doctoral student for back translation of the scale. There was a high level of correspondence between the English and Spanish forms; the small differences were discussed and corrected. The factor analysis, which was applied to the teacher responses, revealed that the construct teacher efficacy showed a higher level of complexity than personal teaching with the emergence of a new factor made up of items related to classroom discipline. The study also revealed that in-service teachers have more positive attitudes than prospective teachers in terms of the perceived ability to maintain students' interest in the classroom tasks used and also to put into practice a series of actions designed to counteract the disruptive behavior of some students.

After completing the pre-service coursework, many teachers seem to experience shock at the piles of paperwork, lack of support, and lack of supplies, among numerous other problems that are shared by special educators. Westling, Herzog, Cooper-Duffy, Prohn, and Ray (2006) looked at the creation of a teacher support program (TSP) to help teachers network and offer assistance to each other. This study monitored the TSP during its initial three years (2000-2003). The TSP provided service to 178 individuals, most from North Carolina with the majority of the teachers in special education classrooms. Administrators, general education teachers, paraprofessionals, and others were included as well.

Data were collected through the use of end-of-year Likert-type scales, individual interviews, classroom, observations, and document analyses from problem solving notebooks and reflection forms which were provided during the meeting sessions. The qualitative data were analyzed using case and cross-case analysis (Westling et al., 2006, p. 140). Participants in this program expressed stress similar to other teachers in special

education, which could potentially lead to burnout and leaving the classroom altogether. Teachers who participated in TSP indicated that the design was much more helpful than the usual staff development programs that are held at the school level. The participants felt that the information presented to them in TSP was more useful, timely, and relevant, along with the utilization of a “bottom up” structure for which they were more appreciative. The teachers benefited from the program, but also enjoyed being there to offer assistance to their colleagues.

Overall, from preservice teachers to those in the classrooms, teachers appreciate the support received from their colleagues especially when faced with the daunting task of paperwork and the reality of teaching vs. what is taught in the coursework.

Obstruction

Public schools face multiple demands and competition for limited resources (Tincani, 2007). These demands fall even harder on teachers as they try to instruct all of their students and create an educational program for a particular pupil. Schools work to balance the academic progress of students with disabilities with the legal mandates of the Individuals with Disabilities Education Act (IDEA), which includes least restrictive environment (LRE) provisions (Tincani).

Children with autism often experience frustration in typical learning settings and often react to this frustration with tantrums and escape behaviors (Smith, 2001). This leads teachers to the difficult task of finding the type of programming that will work with each individual child. Approaches such as discrete-trial training are relatively quick sessions (5 seconds) that are taught in a distraction free setting (Smith). The outcome of a program such as this allows for students to decrease their problematic behaviors and to increase their participation in the classroom (Dib & Sturmey, 2007; Smith). Training of the

teachers, however, continues to be a large barrier in holding a successful program for students with autism.

In their study, Kohler, Anthony, Steighner, and Hoyson (2001) found that although teachers were familiarized with instructional techniques at the beginning of the study, they were receiving low responses from their target students. All of the teachers in the study expressed frustration in learning how to use the various tactics. This frustration stemmed from the fact that their initial efforts were met with child indifference, avoidance, and even opposition.

Maladaptive behaviors of students with autism also create a barrier to entrance into the general education classroom. General education teachers often look at the paraprofessional (teacher assistant) as an essential support for students with severe disabilities to enter the general classroom (Giangrecco & Broer, 2007). While placing an assistant with a student with severe disabilities into a general classroom might appear to be a “good thing,” it can actually turn out to become a much more restrictive situation for the student (e.g., dependence, interference with peer interactions, and interference with the general education teacher’s ownership) (Giangrecco & Broer).

Multicultural Issues in Educating Students with Autism

There is a need to be responsive to children with autism from diverse cultural backgrounds. For example, Paneque and Barbetta (2006) found that teaching styles that are culturally aware were important for working with their diverse classrooms. Furthermore, when teachers are sensitive to their students’ needs as well as understanding students’ cultural background, a more heterogeneous classroom is likely to develop (Romi & Leyser, 2006).

Autism is a disability that can affect an individual regardless of race, gender,

ethnicity, or socioeconomic status. With the ever-growing population of English as a second language learners, it is not a surprise that there are increasingly students with autism who come from families with limited English proficiency (McHatton & Correa, 2005; Rogers-Adkinson, Ochoa, & Delgado, 2003). When working with students with limited language proficiency, it is helpful that they are proficient in their native tongue as some common linguistic rules can be moved back and forth (Paneque & Barbetta, 2006). However this is not always the case when working with students who have disabilities, and teachers often find themselves working harder to bridge this gap.

Historically, families who come from culturally diverse backgrounds were expected to check their culture at the door and adhere to the norms of the procedures of schools in the United States (Brown, 2007). Schools are now working to create a closer fit between the students' home cultures and that of the schools. Since the school environment covers both general education and special education, care needs to be taken that the diverse cultural background of students is included in all aspects of the special education programming (i.e., inviting interpreters to the IEP meetings).

Studies have shown that the maladaptive behaviors of students with autism are more pronounced compared to other developmental disabilities (Dahle & Gargiulo, 2004; Magana & Smith, 2006; Smith, 2004; Winter-Messiers, 2007). Parents of children with autism are more likely to have poorer quality relationships than parents of children with other developmental disabilities (Magana & Smith). Many teachers are already aware of the quality of the bond that many parents share with their children with autism, but educators also need to be aware of how other cultures might view their disabled child when they work with these families. Research on children with developmental disabilities has revealed that differences exist from the way that people in various cultures access services

(Wilder, Dyches, Obiakor, & Algozzine, 2004). African Americans, for example, often turn to family, friends, and religious groups before seeking professional help and typically access services less (Wilder et al.).

The Hispanic (Latino) population continues to be the most common culture entering the U.S. Magana and Smith (2006) found that Latina mothers co-residing with their child with disabilities had lower levels of education, were in poorer health, and had more depressive symptoms. According to McHatton and Correa (2005), single Latina mothers lacked language proficiency which affected the women's ability to respond to situations in a more assertive manner. Both of these studies demonstrate that the multicultural population requires more time and attention from teachers to explain the types of services that their children will be getting at school; this population also needs help in understanding how they can help their child at home.

Some cultural traditions inhibit access to public services. For example, African Americans often access professional services at low levels (Wilder et al., 2004). Latinos have an even lower level of accessing the same types of professional services (Bailey, Skinner, Rodriguez, Gut, & Correa, 1999). Some south Asians also may not seek services, especially if they have a girl for fear that the accompanying stigma will make it harder for them to arrange a marriage for their child (Bailey et al.; Raghavan, Wisner, & Patel, 1999; Wilder et al.). Additionally, some cultures do not have a word in their language for mental retardation or any of its derivative forms (Rogers-Adkinson et al., 2003). Due to the increasing number of English language learners who are entering schools, it is not surprising that some of these students also present with a variety of disabilities. It is therefore important that teachers become more culturally responsive to the diverse needs of these families (Brown, 2007).

Integration into the General Classroom

The definition of inclusion includes consideration of presence, participation, acceptance and achievement (Humphrey, 2008). This definition represents inclusion as an ongoing process. In other words, inclusion does not mean just placing a child in a regular education classroom with little attention to academic work. Rather, inclusion means that all factors of education are considered and the student with ASD is an active participant just as all other children in the classroom (Chandler-Olcott & Kluth, 2009; Friedlander, 2008; Hart & Whalon, 2008; Humphrey; Marks, 2007; Mesibov & Shea, 1996). Based upon the above definition, there are two clear goals for the integration of students with autism into the general education program (McGregor & Campbell, 2001):

- 1) To honor the right of all members of a community to take part in day-to-day life.
- 2) To improve the quality of children's social interaction and academic development through daily contact with typically developing peers. (p. 190)

When considering the academic program of children with ASD, the following statement from a young man with ASD exemplifies what inclusion is all about: "People with AS (Asperger's syndrome) are like salt-water fish who are forced to live in fresh water. We're fine if you just put us into the right environment. When the person with AS and the environment match, the problems go away and we even thrive. When they don't match, we seem disabled" (Baron-Cohen, 2003, p. 180). However, finding the right mix for children with ASD can be difficult. For example, McGregor and Campbell (2001) found that children with autism who are already included in the general classroom sometimes display behaviors that give off negative stereotypes.

There are specific strategies that might assist the student with ASD to be successful in the general education classroom. One of those strategies is the use of Circle of Friends

(Chamberlain, Kasari, & Rotheram-Fuller, 2006; Kalyva & Avramidis, 2005; Miller, Cooke, Test, & White, 2003; Whitaker, Barratt, Joy, Potter, & Thomas, 1998). This strategy was found to produce a positive impact on the social acceptance of students with disabilities into their classroom peer groups (Fredrickson & Turner, 2003). Circle of Friends is a support group where teachers are able to enlist the involvement and commitment of peers around an individual student (Falvey, Forest, Pearpoint, & Rosenberg, 1997). Through the use of Circle of Friends, students have an opportunity to see the many people who are involved in their life or the lives of students with a disability. This group then works together to form a more “naturalized” social support group for individuals with disabilities (Falvey et al.). This process helps regular students and teachers see the individual with a disability as a person rather than someone with negative behaviors.

Furthermore, in order for students with ASD to be integrated into general education, teachers should have some understanding of the particular psychology of children with autism (Tutt, Powell, & Thronton, 2006). Every person with ASD is different, and it is important to look beyond the label so that pupils do not become “defined by their diagnosis” (Molloy & Vasil, 2002, p. 661). This allows teachers to see the world through the eyes of an individual with autism. Using the accounts of people with autism provides a means of examining in a realistic and stimulating manner the various aspects and theories of the condition (Barrett, 2006). Once these teachers have a deeper understanding of their students, a better approach to programming for these students can take place. Effective teachers of students with autism are required to influence positively these students’ functioning in academic, language, social, perceptual, and self help areas, thereby enabling them to become more socially acceptable and to understand better the

world in which they live (Myles, Ormsbee, & Simpson, 1991).

Robertson, Chamberlain, and Kasari (2003) examined the relation between general education teachers and their second and third grade students with autism. They explored the effect of the students' behavior problems on the relationships and social environment within the general education classroom. This was an important study as the researchers had demonstrated that "previous research does not look at the relationship between general education teachers and students with disabilities." (p. 123)

Through the use of the Student-Teacher Relationship Scale and the SNAP-IV rating scale, a forty-one-item scale measuring behavioral symptomatology in children, Robertson et al. (2003) investigated the overall relationship of teachers, students, and their classmates diagnosed with autism. The researchers also examined the presence of paraprofessionals and whether or not this affected behavior problems and levels of social interaction. The participants included 187 children from second and third grade inclusive classrooms from two urban school districts. The teachers were first interviewed about their teaching experience, which included number of years teaching, grade levels taught, credentials, and special education training.

The teachers reported that having the paraprofessionals in the classroom was very helpful and did not hamper their relationship with the students. The teachers thought that the addition of a paraprofessional to the classroom allowed for a team approach to the child's education. Teachers reported positive relationships with their students diagnosed with autism; however as more behavior problems became present, teachers had a much more difficult time forming a relationship with these students. The quality of the teacher student relationship was more dependent on the peer status of the students in the classroom rather than the presence of a paraprofessional (Robertson et al., 2003).

Mavropoulou and Padelidu (2000) examined regular and special education teachers' knowledge of the causes of autism and the main behavioral features of the disorder. This study explored teachers' views on the goals of treatment for autism, as well as possible differences in the perceptions of the two groups towards autism. All of the participants did their in-service training at a university in Greece and had a minimum of five years of teaching experience. A total of thirty-five regular teachers and twenty-nine special education teachers returned the surveys (28.2% and 50% return rate, respectively).

The results of the study indicated that the majority of the teachers were aware that: (a) autism was more common in boys; (b) the disorder was not always accompanied by mental retardation, and (c) was not an early form of schizophrenia. Additionally the study participants in both the special education and general education groups understood that children with autism "do not seek the company of others," "seem distant," "do not seek physical contact with others," "have temper tantrums," and "make clumsy movements." However, teachers appeared to have more confusion with the onset of autism as they suggested it appeared after the age of three (Mavropoulou & Padelidu, 2000). The general education teachers were interested in strategies for educating a child with autism: the development of relationships with other children; getting relief from anxiety and emotional tension; development of basic self-care skills; and understanding the feelings of others. (Mukuria, & Obiakor 2008). In contrast, the special education teachers placed more emphasis on the reduction of self-injury (Horner, Day, Sprague, O'Brien, & Heathfield 1991), expression of desires using language (Quill, 1990), the reduction of repetitive activities (Roberts, 2003), basic self care skills, reading and writing, and playing with other children (Mavropoulou & Padelidu; Mukuria & Obiakor; Quill). Interestingly, Mavropoulou and Padelidu also posit that the special education teachers demonstrated a

richer knowledge of the ASD and were able to provide more detailed information about autism. Interestingly the results of this study suggest that both types of teachers (general and special education) appeared to want the students with autism to have similar outcomes.

Pupils with ASD tend to understand and use language in a very literal manner (Welton, Vakil, & Carasea, 2004). Therefore, for successful inclusion to occur, teachers need to be aware of the language they use in order for students to understand what is expected of them. Humphrey (2008) illustrates how a teacher might use metaphors and figures of speech:

“... pupils who are not doing enough work might be told by a teacher, ‘Pull your socks up!’ A pupil who has been in trouble a lot but is being given another chance by his school might be asked to ‘turn over a new leaf’”(p. 48). Clearly, the literal interpretation of these phrases will not help the student with ASD to get more work done or understand that another chance to improve has been communicated to him. In another study Humphrey and Lewis (2008) observed a lesson in which a pupil with ASD put his hand up to answer a question. “The teacher, busy working with another pupil, said, ‘Hold that thought’--imagine the confusion this caused!” (p. 48)

While these examples can be considered amusing, they serve as a reminder about how we use figures of speech, the use of sarcasm or irony, and idioms in our conversations. Therefore, teachers need to be aware of the literal way that individuals with ASD understand some verbal language, i.e., idioms. These students may need to have visuals or other concrete examples to assist with understanding.

Best Practice Techniques for Autism

Most interventions conducted in classrooms to increase engagement, attention, and appropriate behaviors of children with ASD have been based on traditional models of

classroom management (Ganz, 2007). The physical environment of a classroom sets the stage for interactions of children with and without disabilities (Clark & Smith, 1999). When a student with autism enters the classroom, teachers need to reconsider the classroom environment and what methods they will be using. For this to occur, general education teachers need to be instructed in the environmental needs of students with autism (Reynolds & Dombeck, 2008). One reason that children with ASD may have limited success with some interventions is that they do not address the sensory issues that underlie the behavior that is perceived to be disruptive (Baker, Lane, Angley, & Young, 2006; Baranek, 2002; Horner, Carr, Strain, Todd, & Reed 2002; Reynolds & Dombeck; Schilling & Schwartz, 2004).

Applied Behavior Analysis (ABA) refers to “pinpointing and thoroughly analyzing a behavior to be learned” (Simpson & Zions, 2000, p. 103). When teachers use ABA in the classroom, they attempt to reinforce desired behaviors, ensuring student understanding that those behaviors should be used more frequently. With the positive behaviors being reinforced, the negative behaviors will be used less, leading to extinction (Ghezzi, 2007; Harris & Delmolino, 2002; Steege, Mace, Perry, & Longnecker, 2007).

Some students may need primary reinforcers, which may include sips of juice, pieces of cereal or candy, etc. Secondary reinforcers (e.g., high five, verbal praise or pat on the back) are not initially reinforcing to students with autism. These reinforcers often need to be paired with a primary reinforcer (which will be faded) until the student acquires reinforcement from the social cues alone (Alberto & Troutman, 1999; Scheuermann & Webber, 2002; Simpson & Myles, 1998). Other types of reinforcement include material reinforcers (e.g., stickers, bubbles, hand cream), activity reinforcers (e.g., playing a game, time on computer, listening to music), and token reinforcers (e.g., points, play money,

plastic poker chips) (Alberto & Troutman; Scheuermann & Webber; Simpson & Myles). Often a reinforcement inventory will need to be conducted to see what is rewarding to a student. Once the inventory is completed, the teacher should begin with those items.

The effectiveness of ABA has been investigated. For example, Grey, Honan, McClean, and Daly (2005) evaluated ABA for teacher training. A total of eleven special needs teachers completed a training course in ABA. The participants were also required to have a general education degree and prior experience in working with children with autism. There were a total of eleven children in the study, each with the diagnosis of autism, ranging in age from two years and ten months to fifteen years; all presented with a variety of educational difficulties. The study used a single subject AB design as a method for determining the effectiveness of intervention (i.e., support plan). As a result, the support plans designed by the teachers were successful with an average of eighty percent improvement. Furthermore, the teachers indicated (a) that the quality of the training was higher than they expected, (b) that the quality and clarity of the teaching sessions was very high, and (c) that their skills had improved and that they now had an arsenal of data collection strategies for their students with autism. Furthermore, the teachers agreed that the training sessions would enhance their professional practice. Overall, the teachers felt that the ABA procedures were very applicable to the many aspects of instruction for children with ASD.

An example of an “educational approach” to meeting the unique needs of children with ASD or pervasive developmental disability (PDD) is TEACCH (Treatment and Education of Autistic and Related Communication Handicapped Children). This approach teaches independence in students with ASD as they follow a work schedule and complete a variety of “work tasks” during their instructional day. Furthermore, all of the components

in the workstations have a clear beginning and ending. The materials are all based on the child's strengths, interests, and learning styles. Behavioral interventions are also included with adjustments that incorporate more naturalistic procedures (National Research Council, 2001).

Since ABA is so data driven, teachers are able to incorporate a hierarchical prompting system into the task analysis, resulting in a very clear idea of how independently a student is able to complete a task (Fisher, Kodak, & Moore, 2007). The missing components of the task analysis can also be incorporated into a TEACCH workstation as a new skill. This allows a student to get repeated practice throughout the day. Teachers may also opt to work on a certain skill at the time when it occurs normally, for example putting on a coat when it is time to board the bus to go home. The natural environment might cue the child to complete the task and give the teacher the opportunity to work on communicating a need (Cowan & Allen, 2007).

Communication

Communication strategies should involve having the teacher arrange the environment to promote language (Boutot, 2007; Friedlander, 2008; Koegel, Koegel, & McNerney, 2001). In some cases, the environment may be manipulated by withholding a preferred item, assistance, or activity until communication is initiated. If none is forthcoming, then the teacher cues the student (Dyer, Williams, & Luce, 1991; Jones, Feeley, & Takacs, 2007). The cuing can be taught to students through the use of discrete trial training. Discrete trials include four steps (Cattell-Gordon & Cattell-Gordon, 1998):

- 1) A request is made.
- 2) A response is given.
- 3) A consequence is given.

- 4) A pause appears before the beginning of the next trial. (p. 80)

There are numerous other types of research-based instructional approaches used in the home and classroom that have been successful with children with autism. The following is an overview of some of the most effective methods.

Incidental teaching. Requests for assistance represent an opportunity for an interventionist to provide instructional prompts. These are designed to teach the learner increased independence in the task that motivated the request for assistance (Hart & Risley, 1968; Reichle, McComas, Dahl, Solberg, Pierce, & Smith, 2005). This is often known as incidental learning/teaching, an instructional method that combines the use of normally occurring situations with the child's interest in order to facilitate language learning (Hart & Risley, 1968, 1978). In incidental teaching, the student initiates the interaction, usually by a verbal or a nonverbal request. The teacher then provides cuing that ranges from minimal hints, "use your words," to a full prompt, "say 'I want the ball.'" The child is then reinforced for complying with the request (Bailey & Wolery, 1984; McGee, Krantz, Mason, & McClannahan, 1983; McGee, Krantz, & McClannahan, 1985). Scott, Clark, and Brady (2000) contend that there is a need for incidental learning and task analysis for teaching skills to students with autism. These researchers believe that a teacher needs the ability to understand how to analyze a task and segment it so that they can impart the important skills to students. Before beginning the prompting hierarchy, the teacher attempts to identify the natural environmental cues that enable the student in beginning the required task. Using incidental learning assists teachers in their instructing for a given task. Incidental teaching usually takes place during free time. The adult sets up a "situation" to involve the student and elaborates that task when communicating (Kelley, Shillingsburg, Castro, Addison, & LaRue, 2007). An example of incidental teaching is taking desserts out

of their lunch when they are not looking. When lunchtime rolls around, the students see the missing dessert. The teacher then asks the students what's wrong. Students are praised and reinforced with the dessert when they respond. Incidental teaching and task analysis are both components that can be added to the current classroom program of most teachers.

Milieu teaching. Although similar to incidental teaching, milieu teaching involves prompting target communicative responses in the context of natural routines. These may include opportunities that the learner initiates, those that the teacher creates, and those that occur naturally in the day's events (Browder, 2001). Kaiser (1993, p. 77) describes milieu language teaching as a "naturalistic" conversation-based instructional strategy in which the child's interest in the environment is used as a basis for eliciting communication responses. The environment must be arranged for facilitation of language teaching; by using toys or other objects of interest, the instructor can set up situations which elicit a response from the child (Goldstein, 2002; Peterson, 2004).

Mand-Model procedure. Mand modeling is often used with children who are not initiating and are therefore unable to make requests. The procedure also is utilized to increase the amount of communicative responses related to an activity (Goldstein, 2002; Hawkins & Schuster, 2007; Murphy, Barnes-Holmes, & Barnes-Holmes, 2005; Nigam, Schlosser, & Lloyd, 2006). The teacher arranges materials so as to promote the student's interest. When the student reacts to the materials, the teacher mands (verbally instructs) the student to respond. If the teacher is targeting the student's use of *want* and the concomitant labeling of objects, then the teacher may ask "what do you want" with the desired reply of "want ball (or another object)" from the student. If the student is unable to form the response, the teacher then models it (Hernandez, Hanley, Ingvarsson, & Tiger, 2007; Westling & Fox, 2000).

Time delay. Time delay is a systematic approach to teach a skill or a response to a student. In this method, a teacher uses a prompt that will ensure the occurrence of a behavior and pairs that prompt with a verbal direction. Initially, the prompt and command are given simultaneously, but as the student learns the skill, the time between the verbal direction and the prompt are gradually lengthened, until the student is responding to the verbal direction over the prompt (Bailey & Wolery, 1984; Liber, Frea, & Symon, 2007).

Dyer, Williams, and Luce (1991) looked at different naturalistic communication strategies that teachers can use in the classroom with their students with autism or other severe disabilities. They developed a five step teacher training program which involved (a) assessment, (b) development of goals and objectives, (c) in-service training, (d) classroom training, and (e) maintenance feedback (p. 314). The study methodology included videotaping teachers in ten-minute probes, which were collected one to three times per week for an average of three months during the baseline and intervention. Results of the video probes showed an increase in the spontaneous production of communication maintenance goals by the children throughout the intervention and follow up sessions.

Discrete Trial Teaching. Discrete Trial Teaching (DTT) is commonly used synonymously with Applied Behavior Analysis and is also known as compliance training (Choutka, Doloughty, & Zirkel, 2004; Delprato, 2001; Newman, Needelman, Reinecke, & Robek, 2002; Simpson & Myles, 1998). In DTT, the situation is set up for the student and instructor and is often delivered one on one. The instructor gives a command to the student (“look at me”) and waits for a response. The students are reinforced for their responses, even if the response was only partial (students lift their head towards the presented but do not make eye contact). It is important that the student has acquired the prerequisite skills in order to complete a task. It is important to remember that with DTT, the student is learning

the skill in a very controlled setting and therefore it cannot be assumed that the pupil will generalize that knowledge to other settings (Simpson & Myles).

Dib and Sturmey (2007) studied the reduction of student stereotypic behavior by improving teachers' implementation of discrete trial training (DTT). DTT is effective in both the use of increasing more desirable responses from the participant, as well as decreasing negative behaviors. The participants were three children who all attended a private school for children with autism. The teacher assistants who participated in the study had lower success with the use of DTT and therefore were associated with higher levels of stereotypic behavior in their students. All of the staff members had previously been instructed in behavioral training techniques.

The sessions were conducted at each student's desk during a normal part of the classroom routine. The sessions were all conducted at the same time each day using a four part training procedure to increase the accuracy of the discrete-trial sessions with the students. It was concluded that by increasing the accuracy of implementation of discrete trial training, the teacher assistants were able to get a lower level of stereotypic behavior and more success from their students.

Visual Cues

Visual classroom components are an important aspect of teaching children with ASD/PDD (Hodgdon, 1999, 2000). Students with autism are highly visual learners. They need visual supports to assist with the organization of their environment and to assist with understanding the world around them. Just as individuals in everyday life use calendars, planners, and shopping lists to organize many of their day-to-day activities, students with autism also need visual supports to get themselves through the school day. Instruction should be visually cued through the use of graphic aids in the forms of pictures or words

(for individuals who are able to read written language) as either an instructional prompt or environmental prompt to aid organizational skills or self management (Quill, 1997, p. 704).

A major function of communication is to give information. In the typical school environment a majority of the information is given verbally and it is frequently assumed that students already know or remember specific information. This presumes that students already know what is being demanded of them and needed information might not be given at all (Hodgdon, 1999, 2000).

Figure 2. Example of visual schedules used in a preschool classroom.

The result of students with autism being given basic verbal communication is behavior. Although they may understand some of the commands and direction, there could be too much stimuli in the classroom as students with ASD are susceptible to sensory overload (Anzalone & Williamson, 2000, p. 161), which could result in sensory overload for the students and confusion about what it is that they need to be doing at that point in

time. This is a good time for the teacher to use a visual schedule with the student (Ganz, 2007; Hodgdon, 1999, 2000; Schopler et al., 1995). For example, in a special education classroom there is a teacher at a table doing a money group, an assistant is leaving to take a child to an inclusive setting, another assistant is at a table doing a sight word group, two students are in a block center, and one student is on the computer. A student who should be at the money table is wandering around the room. Because of all of the commotion in the class, the student may not have an idea of where he belongs (patriarchal pronoun used intentionally because of higher incidence of autism in males--Simpson & Zionts, 2000, p. 6). When the teacher shows the student what is next on his schedule, he sees a picture representation of math. The student then goes over to the math table to sit down for money group. Schedules tell students (a) what activities can be anticipated, (b) when the activities will occur, and (c) the order of activities (Schopler et al.). All elements of a classroom environment should promote attention to task. Such elements include using room dividers, clearing desks and tables of unnecessary materials, and covering windows to prevent visual distraction (Ganz, p. 251).

Knowledge of and skill in visually structuring the environment is important for teachers in any special education class as well as teachers who have students with autism in their general education classes. Many times it is the special education teacher who needs to help the regular education teachers in how to use the visual strategies when a student with ASD is placed into the classroom.

Other Considerations

A highly structured environment is required to achieve optimal responses from a student with autism (Hess, Morrier, Hefflin, & Ivey, 2008). Structure refers to the set of cues and routines school staff arrange to make the environment more predictable for

students. Visual tools help the students manage their behavior by clarifying some of the difficult to understand abstractions of life. Giving a child with autism information is critical (Hodgdon, 1999) and can be given in a variety of ways. One of the most common ways is through the use of social stories. These lessons are written to describe a particular social situation that an individual child finds difficult. Social stories provide information visually about the situation, including who does what and why (Smith, 2001). Social stories include four to six sentences that describe factual information regarding a social situation, possible reactions of others in that setting, and directive statements of appropriate or desired social responses (Theimann & Goldstein, 2001, p. 426).

Lerman, Vorndran, Addison, and Kuhn (2004) studied the preparation of teachers in evidence-based practices for younger children diagnosed with autism. The participants were four public school teachers who instructed students with autism and other developmental disabilities and one student teacher who was enrolled in a masters of education program. The teachers were taught a large number of specific skills within three areas (preference assessment, direct teaching, and incidental teaching). More than one approach was taught for each instructional component, giving the teachers a toolbox of data collection methods. All sessions were videotaped and later scored by trained viewers using specially prepared score sheets.

The researchers found that during the baseline stage, the teachers all implemented the procedures correctly less than 65% of the time. During the initial session, teachers had some difficulty with the evidence-based procedures; however, towards the end of the program, the participants were having much more success, thereby delivering a higher level of skilled instruction to the students. Many teachers initially have difficulty using these evidence-based practices for children with developmental disabilities. When

coaching and consistent training are provided, instruction and data collection for students with developmental disabilities, including autism, goes more smoothly and the teachers are then able to see more success in their educational programming.

Interventions that use a sensory integrative approach may involve adapting a learning activity to provide sensory integrative experiences within the activity; alternatively they may involve activities that are specifically designed to match the needs of an individual student (Westling & Fox, 2000). Sensory strategies are embedded into the environment to allow students to receive more information that they might be lacking during certain activities during the school day. Teachers may want to modify their classrooms to reduce the amount of visually distracting stimuli that they hang from their walls and ceiling. A designated quiet work area in the corner of the classroom or in a study carrel may be created and used by students who work better in a quieter, segregated area (Mulligan, 2001).

Teacher Attitudes and Children with Autism

Children with autism are difficult to teach. They do not provide the typical psychic satisfactions to teachers: affection, rapid learning, and good behavior that make the job immediately rewarding (Foster, 1980). This negative perception about students with autism is often the primary reason that many teachers would rather not deal with a student diagnosed with the condition. By virtue of their disabilities, these students often do not reward teachers as much for their instructional efforts as do non-disabled students (Cook, 2004). The obvious presence of a severe disability may lead teachers to expect, explain, and excuse aberrant behavior and low performance from these students (Cook, 2004). These negative teacher attitudes can exist for students with disabilities other than autism as well, such as mild disabilities or attention deficit hyperactivity disorder, as these

disabilities are often considered to be hidden, i.e., they are not as readily apparent when compared to a student with Down syndrome or cerebral palsy. However, students with mild or hidden disabilities are often “violating” teacher expectations and are rejected because they fall outside of teachers’ instructional tolerance and therefore pose classroom management problems (Cook, 2001). Teachers often assume unconsciously that if students look typical, they should be expected to act typical, regardless of any “hidden” disabilities.

The behavior of students often helps to set the tone of the teacher, which in return often redounds back to the classroom. Swaim and Morgan (2001) found that children who demonstrate strange or unusual behavior might be viewed more negatively (even if it is explained that the condition is beyond their control) than persons with clear physical handicaps. In a study about teacher attitudes, Hastings and Brown (2002) found that qualified teachers who were in charge of their class felt responsible when acting out behaviors occurred in their students. If teachers feel responsible for the abnormal behaviors of their students, then that could lessen their enthusiasm towards taking students with more serious disabilities in the future. If they feel that the students are out of control, then it is very likely that they could also feel that their classroom is out of control.

McGregor and Campbell (2001) were interested in looking at the current forms of integration, training provision, and support for teachers as they studied their attitudes towards the integration of children with autism into mainstream schools in Scotland. Questionnaires were mailed to four special classrooms and five mainstream schools, each of which contained students with autism. For the special education teachers, the questionnaires looked at demographic information and then explored their attitudes and opinions on factors that would contribute to a successful mainstreaming experience as well as advice to regular teachers. The questionnaire developed for mainstream teachers

consisted of demographic information and explored the attitudes and beliefs of what would allow successful participation in mainstream. The teachers were then questioned on how well they would deal with problem behaviors and their overall beliefs of advantages to mainstreaming students. The mainstream teachers were also categorized into whether or not they had taught a child with autism.

Overall, the views of the mainstream teachers who had taught children with autism went along with the special education teachers regarding integration and were rather positive. All groups considered successful mainstreaming to be dependent on the severity of autism rather than on academic ability or personality. Special education teachers felt that lack of understanding made mainstreaming difficult for children with autism while the mainstream staff felt that problems could stem from socializing the peers. The teachers also believed that mainstreaming students with autism into the general program would cause problems for the general education students; however those who had previously mainstreamed a student with autism into their class ranked this issue much lower than those who had no experience (McGregor & Campbell, 2001).

Teacher Efficacy

Teacher efficacy, based on Bandura's social learning theory, has two dimensions: (a) teachers' beliefs in their own ability to bring about change in their students, or personal efficacy, and (b) beliefs concerning the extent to which teaching can overcome external influences on the student, or teaching efficacy (Coladarci & Brenton, 1997; Hoy & Spero, 2005; Podell & Soodak, 1993; Soodak & Podell, 1993). Efficacy is a future oriented judgment that has to do with perceptions of competence rather than actual competence. This is an important distinction because people regularly overestimate or underestimate their actual abilities (Hoy & Spero, p. 344). Hoy and Spero also mention that efficacy is

most malleable in the first few years of teaching which is critical to the long-term development of teacher efficacy.

Hoy and Spero (2005) created a longitudinal investigation that assessed the efficacy of prospective and novice teachers at the beginning of their preparation program, at the end of student teaching, and then at the end of their first year of employment. There were a total of fifty-three prospective teachers who participated. Twenty-nine of the teachers returned usable questionnaires at the end of their first year of teaching. The students were administered scales that would measure their level of efficacy and answered background questions about themselves and the schools where they taught. The scales administered to the teachers were the Gibson and Dembo short form, Bandura Teacher Self-Efficacy Scale, and program-specific measures of efficacy.

The researchers found that overall, three of the four measures of efficacy revealed similar patterns and changes over time and that all of the scales were reliable, even though the sample was rather small. Teacher efficacy appeared to increase during the years that the preservice teachers took their preparation courses, quite possibly as they built their confidence for teaching. During student teaching, it was noticed that their general teaching efficacy appeared to rise as their personal efficacy began to fall, which could be caused by the daunting task of independently managing a class for the very first time. Personal efficacy also tends to fall since novice and pre service teachers often underestimate the amount of work that truly goes into running a class.

Teacher efficacy directly relates to the type of instruction that students receive. Teachers who have a higher degree of self-efficacy are more open to new ideas and are more willing to experiment with new methods to meet the needs of their students (Romi & Leyser, 2006). Teachers with higher self-efficacy are also able to work more closely with

students who are considered to be struggling academically and therefore have been known to refer fewer students for special education services compared to their colleagues with lower self-efficacy (Podell & Soodak, 1993; Romi & Leyser; Soodak & Podell, 1993). Teachers with higher self-efficacy also do not view parents as a potential stressor within their career and are more likely to participate in school related activities (Coladarci & Brenton, 1997). A teacher with a higher level of efficacy gets more satisfaction out of teaching and is able to create a better classroom climate and more successful students.

Teacher education programs are the first experience that teachers have with the classroom experience. There is no one way nor is there a simple answer to equipping a teacher with a set number of skills (Moeller & Ishii-Jordan, 1996). Teachers often have to rely on their colleagues in the beginning of their career for assistance and support with teaching their classes. Egyed and Short (2006) stated that burnout and efficacy are characteristics of the teacher's current environment regardless of amount of training. Simply said, teachers, whether general education or special education, need support to be able to feel empowered to teach their students.

Teacher Efficacy and Special Education

Soodak and Podell (1993) hypothesized that teachers with a higher sense of efficacy would work to meet the needs of students displaying problem behaviors in their classes, which would cut down on problem behaviors. The researchers also looked at the level of the needs of the students (learning disabilities and problem behaviors) as a basis for the placement decisions made by the teachers, because some teachers are likely to be influenced as to the appropriateness of mainstreaming for these pupils. The sample consisted of ninety-six general education teachers and ninety-six special education teachers from the New York metropolitan area. The sample size was determined by setting power at

.80 with an alpha level of .05.

The teachers were given three case studies that described a hypothetical second grade male student. The case studies depicted the student as having a learning disability, a behavior problem, or both. After each scenario, the teachers determined if they felt that the student's placement in the general classroom was appropriate and how much they agreed with the decision to refer the student for special education. The teachers' levels of efficacy were then measured utilizing Gibson and Dembo's Teacher Efficacy Scale.

Soodak and Podell (1993) found that the teachers' sense of efficacy did have a significant bearing on their decision to refer a student for special education services. General education teachers displaying a high level of efficacy determined that the general education classroom was appropriate for students displaying problems. The judgment of regular class placements made by the special education teachers were not at all related to their sense of efficacy. General education teachers who had a lower sense of efficacy believed that the students who exhibited problems did not belong in the general education classroom. The researchers concluded that high personal efficacy and general teaching efficacy are needed to believe that a student with learning and behavior problems can succeed in the general classroom.

Teacher efficacy is drawn from the theory of self-efficacy, which stems from Bandura's social cognitive theory (Brownell & Pajares, 1996), suggesting that individuals will pursue activities and situations in which they feel competent and avoid those situations in which they don't (p. 11). Social cognitive theory maintains that efficacy beliefs influence the choices that people make and the effort and perseverance in which they engage in those tasks. The theory envelopes teacher efficacy, the perception that the individual can impact student learning, which in turn influences teacher motivation, effort,

teacher-student interactions, and student learning (Miller & McDaniel, 1989, p. 172).

Special educators need to collect data on pupil performance which in turn shows the progress made towards students' individual educational plans (IEP); this allows the teacher to adjust lessons accordingly (Miller & McDaniel, 1989, p. 173). Data-based instruction, which uses direct and continuous measures of student progress towards specific instructional objectives, contributes to both General teaching efficacy and personal teacher efficacy. Ashton (1985) stated that the discovery of a relationship between teachers' sense of efficacy and student achievement demonstrated an important breakthrough. Since the beginning of educational research, investigations had been made in the attempt to distinguish effective teachers from those who are ineffective; research on teacher efficacy helped fill this need (p. 180).

Teachers who feel confident in their ability to teach students with disabilities are more likely to engage in effective instructional practices while teachers with low sense of efficacy are more likely to give up on students who do not learn quickly (Brownell & Pajares, 1999, p. 156). High efficacy teachers tend to maintain high academic standards, have clear expectations, concentrate on academic instruction, and demonstrate "withitness." These teachers spend more time in whole group instruction, monitoring and checking seatwork, and leading students to correct responses through questioning, rather than answering for the student or calling on other students (McDaniel & DiBella-McCarthy, 1989, p. 35). Ashton (1985, p. 187) stated that whole group instruction tends to be more effective than small group instruction in the achievement of basic skills because the students spend more time engaged in appropriate learning tasks. Gibson and Dembo (1984), utilizing their Teacher Efficacy Scale, found that low efficacy teachers spent about fifty percent more instructional time in small group or individual instruction. Teachers who

feel more effective in small group instruction tend to choose this method more often, consequently experiencing less success with the students due to the loss in students' time engaged in the learning process (Ashton).

Special educators face a daunting workload which includes managing IEPs, meetings, collaboration with general education teachers, working with families, paperwork, and planning postsecondary transition. They are also expected to be energetic and emotionally available for needy students throughout the school day (Ashton, 1985; Conderman & Katsiyannis, 2002; McDaniel & DiBella-McCarthy, 1989; Miller & McDaniel, 1999). Kim and Corn (1998) discussed the wide range of professional roles that are assumed by teachers of the visually impaired, including the collection of data on the students and making placement recommendations (p. 491). Lack of perceived success is an obvious stressor for special education teachers and can lower their feeling of efficacy in the classroom as these students learn at much slower rates and do not show rapid success as typical students often do (McDaniel & DiBella-McCarthy, 1989, pp. 35-36). It can become very easy for teachers to give up when their classroom is not meeting the academic standards and expectations that they expect.

Coladarci and Brenton (1997) investigated teacher efficacy, supervision, and the special education resource room teacher. They felt that at the time of their investigation, knowledge of teacher efficacy was largely related to teachers in the general classroom. The purpose of their study was to look at efficacy of resource room teachers and to establish validity of the Teacher Efficacy Scale for special education teachers. The researchers mailed out a total of 865 surveys to special education teachers in Maine, and received usable responses from 580 teachers for a response rate of 67%. The teachers were asked to fill out the Gibson and Dembo Teacher Efficacy Scale, which was modified by changing

the terms *teacher* to *resource teacher* and *classroom* to *resource room*. The resource teachers were also asked to rate the frequency and utility of supervision that they received.

Coladarci and Brenton (1997) found that the resource teachers scored an average of 4.25 on the Teacher Efficacy Scale, which they could not determine to be high or not, as this was the first time a study of this kind had been done in Maine with special education teachers. Previous research on teacher efficacy in Maine demonstrated that the special education score of 4.25 was one third of a deviation from the scores given by general education teachers. The resource room teachers also felt that the type of supervision they received was important. The more helpful the supervisor was to the resource room teachers, the higher their level of efficacy appeared to be.

Administrators. School administrators continue to play a critical role in the special educator's sense of efficacy. The role of the principal is instrumental in the development of the teachers' efficacy beliefs. In schools where teachers receive adequate support from the building administrators, teachers frequently interact regarding educational goals; as a result, they are more likely to feel confident in dealing with the uncertainties that often come with the job of being an educator (Brownell & Pajares, 1996, 1999). It is also important that school administrators have a good understanding of special education and the procedures used by special education teachers so that they can support these teachers in a time of need. Allinder (1995), in her study of Curriculum Based Measurement for Student Achievement, stated that teachers need regular and structured feedback from administrators so they know how they are doing and what improvements could be made.

New teachers. New teachers often come into the classroom from their student teaching experience with a myriad of expectations for their first year, often to find that their actual teaching assignment is nothing like their supervised practicum. This can result

in a decline of efficacy as these teachers work through their first year of teaching. Newman (1999) discovered that teachers who have an opportunity to go into classrooms and work on interventions with students often have higher efficacy over the instructional period than those who do not. By exposing education majors to the classroom early in their educational career, their efficacy might improve to the point that they have high efficacy once they enter the classroom on their own.

Freytag (2001) demonstrated that there was no significant interaction between number of teaching courses that addressed inclusion and the teaching field. Exceptional educational teachers had higher personal efficacy scores when it comes to meeting the needs of diverse student populations compared to their general education colleagues. Exceptional education teachers also yielded higher teaching efficacy scores than general education counterparts, but there was no significant interaction between student teaching in special education and the number of inclusion courses taken while still in school. This suggests, based on social cognitive theory that, some general education teachers might choose to teach general education as they feel that they are unable to meet all of the needs of students in the special education classroom. However, the sample of this study limits generalizability. Thus, the conclusion that coursework on special education inclusion does not affect general education teachers' sense of efficacy in dealing with special education students clearly needs more investigation. It would seem unwise to rule out the potential positive effects of more information about special education students and strategies for working with those children based on this one study.

Teacher Burnout

Good teachers of students with severe disabilities and autism too often burn out and lose interest in working with these children after a brief career. Burnout is a personal

experience that is often difficult to define. It basically means a depletion of a person's creative resources often accompanied by physical exhaustion and/or illness and depression (Foster, 1980). Classroom management and the method of student instruction are impacted by teacher burnout. Foster describes four stages that are often experienced by teachers:

- 1) Survival--lack of organization and running from one crisis to another (often first year teachers).
- 2) Transition--able to structure and organize the environment.
- 3) Creativity--able to synthesize the art and science of teaching children with autism.
- 4) Burnout--exhausted and at an emotional low. (pp. 25-26)

Many teachers are able to make their way up this hierarchy and will spend several years at the transition and creativity levels. However, by dealing with some of the same issues year after year, it is very easy for some instructors to lose the spark that they once had and slide into burnout. Educators, due to their job demands, constitute a professional population at high risk for burnout (Weber & Toffler, 1989).

Some teachers enter the field through alternative programs. Alternative entry includes assigning certified personnel to teach out of field, issuing emergency certificates to unqualified persons, and seeking alternative routes to certification (Billingsley, 1993). In the field of special education, alternative certification programs are often the initial access point for many new teachers. Whether an educator is a certified first year teacher or is provisionally certified and going through an alternative certification program, both feel the challenges inherent in special education during their first year. The daunting tasks often overwhelm special education teachers, particularly beginners, and may become a primary factor in their decision to leave (Brownell & Smith, 1993). Pullis (1992) found that

disruptive students and dealings with parents were rated the most stressful for teachers. It is very difficult for educators to perform effectively when their job is so stressful due to work related factors.

Teacher Burnout and Special Education

Special educators are leaving the profession for various reasons. One of the contributing variables frequently discussed is professional stress. Some factors that can affect a teacher on a personal level include lack of supplies and materials, low salaries, few opportunities for professional interaction and growth, difficulty meeting students' needs, and lack of recognition. On a school wide level, instructional objectives, excessive paperwork, loss of teacher control, and stressful interpersonal interactions can affect the school climate and create a negative burden on the faculty as a whole (Wisniewski & Gargiulo, 1997; Miller, Brownell, & Smith, 1999).

Brownell, Smith, McNellis, and Miller (1997) were concerned about the lack of literature dealing with teacher attrition, especially in the field of special education. The population consisted of ninety-three randomly selected teachers from Florida who chose not to return to their special education classroom after the 1992-1993 school year. The random sample included all service delivery models for special education, i.e., resource room and self-contained classrooms. Teachers were classified as leavers if they did not teach full time in a special education classroom in the public schools. The teachers all received an information packet to send back with accurate information and were interviewed by one of three trained interviewers.

Brownell et al. (1997) asked the teachers about their current employment situation, their primary reasons for leaving the classroom, what the school district could have done to have kept them in the classroom, what incentives would bring them back to the classroom,

their future career plans, and whether they would become a special education teacher if they could do it all over again. The majority of the leavers continued to work in the field of education, just not in special education; several were retired or on maternity leave. The responses most often given on what pushed them out of the special education classroom were lack of support from colleagues and administration and the behaviors of their students. High caseloads, which also resulted in larger amounts of paperwork and planning, and lack of paraprofessionals were other reasons for leaving.

When asked about incentives to return to the classroom, the majority of teachers interviewed indicated that they would not be returning to the special education classroom. Those who were willing to return stated that conditions of higher salaries and reduced caseloads would lure them back to the field. Although these teachers had all left special education, when reporting on their future plans, most had reported that they still plan to work in education either in general education classrooms or as an administrator. Overall, the factors that caused the teachers to leave the special education classroom were cumulatively overwhelming and caused a large amount of stress, resulting in leaving to avoid burnout altogether.

Kilgore and Griffin (1998) found that teachers in self-contained classrooms experienced exhaustion, their support was often limited to one or two special education colleagues, and they found little support from their general education colleagues and administrators. With lack of support, many teachers might feel as though their stress levels continue to compound and therefore they make the decision to leave special education when they feel that they can no longer be productive. Many who leave the field of special education do stay in the field of education by becoming administrators, mainstream teachers, specialists, etc. (Brownell et al., 1997). However, not all teachers who leave

special education choose to stay in education. Billingsley and Cross (1991) found that the majority of teachers cited the reason for leaving education as needing a change, followed by having become burned out in special education.

Edwards and Miltenberger (1991) looked at burnout among staff members at residential facilities for individuals with mental retardation. One hundred twenty five individuals from community residential facilities participated. The facilities were primarily located in rural areas around North Dakota. The subjects were chosen through a convenience sample while attending a local behavioral management workshop. Those who chose to participate completed the Maslach Burnout Inventory during one of their lunch breaks.

The results of this study demonstrated that both direct care and supervisory staff experience burnout in their jobs at the facility. Edwards and Miltenberger (1991) discovered that the supervisory staff scored higher on the subscale that deals with emotional exhaustion but on the flip side felt more personal accomplishment than the direct care staff. The resulting evidence supported the hypotheses that (a) both direct care and supervisory staff experience burnout and (b) supervisory staff experienced higher emotional exhaustion than the direct care staff. The researchers speculated that the higher emotional exhaustion scores played into the fact that the supervisors were held more responsible for planning the program of the clients and their progress than the direct care workers, thus adding more stress to their jobs.

Webber and Toffler (1989) looked at burnout among teachers of students with moderate, severe, or profound mental retardation. The participants were selected from a membership list provided by The Association for Persons with Severe Handicaps (TASH) and two hundred members were selected. Out of seventy-three packets returned to the

researchers, five were discarded after being deemed unusable, totaling sixty-eight participants.

Webber and Toffler (1989) administered a three part questionnaire to the participants consisting of demographic information, the Maslach Burnout Inventory, and a seven part rating scale looking at the respondents' perceptions of supervisory, financial, collegial, and parent support. The participants scores on the Maslach Burnout Inventory showed that out of sixty-eight individuals, six were experiencing high burnout and sixteen were approaching that status. There was also a positive correlation with the age of the students and the degree of emotional exhaustion experienced by the respondent, basically, the older the student, the higher level of burnout a teacher might experience. The level of supervisory support also gave insight to the level of exhaustion by the teacher.

For the Depersonalization subscale of the burnout inventory, collegial support was considered to be one of the most important components, directly correlated with the attained educational level of the teacher. This factor demonstrated that the more education obtained by the teacher, the more likely they were to use additional strategies with their students in the classroom. The teachers' ages were positive predictors of personal accomplishment. The older a teacher, the higher their sense of personal accomplishment; the older teachers also had a more realistic picture of the educational achievement of the students (Webber & Toffler, 1989).

Billingsley and Cross (1992) studied job satisfaction and their intent to stay in the teaching profession, doing a comparison between special education teachers and general education teachers. They hypothesized that commitment and job satisfaction would be higher with (a) older teachers, women and those with more years of teaching experience, (b) teachers with higher levels of work involvement and leadership support, (c) those with

lower levels of role conflict, role ambiguity, and job stress, and (d) greater intention to remain in the profession among those with higher levels of job satisfaction and commitment. A seven-page questionnaire was developed, and the sample was drawn from a computerized personnel file for the 1988-1989 school year from the Virginia Department of Education. The authors received a response rate of 493 for general educators and 463 for special educators, which was 83% for both samples.

Even though the age and level of experience were lower for the special education teachers when compared to the general educators, their results were somewhat similar. Job satisfaction was associated with greater leadership support, work involvement, and lower levels of role conflict. The special educators demonstrated that lower levels of stress and role ambiguity are also associated with job satisfaction, while the general educators reported high levels of stress in their surveys, a rather unexpected finding (Billingsley & Cross, 1992).

Assuming that burnout contributes to decreased job performance and staff turnover, alleviating the problem would not only lead to better staff retention but improved care of individuals (Edwards & Miltenberger, 1991). This solution is something that could take place on the school level; possibly all of the staff at the school level could be involved in this endeavor. Administrators may need to begin the process of stressor identification relatively early in the careers of their teachers, perhaps after the second or third year of teaching when emotional exhaustion is relatively low (Frank & McKenzie, 1993). Administrators play a key component in the climate of the school and should work to make sure that all of the teachers are not in burnout and are performing properly in their classrooms. Job satisfaction is associated with greater leadership support and work involvement and lower levels of role conflict and stress (Billingsley & Cross, 1992).

Often students, after being in an inclusive preschool program, are moved into a general kindergarten, keeping these students in the least restrictive environment as a part of Free and Appropriate Public Education (FAPE), a trend that is increasing as schools enter the future. Until recently, most kindergarten teachers have had very few students in their classes who were identified as having disabilities. Thus most kindergarten teachers have had limited experience providing appropriate education for all young children (Vaughn, Reiss, Rothlein, & Hughes, 1999). The transition from prekindergarten special education programs into kindergarten is often a sensitive move for children and their families (Vaughn et al.). Kindergarten teachers like all other general and special educators, need to step back and examine the skills they have for educating all of the students in their classroom. The range of skills that teachers employ in their professional practice could be prioritized to ensure effective learning for all of the students in their classroom (Jordon & Powell, 1995).

Teachers frequently need time to learn about a particular disability (Ludlow & Landers, 2007). When they know that they will be receiving a student with a disability in their classroom, contacting the family as well as any of the student's past teachers can be time well spent. Attitudes may be modified by gaining experiences with children who have severe disabilities and different abilities (Wisniewski & Alper, 1994).

One way to encourage acceptance of disabled students by their peers and even other staff in the schools could be to read and write books about students with disabilities. Children's books are often the first exposure non-disabled peers have to individuals with mental retardation and/or autism. There is a continuing need for children's books to include characters with mental retardation or autism as an integrated and accepted part of society (Dyches, Prater, & Cramer, 2001). When teachers who are not experiencing

burnout are energized by all of the students in their classroom and are able to put best practice methods to good use, the result is a responsive classroom. Such a setting provides a trusting, caring environment in which all children learn social and academic skills, collaboration among all education professionals and parents, and use of peer partners to support participation in group activities and specific projects (Winterman & Sapona, 2002).

Teacher Burnout in Special Education

Teacher burnout is when teachers reach the point where they no longer feel effective in the classroom and are basically surviving each day, eventually leaving the classroom for another educational field, or leaving the field of education altogether. Attrition of trained special education teachers has exacerbated the shortage of special education teachers. Although teachers leave the field for a variety of reasons including alternative professional opportunities, the role of job related stress and professional burnout in attrition is an on-going concern (Zabel & Zabel, 2002, p. 67).

Zabel and Zabel (2001) conducted a study looking at age, experience, and preparation of special education teachers. Their most striking finding was the maturity of the profession in that the special education teachers are no longer all in their twenties and thirties; many are middle aged or beyond. The special education teachers also have more instructional experience (11 years). Overall, teachers' feelings of personal accomplishment are related to their instructional experience and their amount of preparation, suggesting that more training and background in the classroom develops realistic expectations and allows a sense of greater accomplishment in their work (pp. 135-136).

Reasons for Burnout. One of the largest causes of burnout for special education teachers is the amount of paperwork that must be completed. Along with creating lesson

plans for a class (and for many teachers, several classes and subject areas) the teacher must customize the lessons to fit the needs of each of the students in each class. In addition to this, teachers are writing individual educational plans (IEPs), monitoring these IEPs through data collection, functional behavioral analyses (FBAs) and behavior intervention plans (BIPs) (Kaff, 2004). Teachers also need the support of their administrators to help counter burnout. Administrators often are unaware of what goes into the running of a special education program and often this lack of understanding can lead to the ignoring of special education classrooms or treating these programs like the “step child” in the school (Kaff; Zabel & Zabel, 2001).

Lack of materials, supplies, and resources is another reason teachers are leaving special education. Kaufhold, Alvarez, and Arnold (2006) found that fifty percent of the teachers who they surveyed (total of 114 teachers) stated that they lacked these essentials to do their jobs properly (p. 160). Student issues are another issue creating burnout for teachers. Many of the students who come to a special education program have very complex issues, ranging across emotional, cognitive, and social. Along with working with the variety of needs of the students in their classrooms, many teachers also have to work with the parents who have a hard time accepting their child’s disability or tend to become over demanding about what they want in their child’s program (Kaff, 2004). Last, support from the general education teachers in a school is important and allows special education teachers to feel as though they are part of the school environment. Without support, many special education teachers tend to feel isolated and lonely (Schlichte, Yssel, & Merbler, 2005).

Teacher Burnout in Kentucky. Sultana (1996) found that eighty percent of special education teachers who were surveyed reported that their reason for attrition was the

excessive paperwork required by a special education teacher. In Kentucky, many special education teachers act as the chairperson for the admissions release committee (ARC), which is the equivalent of the IEP team. These teachers schedule the meetings, notify the parents, hold the meetings, write the meeting summary, write the IEP, and secure the parents' signatures. When this paperwork is added to the normal paperwork of a teacher, it can become rather overwhelming.

Since the implementation of the Kentucky Education Reform Act (KERA) there has been a major push for students with disabilities to be included in the general classroom. Increasing the amount of collaboration between the general education teacher and the special education teacher is a priority. The majority of general education teachers reject both, thus creating an unhealthy relationship between general and special needs teachers (Sultana, 1996, p. 6). Finally, support and respect from the administrative staff of the school can affect teacher burnout. This relates to the fact that many of these administrators have never had any formal coursework in special education and therefore do not understand special education or the policies, pushing everything off onto the special education teacher. Beyond this, the lack of familiarity with the field, coupled with the stigma too often associated with special education students, can lead some of these administrators to have a negative attitude towards these teachers.

Preventing burnout--mentoring. One of the key methods for preventing burnout is the use of a formal mentoring program. Mentoring has been identified as a critical factor in eliminating feelings of isolation expressed by first-year special education teachers (Schlichte et al., 2005, p. 36). Whitaker (2000) reported that 92% of the first year teachers who met with their mentors planned to continue teaching in their classrooms and believed that mentoring had a positive effect on the retention of special education teachers. Another

possible antidote to the loneliness and isolation felt by many first year special education teachers is socialization or collegiality. Opportunities for dialogue between professionals help to reduce the feelings of isolation and allow the teachers to feel as though they are a part of the school (Schlichte et al.)

Teachers in Kentucky are required to go through the Kentucky Teacher Internship Program (KTIP). The goal of this program is to ease transition of new teachers, reduce attrition, and strengthen effectiveness (Diamond, 2001). Through this program, teachers are assigned a mentor teacher who assists these teachers with their classroom set up, the development of lesson plans, and making sure that best practice is used with all instruction in the classroom.

Another way to reduce burnout is for teachers to increase their sense of efficacy. Through the use of data collection, they will be able to see the progress made by the students, thereby realizing that their teaching is having an impact on the students. Also, reporting their success to the administrators, rather than waiting for the administrators to come to them, allows the teacher to increase the opportunity to obtain reinforcement (Brownell, 1997, p. 77). Separating work from personal life can also reduce burnout. Further, teachers need to leave the intense mental connections with their students at work when they go home for the day (Brownell). Williams and Gersch (2004) found from interviewing teachers that the best direct ways to reduce burnout were utilizing time management skills, having clear and simple weekly plans, prioritizing and list making, having a positive attitude, and being realistic about what can be achieved. Indirect methods include attending social events, traveling, holidays, and engaging in relaxation techniques such as yoga or spending time with a pet (p. 159). These techniques are consistently found throughout the literature.

Pullis (1992) surveyed a total of 244 classroom teachers of the behaviorally disordered through the use of a questionnaire regarding aspects of occupational stress felt in the classroom. Data were collected between 1985 and 1990 in a number of states including Texas, Colorado, Illinois, California, Missouri, and Kansas. The teachers represented a variety of locations (e.g., rural and urban). The instrument used for this study was the Pullis Inventory of Teacher Stress (PITS) a three-part 63-item questionnaire developed in the early 1980s for use in workshops dealing with teacher stress.

With an average rating of 2.74 for each situation, the participants' responses were between mildly and moderately stressful. When shown fifteen coping suggestions on the survey, the mean effectiveness rating was 2.51, which indicated that these ideas were mildly or temporarily effective and "pretty helpful" (Pullis, 1992). It is also important to note that some of the teachers stated that as a coping activity, they utilized drugs (including prescription) or drank alcohol to cope with the occupational stress. Around 37% of the teachers reported that they smoked cigarettes to cope. Many teachers (61%) also resorted to eating as a coping strategy. When asked what would be most helpful to the teachers to reduce stress in their positions, 96% reported that being allowed to collaborate with their colleagues would be the most beneficial and was rated as the most effective approach.

Frank and McKenzie (1993) were interested in researching the manner in which stress develops in special educators over a period of time. The participant pool included the undergraduate special education majors in the classes of 1983, 1984, 1985, and 1986 at the University of Iowa, and the classes of 1985 and 1986 at Western Kentucky University. Individuals who filled out the questionnaires and were employed as special education teachers during the entire study became subjects. The teachers filled out a questionnaire to give their demographic information followed by the Maslach Burnout Inventory.

As the years progressed, the mean scores demonstrated increased levels of emotional exhaustion. The mean scores for years one and two fell within the low range of emotional exhaustion. For years four to five, scores fell within the average range for burnout. It was noted that none of the teachers who had been teaching for five years had yet reached the high range of burnout. When utilizing a regression line, the researchers found that the predicted level of burnout was commensurate with a similar study done for teachers working with students who have moderate to severe/profound mental retardation (Frank & McKenzie, 1993).

Teacher Efficacy, Teacher Burnout, and Special Education

There is very little literature that addresses teacher efficacy, teacher burnout, and special education simultaneously. Egyed and Short (2006) found that burnout and efficacy are characteristics of teachers' current teaching environments. This study dealt with decisions to refer a disruptive student to special education. The authors reported that instruction in behavior management for these teachers increased teacher efficacy by offering a wider repertoire of management techniques from which they were able to choose. Concomitantly, burnout decreased as the teachers were able to see greater success at managing problem behaviors of students.

Jennett et al. (2003) studied teacher efficacy and burnout among teachers of children with autism. The teachers were divided based on teaching style, which was either applied behavior analysis (ABA), or Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH). The study showed that both groups had higher personal efficacy and General teaching efficacy but there was no significance between the two groups. Basically, teachers who had a philosophical framework felt more efficacious in their classroom. The researchers found that because all the teachers were

experiencing increased professional efficacy, their risk for burnout declined even though teaching students with autism remained a very challenging task.

Summary

Autism education has changed substantially from the eleven children first studied by Kanner in 1943. At that point in time, it was thought that children with autism had an emotional problem that was caused by lack of affection from the mothers. It is now considered to be a part of a spectrum of pervasive developmental disorders. Treatment includes systematic education of these students through methods such as milieu teaching, incidental teaching, mand-model procedure, applied behavior analysis (ABA) and Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) methods. All of these approaches require significant increases in teacher training.

Many new teachers enter the field of special education with a provisional degree and are working on university courses during their first two years teaching. Lacking educational background compared to their fully certified colleagues, keeping up with the demands of their profession is challenging. These teachers need to have more support provided to them in the areas of setting up their classroom and in how, what, and when to teach various topics. They also need to be made aware of and sensitive to the diversity of families in the public schools and the varied views that different cultures have on disabilities.

Administrators and department leaders in the schools are important to providing support to newer teachers in special education, particularly those who work with children with autism. Through this support and advice, teachers may develop higher levels of efficacy after the first couple of years, which in turn produces more success and higher

levels of satisfaction. With these more efficacious feelings and success, educators have lower risk of teacher burnout. The consequences of burnout--leaving the school, special education classroom, or even the field of education all together--are also reduced.

It is evident from the information presented in this review of literature that low teacher efficacy and burnout among special educators, especially those who work with children with autism, is a major component of teacher attrition in this field. Unfortunately, there is little evidence that examines teacher efficacy, burnout, and attitudes about autism in the same study. Lacking that direct evidence, hypotheses linking these traits must be seen as speculative. Thus, data collected from the largest school district in Kentucky could help present a clear picture as to how teachers' sense of efficacy and burnout influence their Attitudes towards students with autism. The results of this study should assist school officials in understanding how the support that they are receiving (or not receiving), both at the state and the district levels, factors into these relationships.

The information and suggested associations that have been examined in this literature review lead to the central research question for this study, What is the effect of teacher efficacy and teacher burnout on educators' attitudes towards students with autism?

The research specifically addresses the following questions.

1. For special education teachers who work with students with autism, to what extent is there a relationship for the Environmental Factors (Personal Identity, Educational History, and School Setting) with Professional Characteristics (Teacher Efficacy and Teacher Burnout) and with Teachers' Attitudes about Autism?
2. For special education teachers who work with students with autism, to what extent is there a relationship for Professional Characteristics (Teacher Efficacy and Teacher Burnout) with Teachers' Attitudes about Autism?
3. For special education teachers who work with students with autism, to what extent is there a relationship for Professional Characteristics (Teacher Efficacy and Teacher Burnout) with Teachers' Attitudes about Autism, controlling for the

Environmental Factors?

CHAPTER III

METHODOLOGY

Introduction

Students with autism often present greater instructional challenge than many other students with severe disabilities. Teachers have to spend more time accommodating students under this category of disability to make sure that they are able to grasp the curriculum along with being able to make sense of their world. No two autistic students are the same and this necessitates programming for every individual. Because students diagnosed with Autism Spectrum Disorder (ASD) can show up in any type of classroom, teachers need to be prepared to accommodate their diverse needs.

The purpose of this study was to seek a better understanding of teacher attitudes towards their students with autism, focusing on the effects of the independent variables-- Environmental Factors (Personal Identity, Educational History, and School Setting) and Professional Characteristics (Teacher Efficacy and Teacher Burnout)--on the dependent variable--Teachers' Attitudes about Autism Scale (Inclusion/Exclusion, Supports Needed, Behavioral Issues).

The remainder of this chapter is divided into seven sections. First, the Population and Sample are defined, followed by the Description of the Variables (Independent and Dependent). Procedures for data collection are described, including survey development and obtaining the data. Next, Survey Development and Instrumentation are covered. The Research Design addresses the logic of the data analysis. Then Validity Considerations are

discussed, followed by a section on Ethical Standards reviewing fundamental treatment of respondents with respect to human subjects' protection. The chapter ends with a brief Summary.

Population and Sample

An invitation to participate in the survey was sent to all low incidence (Multiple Disability, Functional Mental Disability, and Autism) and learning disability (LD) teachers currently working in a large urban Kentucky school district. This group constituted the population from which the sample was drawn. The sample consisted of those teachers who chose to participate in the survey. There are currently 156 low incidence teachers and 559 LD teachers employed in this school district for a maximum potential sample size of 715. The majority of these teachers have had a student with ASD on their caseload at one point or another. Teachers of students with emotional and behavioral disorders (EBD) were excluded from this study as they use a different paradigm for instructing students in their self-contained classrooms. LD resource teachers do sometimes have an EBD student on caseload but typically serve students with learning disabilities, autism spectrum disorders, and other mild disabilities. No regular education teachers were included in the sampling frame, as they often rely on special education teachers for assistance in educating their students with disabilities.

The sample consisted of those teachers who chose to participate in the survey. Cohen (1988) suggests that a priori power analyses are not appropriate to convenience samples. Rather, if analyses are non-significant, post hoc power can be completed (Onwuegbuzie & Leach, 2002). However, recent scholarship suggests that even the post hoc analyses are of questionable value (Aberson, 2010; Yuan & Maxwell, 2005).

Description of the Variables

In this section, variables are described conceptually (including variable label codes) with references made to the literature when appropriate. The description of the variables is organized according to Figure 1. The rationale for including two types of independent variables (Environmental Factors and Professional Characteristics) and the dependent variable (Teachers' Attitudes about Autism Scale) is grounded with theoretical and conceptual considerations as derived from the literature. The logic behind the instrument development is discussed as appropriate. A hard copy of the survey is attached in Appendix A. Specific operational definitions of all variables are attached at Appendix B.

Survey Development and Instrumentation

The Autism Education Survey was developed by the author under the guidance of Drs. Stephen Miller, Debra Bauder, and Thomas Simmons--co-chairs and content expert, respectively, from the dissertation committee. The complete questionnaire, containing 56 items, is composed of existing instruments, scales that were modified to fit the context of the current study, and items that were adapted from related research or created for this study. For all existing instruments, the author contacted and received permission from the scale developers to use or modify their work for this study. Issues of validity, reliability, and feasibility were paramount in decisions about the final set of questions. Overall length of the final AES imposed constraints due to the number of different blocks of variables. Teachers who are limited in time for planning during the day would be more apt to fill out a shorter survey.

As outlined above, the fifty-six items of the Autism Education Survey (AES) represent two types of independent variables, plus the outcome measurements (see Figure 1, p. 20). The first ten items elicit socio-demographic information and are adapted or borrowed from Lynes (2008) and Niemann (2007). Scales pertaining to teacher efficacy

(10 items) and teacher burnout (21 items) comprised the Professional Characteristics for the study and are considered to be alterable in nature (Bloom 1980). Finally, the subscales representing the seventeen items of the Teachers' Attitudes about Autism Scale constitute the dependent variables. The different subsections of the Autism Education Survey were ordered to facilitate the ease with which respondents can navigate the questionnaire, understand directions, and respond to the substantive content.

Independent Variables

As noted in Chapter I , there are two distinct types of independent variables in this research: Environmental Factors and Professional Characteristics. The three sets of variables under the Environmental Factors section of Figure 1 were chosen because of their relevance to the identity of teachers who work with students with autism. Personal Identity (Gender and Ethnicity) is fundamental to the teaching profession which is predominantly white and female, particularly in the area of special education. The variables under Educational History (Highest Degree Earned, Training Program, Hours in Autism Workshops, Years Experience, and Special Education Certification) can all be expected to influence attitudes about students with disabilities. Finally the constructs under School Setting (Least Restrictive Environment, Type of School, and Grade Level) are all related to the conditions that define the classroom milieu. Particularly relevant are LRE and the type of school as they determine the extent of supports available to the teacher. Of note under School Setting is the absence of socioeconomic status. Although widely accepted in the literature as affecting student outcomes (Bhasin & Shendel, 2007; Forsyth, McNally, James, Crossland, Wooley, & Calver, 2010; Mandell, Morales, Xie, Lawer, Stalmer, & Marcus, 2010), this factor is not relevant for the placement of students with autism because of bussing patterns in the district studied, historical considerations regarding the placement

of the special education schools, and the low incidence of cases.

Environmental Factors--Personal Identity

Personal Identity, the first subcategory of environmental factors, is comprised of personal indicators connected to a teacher's being.

Gender (GEN). Teaching is predominantly a female profession. Research suggests that the attitudes of male teachers (a minority in a profession that is highly feminized) can differ compared to their female colleagues (Hansen & Mulholland, 2005, p. 129).

Ethnicity (ETH). Teaching is often considered to be a predominantly white profession. It is possible that minority professionals have pressure placed on them to perform like their white colleagues. Due to the increasing diversity of many schools, white teachers might also have a harder time reaching their entire class (Haddix, 2008).

Demographic Factors--Educational History

Teachers' educational background includes specific school-related information about their identity.

Highest Degree Earned (DEG). A teacher's investment in formal education reflects core values about the importance of education, particularly for levels beyond a masters (Rank I, specialist, or doctorate) that are not required. Professionals who spend more time attending courses to increase their knowledge could very well have higher efficacy (McIntyre, 1982; Williams, 2009).

Training Program (TRAIN). In special education, more and more teachers are obtaining their certificates through alternate certification programs. Persons holding degrees in areas other than special education may become employed in the classroom on a provisional basis, so long as they pursue certification through enrollment in a graduate program in special education or through an "alternative certification" program (typically

through their local school system). In contrast, traditional certificate programs involve earning a degree (taking education courses and completing student teaching) before entering the classroom. Such trajectories might result in different attitudes about special needs students (Justice, Greiner, & Anderson, 2003; Shepherd & Brown, 2003; Stoddart & Floden, 1995).

Hours in Autism Workshops (WORK). With increased prevalence of autism, more and more states, districts, and regional co-ops are offering training for this population. For example, The Kentucky Autism Training Center offers an annual Autism Institute for the state. The number of workshops geared towards students with autism represents a gross measure of specialized knowledge in this field (Lerman, Tetreault, Hovanetz, Strobel, & Garro, 2008).

Years Experience (EXP). The first few years of teaching are often more difficult for new professionals, especially those in their first year. The literature suggests that both attitudes (Fall, 2010) and instructional expertise (Onafowora, 2004, p. 34) are likely to change over time, especially in the area of special education. New teachers are expected to show competence during their first years, which adds to the level of stress in a special needs classroom (Embry & Vandenberg, 2010).

Special Education Certification (CERT). With the critical shortages in the field of special education, teachers are entering the classroom with provisional teaching certificates for either learning and behavioral disorders (LBD) or moderate/severe disabilities (MSD). These individuals start the year with little experience compared to their colleagues who hold full certifications in LBD or MSD, or possibly in another field of special education and often need mentoring to feel successful in their new career (Justice, Greiner, & Anderson, 2003). Thus, it is common to find teachers with both provisional and regular

certification for the different special education areas, e.g., LD and MSD, in the same district.

Environmental Factors--School Setting

In this grouping are Least Restrictive Environment, Type of School, and Grade Level.

Least Restrictive Environment (LRE). There is a continuum of services offered through special education. General education students spend their entire day in the regular classroom learning alongside their peers. Special education students often need additional support to make this possible. Some students just need collaboration, in which a special education teacher comes into the regular classroom to assist with organizational skills, prompting, and general academics, perhaps co-teaching a lesson with the general education teacher.

The regular teachers might also direct their students to the resource room periodically to work on academic skills that cannot be taught in the larger classroom. Some students may need the resource model in which they are placed into a self-contained special education classroom. Here the curriculum is delivered to the students in the resource setting for part of the day with mainstreaming into the general classroom for the remainder of the day, or the entire day if needed (Taylor, 2004).

Type of School (TYPE). Special education students can be educated in a variety of settings. Many of these students are educated through programs in a typical school, but for some students whose needs are more intense, placement at a special school might be the best option. Teachers at the special school typically have the same type of training and often these teachers have additional support in their building. Research suggests that the stress level of these teachers might be lower (because of the extra supports) than those who

are teaching in special education rooms in a typical school (Williams & Gersch, 2004).

Grade Level (GRADE). A key consideration in approach to special education is the level taught: elementary (primary-5th grade), middle school (6th-8th grade), and high school (9th-12th grade/age 21). Professionals at each grade have a different focus in their classroom as they have a variety of age groups to work with, along with the typical issues that are faced by different age cohorts (Karaca, 2008).

Professional Characteristics--Teacher Efficacy

The second type of independent variable, Professional Characteristics, includes variables that can be classified as alterable attitudes/values that can affect the quality of education provided (Bloom, 1980).

Two different dimensions of teacher efficacy constituted the first set of alterable professional dispositions. There is extensive research that teacher efficacy levels can influence student performance (Ashton, 1985). The Teacher Efficacy Scale (TES) was created in 1984 by Gibson and Dembo to measure a teacher's self-perceptions of efficacy within the day to day routine of their classrooms. Gibson and Dembo's original TES consisted of thirty Likert style questions. The Gibson and Dembo survey was later adapted by Woolfolk and Hoy in 1990 with two dimensions of personal and General teaching efficacy reduced to 22 Likert type questions that were considered to have adequate reliability. The short form of this instrument has only 10 items and is utilized in this study (Woolfolk & Hoy, 1993). These studies focused on regular education students. In the area of special education, few studies have been found that address teacher efficacy (Coladarci & Brenton, 1997; Soodak & Podell, 1993). The TES was modified slightly for the purpose of this study. The original Teacher Efficacy Scale (short form) was developed with a 6-point Likert-type format. For the purpose of this study, the two scales were modified to a

5-point Likert-type format which allows the participant the opportunity to be “neutral” while also matching the 5-point format being used in the other scales selected for this exploration.

General Teaching Efficacy (GENEFF). This type of efficacy focuses on teachers’ beliefs that teaching as a profession can impact students’ learning, i.e., teachers can empower all students to learn, regardless of their home background (Gibson & Dembo, 1984; Moeller & Ishii-Jordan, 1996; Woolfolk & Hoy 1993).

Personal Teacher Efficacy (PEREFF). In contrast to teachers’ sense of what education can accomplish, personal efficacy involves the belief in having the ability personally to impact the student’s learning, i.e., I, myself, can empower this student to learn (Woolfolk & Hoy 1993). Here, the individual’s comparative assessment of skill comes into play, versus other educators who are perceived as being able to be successful with similar students.

Professional Characteristics--Teacher Burnout

Burnout is an emotional state experienced by teachers when they have become demoralized by the overwhelming demands of their job. Burnout results in loss of creativity, feelings that the individual has nowhere else to go to. A key aspect of the burnout syndrome is increased feelings of emotional exhaustion. As resources are depleted, workers feel they are no longer able to give of themselves at a psychological level. The consequences of burnout are potentially very serious for workers, their clients, and the larger institutions in which they interact (Maslach, 1996, p. 4). Research instruments have included a number of dimensions of burnout: career satisfaction, administrative support, coping with stress, and Attitudes towards students (Seidman & Zager, 1987).

A widely used burnout instrument is the Maslach Burnout Inventory (Maslach &

Jackson, 1981). However, the subsections (Personal Accomplishment, Depersonalization, and Emotional Exhaustion) do not correspond to the needs of special education teachers in the public schools. The Teacher Burnout Scale (TBS) was developed by Seidman and Zager (1987) to investigate the amount of “burnout syndrome” that might be experienced by teachers in the classroom. This survey has content more applicable to public school teachers, especially in special education, with factors loaded on four subscales (Career Satisfaction, Perceived Administrator Support, Coping with Job Related Stress, and Attitudes towards students). (See *Validity Information on Existing Instruments*, below.) Seidman and Zager (p. 26) defined teacher burnout as a negative pattern of responding to stressful teaching events, to students, and to teaching as a career as well as a perception that there is a lack of administrative support. The TBS is a twenty-one-item Likert scale with the following four factors.

Teacher Burnout-Career Satisfaction (TB-CS). This subscale examines teachers’ satisfaction with their careers. A career in teaching can range from staying for life, to others who may not be as happy with their choice of career and could very well look for a different type of classroom setting or leave the profession altogether (Seidman & Zager, 1987).

Teacher Burnout-Administrative Support (TB-AS). Effective teaching is paired with support from supervisors particularly for special needs teachers, how the administration in the school chooses to work with the special education department is often a major consideration as to how these professionals perform their tasks and the extent to which they are able to stay “fresh” or succumb to the rigors of their job (Seidman & Zager, 1987).

Teacher Burnout-Coping with Stress (TB-CWS). Teaching can become very stressful at times and teachers need to be able to relieve those pressures. This could be

either personally or school based. Often collegial support can help to reduce the tension that teachers are feeling (Seidman & Zager, 1987).

Teacher Burnout-Attitudes Towards Students (TB-ATS). Students come to school in all shapes and sizes. How teachers choose to work with this mix can also relate to the level of burnout they are experiencing. A classroom with extensive discipline problems can often wear on a teacher much faster than a classroom with only an occasional misbehavior (Seidman & Zager, 1987). This could be particularly stressful because of the behavioral problems that many special-needs students present.

Dependent Variables

In the current study, teachers' attitudes about working with students with autism represented the criterion to be measured. The Autism Attitude Scale for Teachers (AAST) was originally designed in 1981 by Olley, Devellis, Devellis, Wall, and Long when students with autism were first entering public schools.

Teachers' Attitudes about Autism Scale

Several factors entered into the development of the criterion to be used in this study. While there has been extensive work focused on students with autism, there has been far less on the attitudes of adults who work with these children. The AAST represented a breakthrough for that era when teachers had never previously worked with students diagnosed with autism, let alone many other types of severe disabilities, as these students had typically been housed in separate buildings. Olley et al. (1981) evaluated the effect of in-service training regarding the attitudes of teachers who were about to receive students with autism for the first time. Currently, because more students are being identified with autism and placed in special education classrooms throughout the United States, information about this topic has become even more important. The author is aware

of no other scale to measure the attitudes of teachers who work with students diagnosed with autism, although there are instruments for students with other disabilities.

The first step by the researcher and co-chairs for this study was coding all fourteen of the original AAST questions for content. Several were considered to represent teacher efficacy (e.g., “only teachers with extensive special education training can help a child with autism”). These were removed because teacher efficacy was one of the two alterable Professional Characteristics (independent variables) in this study. This eliminated duplication between the independent and dependent variables, leaving only the questions that pertained exclusively to autism. The remaining items were then examined for common meaning; the three themes became the basis of the three subscales for the new Teachers’ Attitudes about Autism Scale. Several new items were created to supplement those from the original Olley et al. (1981) work, producing 16 Likert-type items overall. Because, the knowledge base both for autism generally and for professionals who work with these students has increased substantially since the AAST was designed (Dib & Sturmey, 2007; Giangrecco & Broer, 2007; Smith, 2001; Tincani, 2007), updating the AAST was clearly desirable.

Autism-Inclusion/Exclusion (A-I/E). This component examined teachers’ feelings about having a student with autism in their classroom. It is possible that some teachers may feel that this population would be better educated in a self-contained setting or even in another location altogether due to the nature of the disability.

Autism-Supports (A-S). Students with autism need a vast amount of support to benefit from their education programming (visual cues, sensory diets, social stories), all of which help to regulate their nervous systems and allow them to interpret more effectively their environment and the social cues that are given within their day-to-day activities.

Because teachers find trying to incorporate all these needs into their educational programs to be a daunting task, the level of supports provided is important.

Autism-Behavioral Issues (A-BI). Students with autism often present with various behavioral issues from mild (calling out answers in class) to severe (aggression). These behaviors often stem from sensory needs and misunderstanding of social cues. Intervention from the classroom staff as well as input from parents may be required to allow these students to be successful in school. The attitudes of teachers towards children with these problems are crucial to their success with these students.

Procedures

Data for the independent variables--Demographic Factors, Teacher Efficacy, Teacher Burnout-and the dependent variable, the Teachers' Attitudes about Autism Scale, were collected via the Autism Education Survey (AES). The questionnaire was administered to the low incidence teachers and LD teachers in Jefferson County Public Schools, Louisville, Kentucky.

Expert Panel Review

For the purpose of this exploratory study, three scales had been combined to create the Autism Education Survey (AES). Two of the scales: The Teacher Burnout Scale (Siedman & Zager, 1987) and the Teacher Efficacy Scale-Short Form (Woolfolk & Hoy, 1993) had been used in previous studies independently. The Autism Attitude Scale for Teachers (Olley et. al., 1981) was altered to use updated language that reflects the current time period. The efficacy related questions were also removed and additional questions relating to students with autism were added. For this study, this scale was renamed the Teachers' Attitudes about Autism Scale.

Because of the new questions contained in the AES and the combination of three

scales together, the survey was subjected to review by three experts chosen for their familiarity with the content.

Trisha Gallagher, M.Ed., is the Autism Specialist for Jefferson County Public Schools. Ms. Gallagher has worked with children with autism since 1997 through her work as a teacher, lead teacher for a preschool program for children with autism, and the Systematic Treatment of Autism and Related Disorders (STAR) program at the University of Louisville.

Dr. Robert Topp, RN, PhD, brings to the panel his knowledge and expertise on research and measurement. Dr. Topp is currently the Associate Dean for Nursing Research at the University of Louisville and throughout his career in academe has served there as Dean of Research or Director of Clinical Research and has taught numerous graduate level nursing research courses.

The experts were initially contacted via email requesting their assistance. Once assistance was agreed upon, the experts received a packet containing a letter explaining the survey and questions for feedback (Appendix C), operational definitions and coding of variables (Appendix B), and a hard copy of the survey (Appendix A). Feedback from these experts guided the revision of the variables, individual scales, and the overall Autism Education Survey before it was administered to the teachers in this study.

Data Collection

Following approval for human subjects research and after any revisions to the survey based on feedback from the expert panel, permission to administer the surveys was obtained from the Research Department for the local school district. Once permission was granted, the researcher sent out a notice to all of the participants informing them that they will be receiving a survey within the following week. The invitation to participate, on

colored letter size paper to attract participants' attention, explained how to access the survey, available on their school based email system. The notifications were sent via the "pony," the interschool mailing system. The notifications sent to the participants also informed them of the opportunity to "win" a gas card in the amount of \$10.00 for completing the survey. Ten of these cards were distributed to teachers completing the survey through the use of random number tables (Fink, 2003). The researcher anticipated that gas cards would be adequately motivating to the participants due to the increasing cost of gasoline, a part of the current economic trend.

The survey was administered electronically using *Survey Monkey*TM (SurveyMonkey.com, 1999-2009), a web based program. This system allows a researcher to put a survey into a web-based form that is accessible by email. The survey was sent to the participants who could quickly complete and submit the questionnaire online. Survey MonkeyTM stores each case without names, allowing the researcher access to all data while the person providing information remains anonymous.

A desirable research response rate is 70%. Roberts (2004) notes that increasing sample size enhances external validity while increasing power. Thus, after two weeks, the researcher checked the email database feature in Survey MonkeyTM, which indicates who among those originally sampled have responded without revealing the identity of the participants. Utilizing this mechanism, a second email inviting the participant to fill out the survey was generated. After another two weeks have passed, a third and final email was sent. After two more weeks, it was assumed that any participants not responding had refused to participate in the study.

Once the data had been obtained, the researcher transferred the data into the Statistical Package for Social Sciences (SPSS) for analysis, utilizing the most current

version (Version 19). All data and coding was consistent with guidelines for human subjects to maintain confidentiality (see ethical standards below). All raw data is stored in a secure electronic format for a minimum of five years.

Research Design

The data set for this study were intended to measure two types of independent variables--the Environmental Factors that describe the low incidence and LD teachers in JCPS and their alterable Professional Characteristics (Teacher Efficacy and Teacher Burnout)--plus the dependent measures (Teachers' Attitudes about Autism Scale). This research reflected a correlational design and is exploratory in nature. Direct influences are implied by the hypothesized relationships among the variables (Figure 1, p. 20), but the survey constitutes a snapshot in time. Consequently, the associations among the demographic controls, efficacy (general and personal), and burnout and the impact of these constructs on the teachers' attitudes towards their students with autism do not reach the threshold of causality. The remainder of this section addresses checking the data, descriptive statistics, psychometric analyses, and multiple regression.

Data Screening

Prior to the actual computation of any statistical analyses, the data was screened and checked for missing values. Any teacher response that includes 10% or more items unanswered was eliminated (casewise deletion). Cases were also be deleted if entire scales for teacher efficacy, teacher burnout, or the dependent variable are omitted. For surveys that meet these criteria but have minimal missing values, the respective measure of central tendency will be substituted. If the survey items have continuous measurement properties (interval or ratio), the mean value for that item will be substituted. This procedure, while problematic because it entails the introduction of some bias, is acceptable for exploratory

investigation. Some cases are retained which increases sample size but the correction is conservative, i.e., variability is sacrificed so that effect sizes are likely understated (Lynes, 2008, p. 174; Mertler & Vanatta, 2005). For items with nominal and ordinal measurement, modal and median values will be substituted, respectively. Although the modal substitution is the least desirable among these decision rules, the alternative, listwise deletion of any case with these items missing is costly (Lynes, 2008, p. 174).

Both imputing data and casewise deletions have the potential for introducing bias. Eliminating cases not only sacrifices subjects but is also likely a source of systematic bias; there is a strong possibility that individuals who omit items may be different from those who do not, just as there is the possibility that those who complete the survey may be different from those who chose not to do so. Substituting for missing values, on the other hand systematically reduces variability, with the consequence of increasing the likelihood of Type II error in the statistical analysis (Mertler & Vanetta, 2005). For this exploratory work, imputing the respective measure of central tendency has the advantage of maximizing the number of usable cases in a setting for which the final sample size is dependent upon the willingness of busy professionals to complete a survey with 50 plus questions.

Descriptive Statistics

Descriptive statistics summarize information about the sample respondents who completed the survey (Gay & Airasian, 2000). Measures of central tendency and variability provide a picture of the demographics section. The scores from the instruments comprising the professional characteristics and dependent variables (mean and standard deviation for each item) are reported as part of the *Psychometric Analysis* section.

Psychometric Analysis

Psychometric analyses represent the second step of research; the instruments utilized to create the Autism Education Survey generally lack evidence regarding use with special education teachers, although they have all been used with general education teachers. The exception is the Teachers' Attitudes about Autism Scale (TAAS), which was originally developed for use in special education settings. However, the TAAS was modified for the current study, so that no previous psychometric data exists for its current form. Thus the instrumentation comprising both the independent (Professional Characteristics) and dependent variables (TAAS) needs validation.

Validity computations included the calculation of composite scale variables in which the scores for each item are summed and then divided by the number of items in that scale. These theory based subscales were compared to the results from the factor analysis, a procedure for examining construct validity. The scores on the different items are correlated to determine whether the relationships are strong enough to indicate underlying factors (Hinton, 2004, p. 305). This procedure depends on sufficient sample size to support the calculations. Pett, Lackey, and Sullivan (2003) recommend 10-15 subjects per item in a factor analysis. The inclusion of both low incidence and LD teachers from the target district represented a population of over seven hundred teachers so that threshold should be reached. In addition, inter-scale correlations were computed to examine internal validity (Nitko, 2001).

With respect to reliability, internal scale consistency is the dimension of concern. Coefficient alpha (Cronbach, 1951) provides the inter-item correlation among the items in the instrument (Hinton, 2004, pp. 302-303). An alpha of 0.7 or greater is considered acceptable internal scale reliability, although for exploratory work, a value of 0.6 may be utilized (Nunnally & Bernstein, 1994). Item characteristics (mean, standard deviation) for

each individual question are included in the reliability tables.

The results of the psychometric calculations outlined here are carried forward for the remainder of the analyses. The variables derived are used in the multiple regressions that address the research questions. The factor scores from the factor analyses represented the various constructs in all subsequent calculations.

Multiple Regression

Multiple Regression is a statistical technique for studying the relationship between a dependent variable and two or more independent variables (Shavelson, 1996, p. 528). For research questions one and two, simultaneous multiple regression was computed as this provides the percentage of variance explained in the dependent variables by the independent variables. Since all of the variables are entered into the same analysis, the unique contribution of each variable can be assessed while controlling for all of the others (Knapp, 1998, pp. 171-172).

For the third research question, hierarchical multiple regression was used. This procedure allowed the researcher to control the entry of the variables based on the theoretical criteria as presented in Figure 1. Hierarchical multiple regression is useful for explaining the “effect” of one or more independent variables over and above one or more other independent variables (covariates) that need to be controlled. The covariates are entered first, and the variables of principle concern are entered in step 2 (Knapp, 1998, p. 172).

For this study, separate univariate multiple regressions were completed for the various subscales associated with the three overarching constructs--Teacher Efficacy, Teacher Burnout, and Teachers' Attitudes about Autism Scale. This approach, in contrast to multivariate analysis, is appropriate for exploratory investigations in which the

differential effect of the specific content of each subscale is unknown and of theoretical interest.

All multiple regressions are based on the full correlation matrix, containing both independent and dependent variables. This is attached as Table E2, Appendix E. Included are the dummy contrasts for nominal variables with more than two levels. While these violate assumptions of Pearson r , they are part of the data set upon which the regressions are based and the results give a rough sense of relationships, with the interpretation more straightforward than the technically correct point biserial and phi coefficients that would require separate tables. In contrast, the Pearson r can be included with the other variables.

Specific Research Questions

Research questions were formulated to guide the analysis of data collected for the Autism Education Survey. Figure 1, p. 20, indicates the hypothesized relationships between the independent variables--Environmental Factors (Personal Identity, Educational History, and School Setting) and Professional Characteristics (Teacher Efficacy and Teacher Burnout)--and the dependent variable, Teachers' Attitudes about Autism Scale. The research questions are repeated here for the convenience of the reader.

Research Question 1.

For special education teachers who work with students with autism, to what extent is there a relationship for the Environmental Factors (Personal Identity, Educational History, and School Setting) with Professional Characteristics (Teacher Efficacy and Teacher Burnout) and with Teachers' Attitudes about Autism?

For this question, the quantitative relationships investigated are the influence of the demographic controls on the two types of Teacher Efficacy (General and Personal), Teacher Burnout, and the Teachers' Attitudes about Autism Scale. Nine separate simultaneous regressions were computed. The independent variables were the three sets of

control factors and the dependent variables were, respectively, the measures for the two teacher efficacy subscales, the four teacher burnout subscales, and the three TAAS subscales.

Research Question 2.

For special education teachers who work with students with autism, to what extent is there a relationship for Professional Characteristics (Teacher Efficacy and Teacher Burnout) with Teachers' Attitudes about Autism?

This question examined the quantitative influence of the two types of alterable teacher characteristics (Teacher Efficacy--General and Personal--and Teacher Burnout) on the Teachers' Attitudes about Autism Scale. Three univariate regressions were calculated because the focus is the separate effect for each TAAS subscale. Further, the work on the TAAS is exploratory at this point. Multivariate regression was thus rejected as an option. The independent variables are the subscales for the teacher efficacy and teacher burnout while the dependent variables are the three TAAS subscales, respectively.

Research Question 3.

For special education teachers who work with students with autism, to what extent is there a relationship for Professional Characteristics (Teacher Efficacy and Teacher Burnout) with Teachers' Attitudes about Autism, controlling for the Environmental Factors?

The final research question looks at the effect of the two types of Teacher Efficacy (General and Personal) and Teacher Burnout on the Teachers' Attitudes about Autism Scale, controlling for the environmental factors. Consistent with RQ2, this question was addressed via three hierarchical regressions, one for each of the TAAS subscales. The independent variables were entered in two steps: (a) the three sets of control factors and (b) the six subscales from teacher efficacy and teacher burnout.

Validity Considerations

“Validity is the most important characteristic a test or measuring instrument can possess. It is concerned with the appropriateness of the interpretations made from the test scores” (Gay & Airasian, 2000, p. 161). There are four main types of validity: content, concurrent, predictive, and construct. For this study, validity interpretations depend on the Teachers’ Attitudes about Autism Scale, The Teacher Burnout Scale, and The Teacher Efficacy Scale-Short Form as all three have been combined to create the Autism Education Survey. This section discusses the steps taken to address validity issues.

Validity Information on Existing Instruments

When exploring the attributes of the Autism Education Survey, the overall relationships regarding the attitude of teachers towards their students with autism was evaluated primarily by criterion validity. For this study, the environmental factors were adopted and/or modified from Nieman (2007) and Lynes (2008), specifically for teachers in low incidence and learning disability special education settings. In addition, three instruments were combined to create the AES: two alterable independent variables (Teacher Efficacy Scale and Teacher Burnout Scale) and the dependent variable (Teachers’ Attitudes about Autism Scale). Criterion validity represented the extent that the former influence the latter, the essence of this study. Generalizability for this test is limited, however, as the survey was administered only to teachers located within an urban school district in the Commonwealth of Kentucky.

Teacher Efficacy Scale

This scale is a short form of the TES redesigned by Hoy and Woolfolk (1990) based on Gibson and Dembo (1984). The TES consists of ten Likert-type questions with five questions in both the General Teaching Efficacy subscale and the Personal Teacher Efficacy subscale. Predictive validity was high as the scale accurately predicted that

schools promoted personal teaching efficacy in teachers when teachers perceived that their colleagues (a) set high but achievable goals, (b) create an orderly and serious environment, and (c) respect academic excellence (Hoy & Woolfolk, 1993, p. 365). Construct validity correlated with Gibson and Dembo's (1984) Teacher Efficacy Scale as well as previous work of the authors (Woolfolk & Hoy, 1988, 1990). The instrument demonstrated adequate internal reliability with alphas of .77 for personal teacher efficacy and .72 for general teaching efficacy (Hoy & Woolfolk, 1993, p. 361).

Teacher Burnout Scale

This is a 21-item Likert scale developed to measure the level of burnout experienced by teachers (Siedman & Zager, 1987, p. 29). Construct validity revealed four factors: (a) career satisfaction (5 items), (b) perceived administrative support (6 items), (c) coping with job related stress (6 items), and (d) Attitudes towards students (4 items). Analysis of variance (ANOVA) was used to test the hypothesis that teachers in low stress/burnout schools would have lower burnout than teachers in high stress/burnout schools. The analysis indicated statistical significance in all four subscales, thus demonstrating high predictive validity for this scale (Siedman & Zager, p. 31). Cronbach's alpha was calculated to check the internal consistencies with alphas of .89 for career satisfaction, .84 for perceived administrator support, .80 for coping with job related stress, and .72 for Attitudes towards students. The alpha levels range from very high to acceptable, suggesting good overall reliability for this scale (Siedman & Zager, p. 32).

Teachers' Attitudes about Autism Scale

This scale was adapted for this study from the Autism Attitude Scale for Teachers (AAST), which was created by Olley et al. (1981) when students with autism were first being placed in public school classrooms. Predictive validity on the AAST was addressed

by the authors who stated that teachers with more positive attitudes would score higher than teachers who do not (Olley et al., p. 372). Content validity was not mentioned; however, the authors stated that the questions are considered to be highly appropriate for assessing attitudes towards autistic children in the public schools (p. 372). The original AAST test did have good reliability with the coefficient alpha for form A ($\alpha = .85$), form B ($\alpha = .78$), and the combined form ($\alpha = .91$), all in the acceptable to high range (p. 371). Validity and reliability calculations will have to be performed on all three subscales of the reworked Teachers' Attitudes about Autism Scale.

Ethical Standards

Because this study involved human subjects, the University of Louisville (U of L) Human Subjects clearance will be required. Once that was obtained from U of L, the next step was to obtain permission from the Research Department for JCPS. Once the approval process was finalized (from both human subjects and with the local school district), data collection proceeded as described above (see *Data Collection*). Adherence to the rules of privacy safeguarding participant information was followed as required by law.

Before beginning the survey, teachers were given directions as to how to complete and submit the questionnaires. Since the survey had minimal impact on the individuals completing it, a preamble was utilized in lieu of a consent form, with implied permission granted if the teachers complete the survey.

The introduction and survey were both written in language that is easy for professionals to understand. Efforts were made to ensure that the questions are non threatening to participants and that they can read and answer the survey efficiently within their limited planning times or other times during the day when they are not directly instructing students.

Protocol for research on human subjects, per the Institutional Review Board (IRB) at the University of Louisville and JCPS research department, was followed. The researcher has complied with all requirements related thereto. Once permission was gained, the letters of approval from both the school district and the IRB were filed in Appendix D.

Summary

Teachers working with low incidence and learning disabled students in a metropolitan school district were administered a survey to determine if their levels of Teacher Efficacy (Personal and General) and Teacher Burnout influence their scores on the Teachers' Attitudes about Autism Scale (TAAS). This study used a quantitative design with all information gathered via the Autism Education Survey (AES), which included the three instruments above plus demographic information. The population for this study was all of the low incidence disability teachers as well as the learning disability teachers in the local school district as all of these teachers work with students who are on the autism spectrum.

Figure 1 (p. 20) hypothesizes the relationship between the independent and dependent variables used in this research. The Environmental Factors (Personal Identity Educational History, and School Setting) were chosen for their relevance to special education teachers with respect to attitudes regarding autism. The literature review supports the hypothesis that teachers who work with students with autism tend to experience more frustration in the classroom and thus will experience more burnout and lower teacher efficacy, which in turn will create a more negative attitude towards their students diagnosed with autism.

The three research questions investigated the relationships depicted in Figure 1.

Research Question 1 focuses on how the demographic controls influence the two types of Teacher Efficacy (General and Personal), Teacher Burnout, and the Teachers' Attitudes about Autism Scale. Research Question 2 focuses on the impact of the two types of Teacher Efficacy (General and Personal) and Teacher Burnout on the Teachers' Attitudes about Autism Scale. Research Question 3 investigates the relationship between the two types of Teacher Efficacy (General and Personal) and Teacher Burnout with the Teachers' Attitudes about Autism Scale while controlling for the demographics. SPSS (version 19) is utilized for the multiple regression computations.

Procedures for data collection included sending a notice to the population of teachers that in a few days a survey will be emailed to their school email account. Directions as to how to access the survey was listed in this postcard. The participants also had an opportunity to "win" a \$10.00 gas card for completing the online survey. As the researcher is employed through this district, the notices were sent through the inter district mail known as the "pony." The survey was developed through the adoption of two surveys previously published (teacher efficacy and teacher burnout) and the adaptation of an existing scale for the dependent variable. The researcher obtained permission to use and or modify the surveys from all of the authors.

Validity issues are paramount in survey studies. Information about the validity and reliability for Teacher Efficacy, Teacher Burnout, and the Autism Attitude Scale for Teachers were all provided by the original studies. Because the independent variables have not been utilized with special education teachers and because a modified instrument is being developed for the dependent variable (Teachers' Attitudes about Autism Scale), factor analysis will be employed to determine whether the factors created are consistent with the intended constructs. Cronbach's alpha was used to determine the reliability of the

subscales. The ethical standards established by the University of Louisville Institutional Review Board and Jefferson County Public Schools Research Department was followed throughout all research procedures. Confidentiality of all of the teacher's responses was kept through the use of the Survey MonkeyTM web-based program. The data is kept secure for a minimum period of five years.

The Teachers' Attitudes about Autism Scale was the criterion for this study. The central research question frames this study: What is the effect of teacher efficacy and burnout on educators' attitudes towards students with autism?

CHAPTER IV

RESULTS

Introduction

Over the past twenty-nine years, the number of students entering public schools with the diagnosis of autism has mushroomed, requiring more teachers and administrators at both school and district level to increase their knowledge about this disability. Through increased in-service and workshops geared towards characteristics of and instruction for a child with autism, states are seeing an increase in Individual Educational Plans (IEPs) written towards this disability. Teachers of students with autism have a more difficult time planning and programming for their unique needs (Janney et al., 1995; Schumm et al., 1995; Simpson et al., 2003; Simpson & Myles, 1993). Educators find that students with autism don't offer the typical rewards of rapid learning or affection that their non-disabled peers do. In response, teachers find themselves planning instruction that incorporates behavior modification strategies, sensory processing strategies, and other visual supports to help their students with autism make it through the school routine (Iovannone et al., 2003).

The complexity of knowledge and skills needed to work effectively with special needs populations, especially children with autism, requires considerable training. But because of the shortage of special education teachers, many individuals with a bachelors (or masters) degree in a field other than education are entering the classroom with a provisional certificate (Billingsley, 1993; Quigney, 2010). These new teachers are working full time towards a teacher certificate through alternate certification programs. Compared

to an individual with a traditional teaching certificate, teachers on an alternate certification program have the additional challenge of “starting from scratch” in their classrooms as they have not had any previous education coursework or student teaching experience and therefore are entering a classroom almost blind (Justice et al., 2003; Shepherd & Brown, 2003; Stoddart & Floden, 1995).

Educators who work with students with autism face a demanding set of problems. To be successful, they must demonstrate a wide range of instructional skills. The sense of their effectiveness also varies widely. Teacher efficacy incorporates two dimensions of this success-skill set continuum. Personal teacher efficacy is the feeling that the individual is able to help students overcome obstacles that they bring to school each day. General Teaching Efficacy is the feeling that educators in general are able to help a student learn no matter what baggage they bring to school (Coladarci & Brenton, 1997; Hoy & Spero, 2005; Podell & Soodak, 1993; Soodak & Podell, 1993). As teachers experience more success in the classroom, their levels of efficacy increase. For teachers who experience very little success or none at all, their level of efficacy tends to drop. Instructional improvement typically occurs with increased experience. In contrast, fledgling teachers may have lower levels of efficacy as they struggle to run a classroom and manage the documentation needed for their students.

Special education teachers experience numerous pressures such as excessive paperwork, difficult parents, lack of support from administrators, and lack of supplies (Billingsly & Cross, 1991, 1992; Brownell & Smith, 1993; Brownell et al., 1997). These educators are frequently faced with feelings of isolation (sometimes the only special needs staff in their building), lack of support from their colleagues, and lack of instructional assistants. Such issues frequently lead to teacher burnout, particularly for special needs

educators who may instead opt for the regular classroom or leave the profession altogether.

Though extensive research has been conducted on teacher efficacy and on teacher burnout, there is minimal research on the combination of teacher efficacy and teacher burnout, particularly when focused towards special education. This is even more true regarding teacher who work with students with autism. Teacher efficacy and teacher burnout tend to shape the classroom environment (Egyed & Short, 2006). Jennett et al. (2003) found that opportunities to refine management skills and improve instructional strategies vis-à-vis students with autism had positive effects on attitudes about these students. Yet working with students with autism remains a challenging task. Unknown is the extent that teacher efficacy and teacher burnout are related specifically to working with autistic children. Thus, the limited research on these issues leads to the central research question: What is the effect of teacher efficacy and teacher burnout on educators' attitudes towards students with autism?

The remainder of this chapter examines the relationships between Independent Variables (Environmental Factors and Professional Characteristics) and the Dependent Variable (Teachers' Attitudes about Autism) as illustrated in Figure 1. The analytic methods are quantitative. Following sections on Changes in Protocol and Data Checking, Descriptive Statistics are presented. Validity and reliability of the scales are addressed under Psychometric Analysis. The Research Questions detail the primary findings of the study. A Summary completes this chapter.

Changes in Protocol

Data collection for the Autism Education Survey originally began with submission to the Human Subjects Protection Program office at the University of Louisville. The Institutional Review Board (IRB) recommended that the researcher use a *Preamble* rather

than an informed consent statement to introduce the survey. Upon resubmission and approval by the IRB, the researcher forwarded the proposal to the Jefferson County Public Schools' (JCPS) research office. When approval was received through JCPS, the proposal was submitted to the Executive Director of Special Education, who initially questioned whether permission would be needed from each building principal. After consultation with the researcher's dissertation co-chairs, JCPS approval was granted as the survey was administered online and entry to the school buildings was not necessary.

The survey was then reviewed by a two member expert panel who addressed wording that could be confusing to teachers. Changes were suggested to improve clarity (e.g., *benefit* rather than *profit*, etc.). Other concerns were stylistic in nature. After careful review with the methodologist co-chair, these suggestions were deemed non-substantive and were left unchanged to ensure the integrity of the survey. After making these minor alterations, the instrument was resubmitted as an amendment to the University of Louisville Institutional Review Board and JCPS research office.

Data Checking

Descriptive statistics seek to describe what is or what was (McMillan & Schumacher, 1997); when inspected they establish the qualities of the sample under investigation. This reporting provides information about the subjects and their teaching environments and thus set up how these factors relate to the variables presented in this study. The first step was to screen the database for missing information.

This research netted a total of 267 respondents out of a sample of 684 for a response rate of 39%. The survey was originally attempted by 290 teachers; however of these individuals, five chose to click on the consent statement at the end of the preamble but not continue on with the survey. The remaining eighteen filled out the demographic

factors, but did not fill in any information for the survey itself. From the decision rule that more than 10% of information was missing on these twenty-three surveys, they were discarded. The research was conducted with the remaining usable surveys. There were no missing values for these subjects.

Descriptive Statistics

Descriptive statistics are reported for the Environmental Factors. Psychometric analysis (factor analysis, Cronbach's Alpha, and interscale reliabilities) were conducted for the other independent variables (Professional Characteristics) and the dependent variable. Those results are reported in the section for psychometric results.

Environmental Factors

The Environmental Factors are clustered under Personal Identity, Educational History, and School Setting. These variables are presumed to have influence on teachers' levels of efficacy and burnout along with their interactions towards students on the autism spectrum.

Personal Identity

The variables under this section describe the sample participants with respect to their Gender (GEN) and Ethnicity (ETH). Table 2 represents the results for these variables. The sample is largely female (84.3%). The final sample was comprised of three groups-- Black, White, and Other. Only five participants identified themselves as Other; these were collapsed with the 17 participants designated as Black. The vast majority of the sample was white ($n = 245$, 91.8%).

Table 2

Descriptive Statistics for Environmental Factors--Personal Identity

Variable	Frequency	Percentage
Gender	267	100.0
Male	42	15.7
Female	225	84.3
Ethnicity	267	100.0
White	245	91.8
Other	22	8.2

Educational History

Sample participants are described under this section by their Highest Degree Earned (DEG), Training Program (TRAIN), Hours spent in Autism Workshops (WORK), Years of Teaching Experience (EXP), and Special Education Certification (CERT). These factors all represent the amount of training that teachers received prior to and during their time in the classroom, preparing them to work with special education students. The results of these variables are represented in Tables 3 and 4.

Of the teachers surveyed, 60.3% have received their certification through a traditional certification program i.e., taking college courses and completing student teaching before taking a classroom job. The remainder (almost 40%) took an alternate route (Table 3).

Table 3

Descriptive Statistics for Teaching Certificate and Primary Certification (N = 267)

Variable	Frequency	Percentage
Teaching Certificate	267	100.0
Traditional	161	60.3
Alternate	106	39.7
Primary Certification	267	100.0
Provisional LBD	19	7.1
Provisional MSD	8	3.0
LBD	171	64.0
MSD	56	21.0
Other	13	4.9

With respect to primary certification (Table 3), participants who held a certificate other than what was listed originally ($n = 26$) were asked to write in their primary certification; for the most part these teachers hold similar certificates, e.g., Learning Disabilities rather than Learning and Behavioral Disabilities and Trainable Mentally Handicapped rather than Moderate/Severe Disability. This is most likely due to where or when they were originally issued their certificate, as other states label these subspecialties differently from Kentucky. Several other teachers reported that they hold certifications in vision impairments, hearing impairments, and general education.

The researcher examined each of these 26 responses. Three decision rules were

developed to recode these responses into LBD, MSD, and a new, more restrictive Other, with the presumption that teachers with MSD certificates have had more training for special needs than those with the more general LBD classification: (a) recode scores of 5 to 3 if different label for LBD, (b) recode scores of 5 to 4 if different label for MSD, (c) scores of 5 stay 5 if dual certification or other extra/special training. This reduced the Other category to $n = 13$ (4.9%). The majority of participants ($n = 171$) reported that they were fully certified in Learning and Behavioral Disorders (64%). The smallest groups overall, were the Provisional LBD and Provisional MSD categories, together totaling 27 participants (10.1%) (see Table 3).

Table 4

Descriptive Statistics for Highest Degree Earned, Hours in Autism Workshops and Years of Teaching Experience (N = 267)

Variable	<i>M</i>	<i>SD</i>	Minimum	Maximum	Range
DEG	2.28	.68	1.00	4.00	3
WORK	3.64	1.82	1.00	6.00	5
EXP	11.13	9.08	0.00	42.00	42

Note. DEG = Highest Degree Earned; WORK = Hours in an Autism Workshop; EXP = Years Experience.

For Highest Degree Earned (Table 4), Participants were asked to select their level with a score of 1 being equivalent to a bachelor's and a 4 being a doctorate. The mean of 2.28 suggests slightly above a master's; teachers participating in the study represented all levels of education. Individuals then ranked their perceived hours spent in autism related

workshops. Scores began at 0 for no time spent in a workshop up to 5 equating to 25+ hours. The mean of 3.64 demonstrates these teachers spent more than 18 hours in these workshops, in the 19-24 hour range. The range indicated that participants have spent anywhere from 0 to 25+ hours in autism related workshops. Finally participants were asked to write in their years of experience teaching special education. The range was 42 with participants writing in 0 years (first year teacher) to 42 years, with the mean of 11.13.

School Setting

The factors in this section are specific to the type of setting in which each participant is currently teaching. These factors impact the participants based on Least Restrictive Environment (LRE), Type of School (TYPE), and Grade Level (GRADE). Table 5 presents frequency and percentages for Type of School and Grade. Only 64 respondents (24%) taught in special schools. Approximately half ($n = 139$) of the participants (52.1%) report that they teach in an elementary school setting (grades K-5). Special education teachers tend to find themselves in a variety of settings throughout the day. For Least Restrictive Environment, participants selected the type of setting to which they taught for most of the school day. The mean (3.82) and standard deviation (1.03) equates overall to between Collaboration/Resource coded 3 and Resource only, coded 4. The range of 4 indicates that teachers worked in settings from Regular Education, coded 1 to Special Education Self-Contained, coded 5. On this scale, the higher the number, the more supports needed and received by these students on the autism spectrum.

Table 5

Descriptive Statistics for Environmental Factors--School Setting (N = 267)

Variable	Frequency	Percentage
School/Program	267	100.0
General Education	203	76.0
Special Education	64	24.0
Grade Level Taught	267	100.0
High School	72	27.0
Middle School	56	21.0
Elementary School	139	52.0

Psychometric Analyses

The main concern of this section was to address (a) data reduction among the independent variables and (b) validity of the Autism Education Survey, created for this study. Psychometric computations related to validity for the scales included factor analysis, Cronbach's (1951) alpha, and interscale correlations. The information was examined to confirm the integrity of the Autism Education Survey, created from two existing instruments (Teacher Efficacy from Hoy and Woolfolk, 1993; Teacher Burnout from Siedman and Zager, 1987) and one modified instrument, Teachers' Attitudes about Autism Scale.

The primary analytic technique utilized is factor analysis. Checking the data set (the 267 surveys) confirmed that the distribution met assumptions relevant to factor analysis. The sample size ($N = 267$) was sufficient to support the maximum number of

items in any specific calculation (20 items for Teacher Burnout) relative to the number of items in the scales. The Kaiser-Oblimin (oblique) rotation was utilized consistent with theoretical perspectives that subscales in all three scales would be related rather than completely independent.

The information in this section follows Figure 1, with separate sections for Teacher Efficacy, Teacher Burnout, and Attitudes towards Autism. Descriptive statistics for individual scale items are incorporated into the Cronbach's alpha tables.

Professional Characteristics

The Professional Characteristics section represents the primary independent variables in this study. There are two separate blocks for which factor analysis was conducted: Teacher Efficacy and Teacher Burnout.

Teacher Efficacy

This work was based on the theoretical framework of Gibson and Dembo (1984) and later modified by Hoy and Woolfolk (1993). There are ten total questions comprising the section for Teacher Efficacy. Five questions belonged to General Teaching Efficacy and five to Personal Teacher Efficacy. Table 6 indicates the Factor Structure Matrix (correlation coefficients) and Factor Pattern Matrix (standardized regression weights) of loadings for the two-factor solution from an oblique rotation with Eigenvalues greater than one retained in the model. Factor two comprised General Teaching Efficacy (Eigenvalue = 1.743); factor one encompassed Personal Teacher Efficacy (Eigenvalue = 3.253). Together these factors explained 49.6% of the variance. The break on the scree plot also supported these factors; overall these computations confirm the previous work of Hoy and Woolfolk on Teacher Efficacy as having acceptable construct validity.

Table 6

Factor Structure and Pattern Matrix Loadings for Teacher Efficacy

Variable	Factor Structure Matrix		Factor Pattern Matrix	
	F1	F2	F1	F2
EG1	-.087	.632	.055	.644
EG2	-.197	.834	-.014	.831
EG3	-.269	.715	-.117	.689
EG4	-.241	.678	-.096	.657
EG5	-.039	.521	.079	.538
EP1	.821	-.255	.804	-.078
EP2	.667	-.102	.678	.047
EP3	.517	-.037	.535	.081
EP4	.732	-.169	.730	-.008
EP5	.815	-.347	.776	-.176

Note. EG = General Efficacy, EP = Personal Efficacy.

Table 7 reports the item characteristics and internal reliability for General Teaching Efficacy. Based on a 5-point Likert scale, the composite mean score of 3.47 suggested that overall participants agreed slightly that teachers in general have the ability to help students overcome barriers to learning. Cronbach's Alpha for the entire scale ($\alpha = .696$) barely meets the .7 criterion for internal scale reliability suggested by Nunnally and Bernstein (1994).

Table 7

Internal Reliability and Item Characteristics for General Teaching Efficacy (N = 267)

Item	<i>M</i>	<i>SD</i>	Minimum	Maximum	Range	$\alpha - d^a$
EG1	3.72	.962	1	5	4	.670
EG2	3.49	.990	1	5	4	.558
EG3	4.07	.706	2	5	3	.638
EG4	3.35	1.07	1	5	4	.646
EG5	2.72	1.06	1	5	4	.707
Composite	3.47	.649	1.40	5.00	3.60	.696 ^b

Note. Wording for scale items is in Appendix B, Teacher Efficacy-General Section.

^a $\alpha - d$ = alpha with item deleted.

^bValue for $\alpha - d$ for Composite is Cronbach's coefficient alpha for the entire scale.

Table 8 represents the internal reliability and item characteristics for Personal Teacher Efficacy. The mean of 2.09 suggested that teachers did not always feel that they themselves have the ability to help students overcome whatever was impeding their students' learning. Cronbach's alpha for the composite scale ($\alpha = .759$) is stronger.

Table 8

Internal Reliability and Item Characteristics for Personal Teacher Efficacy (N = 267)

Item	<i>M</i>	<i>SD</i>	Minimum	Maximum	Range	$\alpha - d^a$
EP1	1.92	.739	1	4	3	.663
EP2	2.12	.676	1	4	3	.736
EP3	2.52	.737	1	4	3	.783
EP4	1.89	.625	1	4	3	.715
EP5	2.02	.756	1	4	3	.662
Composite	2.09	.505	1.00	4.00	3.00	.759 ^b

Note. Wording for scale items is in Appendix B, under Teacher Efficacy-Personal Section

^a $\alpha - d$ = alpha with item deleted.

^bValue for $\alpha - d$ for Composite is Cronbach's coefficient alpha for the entire scale.

Personal Efficacy and General Efficacy demonstrate a moderate negative correlation with each other ($r = -.413$), significant at the .01 level. This indicates that the two subscales are related as hypothesized yet still sufficiently distinct as to be measuring different content.

Teacher Burnout

Based on the work of Siedman and Zager (1987) this section asked teachers twenty questions based on Career Satisfaction (TB-CS), Administrator Support (TB-AS), Coping with Stress (TB-CWS), and Attitudes Towards Students (TB-ATS). All items were presented in the form of a 5-point Likert scale. Table 9 presents the Factor Structure Matrix and Factor Pattern Matrix of loadings for the four-factor solution, utilizing oblique

rotation. Eigenvalues greater than one were retained, with the four explaining 65.9% of the variance. Eigenvalues for the factors were as follows. Factor one, Career Satisfaction (7.333); factor two, Administrator Support (2.991); factor three, Attitudes Towards Students (1.718); and factor four, Coping with Stress (1.134). Factor one, Career Satisfaction, is negatively correlated with the remaining factors. The scree plot supported this four-factor solution.

Table 9

Structure and Pattern Coefficients from Teacher Burnout Scale (N = 267)

Item	Factor Structure Matrix				Factor Pattern Matrix			
	F1	F2	F3	F4	F1	F2	F3	F4
BCS1	-.790	-.270	-.260	-.538	-.698	-.029	-.015	-.148
BCS2	-.851	-.238	-.315	-.448	-.843	-.001	-.081	.030
BCS3	-.845	-.238	-.217	-.369	-.910	-.034	.016	.129
BCS4	-.542	-.155	-.144	-.420	-.454	.024	.033	-.192
BCS5	-.803	-.265	-.255	-.507	-.741	-.030	-.012	-.094
BAS1	.266	.846	.134	.215	.099	.861	-.043	-.103
BAS2	.226	.878	.141	.209	.038	.903	-.031	-.093
BAS3	.215	.821	.173	.248	-.004	.826	.009	-.018
BAS4	.248	.871	.190	.313	-.010	.860	.005	.040
BAS5	.206	.888	.204	.326	-.086	.880	.025	.083
BAS6	.281	.797	.235	.420	-.036	.736	.042	.192

(table continues)

Table 9. (*continued*)

Item	Factor Structure Matrix				Factor Pattern Matrix			
	F1	F2	F3	F4	F1	F2	F3	F4
BCWS1	.563	.409	.438	.835	.102	.120	.198	.689
BCWS2	.534	.314	.396	.725	.157	.048	.185	.575
BCWS3	.398	.313	.233	.847	-.094	.055	.011	.877
BCWS4	.445	.235	.105	.766	.069	-.004	-.121	.763
BCWS5	.628	.297	.306	.835	.241	-.002	.051	.691
BATS1	.426	.248	.714	.374	.187	.039	.628	.090
BATS2	.269	.143	.779	.278	.023	-.044	.761	.074
BATS3	.144	.124	.724	.057	.007	.016	.762	-.158
BATS4	.152	.155	.735	.217	-.099	.008	.743	.067

Note. BCS = Career Satisfaction, BAS = Administrator Support, BCWS = Coping with Stress, BATS = Attitudes Towards Students.

Table 10 presents the Cronbach's alpha and descriptives for Teacher Burnout-Career Satisfaction. The composite mean of 1.89 suggests low satisfaction with careers. Questions from this subscale address feelings about teaching now and looking forward to the future. The composite scale ($\alpha = .810$) is strong; however, removing item BCS4 would increase Cronbach's alpha to .849. This is consistent with Table 10 where this item has the weakest correlation in the factor structure matrix. Despite this, the item was retained because the loading is greater than .5 and maintains the integrity of the original scale.

Table 10

Internal Reliability and Item Characteristics for Teacher Burnout-Career Satisfaction (N = 267)

Item	<i>M</i>	<i>SD</i>	Minimum	Maximum	Range	$\alpha - d^a$
BCS1	1.75	.822	1	5	4	.759
BCS2	1.55	.689	1	5	4	.749
BCS3	1.97	.907	1	4	3	.757
BCS4	2.01	1.170	1	5	4	.849
BCS5	2.20	.910	1	5	4	.757
Composite	1.89	.689	1.00	4.60	3.60	.810 ^b

Note. Wording for scale items is in Appendix B, under Teacher Burnout Section.

^a $\alpha - d$ = alpha with item deleted.

^bValue for $\alpha - d$ for Composite is Cronbach's coefficient alpha for the entire scale.

Table 11

*Internal Reliability and Item Characteristics for Teacher Burnout-Administrative Support**(N = 267)*

Item	<i>M</i>	<i>SD</i>	Minimum	Maximum	Range	$\alpha - d^a$
BAS1	3.36	1.149	1	5	4	.910
BAS2	3.64	1.110	1	5	4	.904
BAS3	3.59	1.184	1	5	4	.914
BAS4	3.93	1.005	1	5	4	.905
BAS5	3.79	1.055	1	5	4	.901
BAS6	3.94	.997	1	5	4	.916
Composite	3.71	.921	1.00	4.00	4.00	.922 ^b

Note. Wording for scale items is in Appendix B, under Teacher Burnout section.

^a $\alpha - d$ = alpha with item deleted.

^bValue for $\alpha - d$ for Composite is Cronbach's coefficient alpha for the entire scale.

Table 11 presents the reliability and item descriptive data for Teacher Burnout-Administrative Support. Teachers completing this survey are slightly satisfied with the support they receive from their administrators (mean score of 3.70). The alpha of .922 is extremely strong, confirming the psychometric properties of this scale.

Item characteristics for Teacher Burnout-Coping with Stress are presented in Table 12. Coping with Stress had a negative cast on all questions (mean score of 3.87) suggesting respondents are feeling stressed in their assignment. Cronbach's alpha for internal reliability ($\alpha = .872$) is strong.

Table 12

Internal Reliability and Item Characteristics for Teacher Burnout-Coping with Stress
($N = 267$)

Item	<i>M</i>	<i>SD</i>	Minimum	Maximum	Range	$\alpha - d^a$
BCWS1	4.06	.992	1	5	4	.825
BCWS2	4.01	.880	1	5	4	.857
BCWS3	3.90	.970	1	5	4	.841
BCWS4	3.36	1.130	1	5	4	.872
BCWS5	4.03	.932	1	5	4	.827
Composite	3.87	.800	1.00	5.00	4.00	.872 ^b

Note. Wording for scale items is in Appendix B, under Teacher Burnout section.

^a $\alpha - d$ = alpha with item deleted.

^bValue for $\alpha - d$ for Composite is Cronbach's coefficient alpha for the entire scale.

Table 13

Internal Reliability and Item Characteristics for Teacher Burnout-Attitudes Towards Students (N = 267)

Item	<i>M</i>	<i>SD</i>	Minimum	Maximum	Range	$\alpha - d^a$
TB-ATS1	4.43	.769	1	5	4	.659
TB-ATS2	4.52	.696	1	5	4	.637
TB-ATS3	3.79	.961	1	5	4	.673
TB-ATS4	3.47	.927	1	5	4	.658
Composite	4.05	.622	1.00	5.00	4.00	.718 ^b

Note. Wording for scale items is in Appendix B, under Teacher Burnout Section.

^a $\alpha - d$ = alpha with item deleted.

^bValue for $\alpha - d$ for Composite is Cronbach's coefficient alpha for the entire scale.

Table 13 gives the internal reliability and item characteristics for Teacher Burnout-Attitudes Towards Students. Again, the questions are negatively cast with mean of 4.05. Cronbach's alpha is .718, acceptable based on Nunnally and Bernstein (1994).

Table 14

Intercorrelations for Teacher Burnout Dimensions (N = 267)

Variable	BCS	BAS	BATS	BCWS
BCS	--			
BAS	.327**	--		
BATS	.453**	.297**	--	
BCWS	.697**	.398**	.457**	--

* $p < .05$. ** $p < .01$.

The intercorrelations between the four dimensions of Teacher Burnout are illustrated in Table 14. Each relationship demonstrates significance at the .01 level, ranging from $r = .297$ for Attitudes Towards Students with Administrative Support to $r = .697$ for Coping with Stress with Career Satisfaction. All of the correlations are acceptable per Nunnally And Bernstein (1994), indicating related but distinct scales.

Teachers' Attitudes about Autism Scale

Factor analysis was done on the sixteen questions which comprised the Teachers' Attitudes about Autism Scale component of the Autism Education Survey. The computation produced four factors rather than the three originally conceptualized by the researcher and methodologist in Chapter III. The researcher, co-chairs, and content expert examined the four factors according to the meaning of the questions. The subscales were tentatively named as Factor one, Autism-Inclusion/Exclusion; Factor two, Autism-Benefits of Inclusion; Factor three, Autism-Student Relationships; and Factor four, Autism-Supports Needed. The results of this factor analysis are displayed in Table 15.

Table 15

Structure and Pattern Coefficients from the Original Teachers' Attitudes about Autism Scale with 16 Items (N = 267)

Item	Factor Structure Matrix				Factor Pattern Matrix			
	F1	F2	F3	F4	F1	F2	F3	F4
AIE1	.733	.168	.184	-.412	.704	-.115	.070	-.129
AIE2	.773	.188	-.022	-.335	.754	-.102	.049	-.104
AIE3	.836	.408	-.039	-.442	.834	.166	-.137	.075
AIE4	.233	.617	-.039	-.442	-.061	.538	-.105	-.293
AIE5	.877	.353	.014	-.419	.858	.063	-.115	-.032
AIE6	.797	.272	.223	-.260	.830	.042	.126	.145
AIE7	.778	.341	.060	-.386	.743	.087	-.055	-.033
AIE8	.228	.732	.068	-.224	-.033	.749	.036	.048
ASN1	.317	.268	.235	-.826	-.070	-.018	.113	-.846
ASN2	.415	.294	.218	-.812	.060	-.008	.088	-.775
ASN3	.310	.619	.118	-.241	.120	.587	.075	.035
ASN4	.438	.489	-.091	-.685	.131	.253	-.213	-.569

(table continues)

Table 15. (*continued*)

Item	Factor Structure Matrix				Factor Pattern Matrix			
	F1	F2	F3	F4	F1	F2	F3	F4
ABI1	.588	.517	-.013	-.733	.289	.235	-.152	-.544
ABI2	.363	.646	.314	-.400	.088	.561	.253	-.120
ABI3	.513	.126	.543	-.505	.347	-.129	.449	-.326
ABI4	.134	.257	.869	-.198	-.069	.230	.865	-.010

Note. AIE = Inclusion/Exclusion, ASN = Supports Needed, ABI = Behavioral Issues.

Three of these four factors had adequate properties with respect to their loadings. However Factor 3 had only two items, not recommended. Cronbach's alpha was computed on this 2-item factor (see Table 16). The results ($\alpha = .445$) gave further evidence that the Autism-Student Relationships factor was not viable. Examination of the two items revealed that ABI3 addressed mealtime behaviors, a topic not addressed anywhere else on the Autism Education Survey. ABI4 was about student-student relationships. In Table 15, the pattern matrix coefficient weights for ABI3 and ABI4 were .449 and .865, respectively. Considering all of these data, the decision was made to eliminate ABI3 about mealtime behavior. This left ABI4 as a single item variable, again not the most desirable psychometric outcome.

Table 16

Internal Reliability and Item Characteristics for Initial Autism-Student Relationships (N = 267)

Item	<i>M</i>	<i>SD</i>	Minimum	Maximum	Range	$\alpha - d^a$
ABI3	3.97	.755	1	5	4	--
ABI4	3.48	.727	1	5	4	--
Composite	3.72	.595	2.00	5.00	3.00	.445 ^b

Note. Wording for scale items is in Appendix B, under Teachers' Attitudes about Autism Section.

^a $\alpha - d$ = alpha with item deleted.

^bValue for $\alpha - d$ for Composite is Cronbach's coefficient alpha for the entire scale.

A new factor analysis was then computed with the remaining 15 items. This result was even more problematic regarding psychometric properties (see Table E1, Appendix E) yielding three factors. The loadings for ABI4 on these three were .138, .279, and .081, respectively, in no instance reaching the recommended .32 threshold. Thus ABI4 did not load adequately on any of the factors. Further, Factor 3 has only one item that loaded above .32; that item (AIE3) loaded higher on Factor 1 at .833 compared to -.545 for Factor 3. Thus Factor 3 is meaningless having no items that have a primary loading above .32.

Accordingly the decision was made to retain ABI4, "Children with autism are well liked by their classmates," as a single-item variable because it addresses positive relationships between students with autism and their non-disabled peers, important content related to autism and consistent with the Teachers' Attitudes about Autism Scale as

conceptualized. The new variable was named Autism-Friendship (AF).

With items ABI3 deleted and ABI4 as a single-item construct, the remaining 14 items from the TAAS were entered into a third factor analysis. Table 17 presents the Factor Structure and Factor Pattern matrices for that computation. Two well-defined factors emerged, both with Eigenvalues greater than one, explaining 52.9% of the variance. The original names of the subscales were changed to reflect this final outcome. Factor 1 had six items with Eigenvalue of 5.849 and was named Autism-Inclusion (AI). The questions in this subscale are worded to reflect exclusion; the items were reverse scored to give a positive meaning, hence Autism-Inclusion--see Appendix B. Factor 2 had eight items (Eigenvalue = 1.561), named Autism-Supports (AS). A third factor had Eigenvalue of .996 but the loadings demonstrated this was not viable; only one item, AIE3, loaded above .32 and it correlated more strongly with Factor 1 than Factor 3. The single-item ABI4 (see Table E1, Appendix E), Autism-Friendship, was retained as the third factor in the Teachers' Attitudes about Autism Scale.

Table 17

Structure and Pattern Coefficients from Teachers' Attitudes about Autism Scale with ABI3 and ABI4 Removed (N = 267)

Item	Factor Structure Matrix			Factor Pattern Matrix		
	F1	F2	F3	F1	F2	F3
AIE1	.640	.468	.196	.548	.129	.098
AIE2	.692	.480	.219	.615	.100	.115
AIE3	.809	.524	.666	.707	.032	.557
AIE4	.257	.479	.137	-.053	.501	.081
AIE5	.864	.562	.154	.817	.073	.024
AIE6	.805	.398	-.078	.903	-.112	-.197
AIE7	.742	.524	.075	.670	.130	-.041
AIE8	.258	.403	.205	.011	.377	.155
ASN1	.343	.662	-.101	-.057	.720	-.185
ASN2	.445	.684	-.063	.076	.659	-.158
ASN3	.324	.422	-.051	.126	.362	-.116
ASN4	.433	.692	.149	.026	.720	.103

(table continues)

Table 17. (continued)

Item	Factor Structure Matrix			Factor Pattern Matrix		
	F1	F2	F3	F1	F2	F3
ABI1	.551	.797	.211	.107	.720	.103
ABI2	.372	.527	.109	.086	.472	.036

Note. AIE = Inclusion/Exclusion, ASN = Supports Needed, ABI = Behavioral Issues.

Table 18

Internal Reliability and Item Characteristics for Autism-Inclusion (N = 267)

Item	<i>M</i>	<i>SD</i>	Minimum	Maximum	Range	$\alpha - d^a$
AIE1	4.01	.785	1	5	4	.883
AIE2	4.42	.743	1	5	4	.873
AIE3	4.45	.741	1	5	4	.862
AIE5	4.42	.743	1	5	4	.853
AIE6	4.34	.751	1	5	4	.872
AIE7	4.37	.833	1	5	4	.873
Composite	4.34	.615	1.00	5.00	4.00	.889 ^b

Note. Wording for scale items is in Appendix B, under Autism section.

^a $\alpha - d$ = alpha with item deleted.

^bValue for $\alpha - d$ for Composite is Cronbach's coefficient alpha for the entire scale.

Table 18 gives the descriptive statistics and internal reliability for the modified

Autism-Inclusion subscale, based on the remaining 14 items of the TAAS. The Cronbach's coefficient alpha of .889 for the composite scale is very strong; however, both the composite mean (4.34) and those for individual items are high, suggesting that a ceiling effect may be problematic.

Table 19

Internal Reliability and Item Characteristics for Autism-Supports (N = 267)

Item	<i>M</i>	<i>SD</i>	Minimum	Maximum	Range	$\alpha - d^a$
AIE4	4.12	.885	1	5	4	.787
AIE8	4.11	.965	1	5	4	.800
ASN1	4.06	.876	1	5	4	.773
ASN2	3.98	.831	1	5	4	.769
ASN3	4.26	.775	1	5	4	.795
ASN4	4.04	.767	1	5	4	.769
ABI1	4.20	.716	1	5	4	.758
ABI2	4.26	.783	1	5	4	.780
Composite	4.13	.536	1.25	5.00	3.75	.801 ^b

Note. Wording for scale items is in Appendix B, under Autism section.

^a $\alpha - d$ = alpha with item deleted.

^bValue for $\alpha - d$ for Composite is Cronbach's coefficient alpha for the entire scale.

The internal reliability and item characteristics for the modified factor analysis of Autism-Supports are given in Table 19. The composite scale alpha is an adequate .801; the composite (4.13) mean is still above 4.0 but the restriction or range is not as pronounced as

for the Autism-Inclusion scale.

Table 20 illustrates the intercorrelations among the three dimensions of the Teachers' Attitudes about Autism Scale: the two subscales Autism-Inclusion and Autism-Supports plus the single-item variable Autism-Friendship. All three correlations were significant at the .05 or beyond level, ranging from $r = .132$ for Autism-Inclusion with Autism-Friendship to $r = .717$ for Autism-Inclusion with Autism-Supports. All values were in the acceptable range for scale intercorrelations.

Table 20

Intercorrelations for Teachers' Attitudes about Autism Scale (N = 267)

Variable	AI	AS	AF
AI	--		
AS	.717**	--	
AF	.132*	.239**	--

* $p < .05$. ** $p < .01$.

Note. AI = Autism-Inclusion; AS = Autism-Supports; AF = Autism-Friendship.

Research Questions

Three empirical research questions guided this study. The analysis for these relationships utilized the results from the descriptive statistics and psychometric analyses sections above. Table 21 presents a summary of results from the descriptives and psychometrics, i.e., a list of the blocks of variables, the variable codes, and type of measurements. This data set is used in the computations to answer the research questions with operational definitions specified in Appendix B. The blocks of variables are organized

to be consistent with Figure 1. Research Questions 1 and 2 utilize simultaneous multiple regression while Research Question 3 utilizes hierarchical multiple regression to enter the variables in the order listed in Figure 1.

Table 21

Variables, Variable Label Codes, and Type of Data Utilized for Research Questions

Variable	Variable Label Code	Type of measurement
Environmental Factors		
Personal Identity		
Gender	GEN	Nominal
Ethnicity	ETH	Nominal
Educational History		
Highest Degree Earned	DEG	Interval
Training Program	TRAIN	Nominal
Hours in Autism Workshops	WORK	Interval
Years Experience	EXP	Ratio
Special Education Certification	CERT	Nominal
School Setting		
Least Restrictive Environment	LRE	Interval
Type of School	TYPE	Nominal
Grade Level	GRADE	Interval implied (Jaffee, 2003).
(table continues)		

Table 21. (*continued*)

Variable	Variable Label Code	Type of measurement
Professional Characteristics		
Teacher Efficacy		
General Efficacy	GENEFF	Factor Scores
Personal Efficacy	PEREFF	Factor Scores
Teacher Burnout		
Career Satisfaction	TB-CS	Factor Scores
Administrator Support	TB-AS	Factor Scores
Feelings Toward Students	TB-ATS	Factor Scores
Coping with Stress	TB-CWS	Factor Scores
Dependent Variable--Teachers' Attitudes about Autism Scale		
Autism Inclusion	AI	Factor Scores
Autism Supports	AS	Factor Scores
Autism Friendship	AF	Interval

Research Question 1

For special education teachers who work with students with autism, to what extent is there a relationship for the Environmental Factors (Personal Identity, Educational History, and School Setting) with Professional Characteristics (Teacher Efficacy and Teacher Burnout) and with Teachers' Attitudes about Autism?

Research Question 1 addresses whether the environmental factors (Personal Identity, Educational History, and School Setting) are associated with the Professional

Characteristics (Teacher Efficacy and Teacher Burnout) and with the factors from the Teachers' Attitudes about Autism Scale (Autism Inclusion, Autism Supports, and Autism Friendship). To answer this question, a series of nine multiple regressions were run with the 10 Environmental Factors as the independent variables and each of the Professional Characteristics and TAAS factors as the dependent variables.

Multiple regression relies on a series of assumptions regarding the data and employment of this technique, most of which are easily met (Field, 2005). All predictor variables are unconstrained quantitative variables, thus meeting the assumption for variable type. The assumption of independence was met as all of the data was collected during a particular time frame and the scales were written and coded distinctly. The assumption of normally distributed errors requires that residuals have a mean of zero and conform to a normal distribution with the difference between the observed data and the model being minimal (Field, p. 170). This too was met. Finally, scatter plots revealed that the assumption of homoskedasticity was met.

Teacher Efficacy

The regressions for the first of the two Professional Characteristics--Teacher Efficacy--are presented in Tables 22 and 23. Table 24 gives the ANOVA model summaries for General Teaching Efficacy and Personal Teacher Efficacy.

Table 22

Regression of General Teaching Efficacy on the Environmental Factors (N = 267)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
Constant	1.495	.582		2.223	.027
GEN	-.049	.158	-.019	-.310	.757
ETH	-.120	.207	-.036	-.577	.565
DEG	-.100	.093	-.074	-1.080	.281
TRAIN	-.069	.142	-.037	-.483	.629
WORK	-.111	.034	-.220	-3.237	.001
EXP	.000	.008	.003	.042	.967
CERT1	-.201	.409	-.037	-.492	.623
CERT2	-.242	.227	-.126	-1.067	.287
CERT3	-.065	.273	-.029	-.236	.814
CERT4	-.170	.345	-.040	-.491	.624
LRE	.016	.078	.018	.207	.836
TYPE	-.142	.137	-.066	-1.039	.300
GRADE	-.077	.069	-.071	-1.21	.263

Note. Variable label codes are listed in Table 21.

Table 23

Regression of Personal Teacher Efficacy on the Environmental Factors (N = 267)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
Constant	-1.230	.568		-2.166	.031
GEN	.174	.155	.069	1.123	.262
ETH	-.017	.202	-.005	-.086	.932
DEG	.096	.091	.072	1.062	.289
TRAIN	-.068	.138	-.037	-.492	.623
WORK	.119	.033	.239	3.574	< .001
EXP	-.004	.008	-.040	-.538	.591
CERT1	.192	.399	.036	.482	.630
CERT2	.163	.221	.086	.736	.462
CERT3	.077	.267	.035	.290	.772
CERT4	.315	.337	.075	.935	.350
LRE	-.006	.076	-.007	-.082	.935
TYPE	-.071	.134	-.033	-.530	.596
GRADE	.164	.067	.154	.181	.152

Note. Variable label codes are listed in Table 21.

Table 24

Regression Models for Teacher Efficacy Scales

Criterion	<i>Assumptions</i>	<i>df</i>	<i>F</i>	Sig <i>F</i>	Adjusted
					<i>R</i> ²
GENEFF	Met	13, 253	1.576	.092	.027
PEREFF	Met	13, 253	2.228	.009	.057

Note. Variable Label Codes are listed in Table 21.

Tables 22 and 23 present the simultaneous multiple regressions for the two teacher efficacy subscales. As demonstrated in Table 24, the ANOVA for Personal Teacher Efficacy was significant although General Teaching Efficacy was not. Within both models, Hours spent in an autism workshop was the only significant influence among all the demographic factors, although that is moot for General Efficacy due to the non-significant ANOVA. The total influence of the demographic factors on Teacher Efficacy is essentially negligible; even the significant regression for Personal Teacher Efficacy produced an adjusted R^2 of only .057.

Teacher Burnout

Four subscales, comprising Teacher Burnout, constitute the second of the two Professional Characteristics variables. The simultaneous multiple regressions are presented in Tables 25-28 and the regression models are presented in Table 29.

Table 25

Regression of Teacher Burnout-Career Satisfaction on the Environmental Factors (N = 267)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
Constant	-.205	.585		-.351	.726
GEN	-.209	.159	-.082	-1.312	.191
ETH	.330	.208	.097	1.583	.115
DEG	.071	.093	.052	.757	.450
TRAIN	-.055	.142	-.029	-.385	.701
WORK	.133	.034	.259	3.853	< .001
EXP	-.005	.008	-.049	-.654	.514
CERT1	.733	.411	.134	1.783	.076
CERT2	.182	.228	.094	.797	.426
CERT3	.283	.275	.124	1.029	.304
CERT4	.213	.347	.049	.613	.540
LRE	-.051	.078	-.057	-.657	.512
TYPE	.035	.138	.016	.255	.799
GRADE	-.001	.069	-.001	-.015	.988

Note. Variable label codes are listed in Table 21.

Table 26

Regression of Teacher Burnout-Administrator Support on the Environmental Factors (N = 267)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
Constant	.597	.602		.992	.322
GEN	-.191	.164	-.072	-1.164	.245
ETH	.573	.214	.163	2.670	.008
DEG	.105	.096	.074	1.089	.277
TRAIN	-.053	.147	-.027	-.358	.720
WORK	.141	.035	.265	3.965	< .001
EXP	-.010	.008	-.097	-1.289	.199
CERT1	.224	.423	.040	.530	.597
CERT2	-.261	.234	-.130	-1.116	.266
CERT3	-.052	.283	-.022	-.185	.853
CERT4	-.017	.357	-.004	-.048	.962
LRE	-.154	.081	-.165	-1.918	.056
TYPE	-.003	.142	-.001	-.022	.982
GRADE	-.039	.071	-.034	-.549	.583

Note. Variable label codes are listed in Table 21

Table 27

Regression of Teacher Burnout-Coping with Stress on the Environmental Factors (N = 267)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
Constant	-.598	.534		-1.120	.264
GEN	-.058	.145	-.024	-.400	.690
ETH	-.087	.190	-.027	-.459	.657
DEG	-.079	.085	-.061	-.932	.352
TRAIN	.100	.130	.055	.767	.444
WORK	.119	.031	.245	3.786	< .001
EXP	.013	.007	.136	1.882	.061
CERT1	.896	.375	.173	2.391	.018
CERT2	.173	.208	.094	.831	.406
CERT3	.490	.251	.225	1.955	.052
CERT4	.318	.316	.077	1.005	.316
LRE	-.023	.071	-.027	-.320	.749
TYPE	-.200	.125	-.096	-1.592	.113
GRADE	.112	.063	.108	1.781	.076

Note. Variable label codes are listed in Table 21.

Table 28

Regression of Teacher Burnout-Attitudes Towards Students on the Environmental Factors
(N = 267)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
Constant	.237	.604		.393	.695
GEN	-.212	.164	-.083	-1.291	.198
ETH	.330	.215	.097	1.530	.127
DEG	.048	.096	.035	.503	.616
TRAIN	-.020	.147	-.010	-.133	.894
WORK	.081	.036	.158	2.288	.023
EXP	-.002	.008	-.019	-.248	.804
CERT1	.354	.425	.064	.834	.405
CERT2	.022	.235	.011	.093	.926
CERT3	.097	.284	.042	.342	.732
CERT4	.302	.358	.069	.842	.401
LRE	-.067	.081	-.074	-.832	.406
TYPE	-.096	.142	-.044	-.672	.502
GRADE	.038	.071	.035	.533	.594

Note. Variable label codes are listed in Table 21.

Table 29

Regression Models for Teacher Burnout Subscales

Criterion	<i>Assumptions</i>	<i>df</i>	<i>F</i>	Sig <i>F</i>	Adjusted
					<i>R</i> ²
TB-CS	Met	13, 253	1.958	.025	.045
TB-AS	Met	13, 253	2.215	.009	.056
TB-CWS	Met	13, 253	3.803	< .001	.120
TB-ATS	Met	13, 253	.845	.612	-.008

Note. Variable Label Codes are listed in Table 22.

The ANOVA models for Tables 25-27 (Teacher Burnout-Career Satisfaction, Teacher Burnout-Administrative Support, and Teacher Burnout-Coping with Stress) were all significant. Teacher Burnout-Attitudes Towards Students (Table 28) was not significant. Effect sizes for the significant models were all minimal, ranging from .045 for Career Satisfaction to .12 for Coping with Stress, demonstrating very weak relationships between these environmental factors and Teacher Burnout. The only variable that was consistently related to the burnout subscales was hours spent in an autism workshop with standardized betas of approximately a quarter of a standard deviation. One of the Certification contrasts (CERT1) was significant for Coping with Stress (Table 27) but with beta of only about a sixth of a standard deviation. In Table 26, Ethnicity was a significant predictor for Teacher Burnout-Administrator Support.

Teachers' Attitudes about Autism Scale.

The Teachers' Attitudes about Autism Scale consists of three factors (Autism-

Inclusion, Autism-Supports, and Autism-Friendship). Tables 30-32 present the simultaneous multiple regressions for this dimension with Table 33 summarizing the regression models. Autism-Supports was the only ANOVA model that was significant and the Adjusted R^2 was very minimal at .06. The significant environmental factors were hours in autism workshops and the dummy contrast for Provisional LBD versus Provisional MSD. Consistent with the regressions for teacher efficacy and burnout, the hours in autism workshop had a standardized beta of about a quarter of a standard deviation. The results of these regressions demonstrate that teachers' feelings/attitudes about autism are essentially independent of the environmental factors measured in this study.

Table 30

Regression of Autism-Inclusion on the Environmental Factors (N = 267)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
Constant	3.752	.390		9.628	< .001
GEN	.068	.106	.040	.640	.523
ETH	-.076	.139	-.034	-.549	.584
DEG	.000	.062	.000	-.004	.997
TRAIN	.055	.095	.044	.582	.561
WORK	.062	.023	.185	2.723	.007
EXP	-.007	.005	-.102	-1.334	.183
CERT1	.185	.274	.051	.677	.499
CERT2	.049	.152	.038	.320	.749
CERT3	-.013	.183	-.008	-.069	.945
CERT4	-.020	.231	-.007	-.086	.932
LRE	.056	.052	.095	1.081	.281
TYPE	-.091	.092	-.063	-.996	.320
GRADE	.046	.046	.064	1.009	.314

Note. Variable label codes are listed in Table 21.

Table 31

Regression of Autism-Supports on the Environmental Factors (N = 267)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
Constant	3.733	.333		11.196	< .001
GEN	.105	.091	.072	1.161	.247
ETH	-.010	.119	-.005	-.082	.934
DEG	.024	.053	.031	.451	.652
TRAIN	-.047	.081	-.043	-.584	.560
WORK	.074	.020	.252	3.779	< .001
EXP	-.007	.004	-.114	-1.520	.130
CERT1	.461	.234	.147	1.967	.050
CERT2	-.061	.130	-.055	-.471	.638
CERT3	-.082	.157	-.062	-.524	.601
CERT4	-.109	.198	-.044	-.552	.581
LRE	.009	.045	.018	.208	.835
TYPE	-.053	.078	-.043	-.682	.496
GRADE	.043	.039	.069	1.102	.271

Note. Variable label codes are listed in Table 21.

Table 32

Regression of Autism-Friendship on the Environmental Factors (N = 267)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
Constant	3.271	.469		6.973	< .001
GEN	-.043	.128	-.021	-.334	.738
ETH	.029	.167	.011	.173	.863
DEG	.045	.075	.042	.599	.550
TRAIN	.074	.114	.050	.648	.517
WORK	.046	.028	.116	1.678	.095
EXP	-.001	.006	-.015	-.187	.852
CERT1	.242	.329	.057	.734	.464
CERT2	-.096	.183	-.064	-.528	.598
CERT3	.064	.220	.036	.289	.773
CERT4	-.177	.278	-.052	-.635	.526
LRE	-.012	.063	-.017	-.186	.852
TYPE	-.004	.110	-.003	-.041	.968
GRADE	.010	.055	.012	.189	.850

Note. Variable label codes are listed in Table 21.

Table 33

Regression Models for Teachers' Attitudes about Autism Subscales

Criterion	Assumptions	df	F	Sig F	Adjusted
					R ²
AI	Met	13, 253	1.527	.108	.025
AS	Met	13, 253	2.310	.007	.060
AF	Met	13, 253	.796	.664	-.010

Note. Variable Label Codes are listed in Table 21.

Research Question 2

For special education teachers who work with students with autism, to what extent is there a relationship for Professional Characteristics (Teacher Efficacy and Teacher Burnout) with Teachers' Attitudes about Autism?

To answer this question, three separate simultaneous multiple regressions were performed using each dimension of the Teachers' Attitudes about Autism Scale as a dependent variable, with the factor scores from the two Teacher Efficacy and four teacher Burnout subscales as the independent variables. The multiple regressions are presented in Tables 34-36, followed by Table 37, summarizing the regression models, all of which were significant.

Table 34

Regression of Autism-Inclusion on the Professional Characteristics (N = 267)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
Constant	4.336	.032		134.630	< .001
GENEFF	-1.48	.042	-.221	-3.478	.001
PEREFF	.095	.040	.141	2.362	.019
TB-CS	-.001	.051	-.001	-.017	.987
TB-AS	-.051	.037	-.080	-1.365	.173
TB-ATS	.212	.045	.306	4.740	< .001
TB-CWS	.037	.341	.057	.740	.460

Note. Variable label codes are listed in Table 21.

For the regression of Autism-Inclusion on the Professional Characteristics (Table 34), the significant predictors, suggesting a relationship with teachers' feelings about inclusion/exclusion of a child with autism, were both General Teaching Efficacy and Personal Teacher Efficacy, plus Teacher Burnout-Attitudes Towards Students. The strongest influence was TB-ATS with a standardized beta of .306. The General Teaching Efficacy subscale is negatively associated with Autism Inclusion, i.e., higher scores on this efficacy subscale are related to lower scores on Autism Inclusion. Put another way, teachers with lower general efficacy are more likely to reject inclusion into general education classes.

Table 35

Regression of Autism-Supports on the Professional Characteristics (N = 267)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
Constant	4.128	.025		165.116	< .001
GENEFF	-.141	.033	-.242	-4.275	< .001
PEREFF	.057	.031	.097	1.821	.070
TB-CS	.045	.039	.079	1.149	.252
TB-AS	-.025	.029	-.045	-.870	.385
TB-ATS	.202	.035	.335	5.823	< .001
TB-CWS	.081	.039	.141	2.057	.041

Note. Variable label codes are listed in Table 21.

Table 35 presents the regression for the influence of the Professional Characteristics on Autism-Supports. General Teaching Efficacy, Attitudes Towards Students, and Teacher Burnout-Coping with Stress are the significant predictors, with standardized betas ranging from .335 for Attitudes Towards Students to .141 for Coping with Stress. Again, General Teaching Efficacy is negatively associated with the autism subscale AS.

Table 36

Regression of Autism-Friendship on the Professional Characteristics (N = 267)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
Constant	3.479	.042		82.513	< .001
GENEFF	-.032	.056	-.041	-.576	.565
PEREFF	.015	.053	.019	.282	.778
TB-CS	.181	.067	.232	2.723	.007
TB-AS	.033	.049	.043	.667	.505
TB-ATS	.207	.059	.253	3.536	< .001
TB-CWS	-.176	.066	-.228	-2.668	.008

Note. Variable label codes are listed in Table 21.

For the regression of Autism-Friendship on the Professional Characteristics (Table 36), three subscales were significant: Career Satisfaction, Attitudes Towards Students, and Coping with Stress. All three had standardized betas at or a bit less than a quarter of a standard deviation. Coping with Stress had a negative influence, indicating that teachers who are more stressed in the classroom are less likely to believe that students with autism can be accepted by their non-disabled peers.

Table 37

Regression Models for Teachers' Attitudes about Autism Regressed on Professional Characteristics

Criterion	Assumptions	df	F	Sig F	Adjusted
					R ²
AI	Met	6, 260	17.149	< .001	.267
AS	Met	6, 260	32.916	< .001	.419
AF	Met	6, 260	6.038	< .001	.102

Note. Variable Label Codes are listed in Table 21.

Table 37 summarizes the three ANOVA models for the simultaneous multiple regressions performed for Teachers' Attitudes about Autism on the Professional Characteristics. All three subscales were significant with probabilities < .001. Effect sizes ranged from 10% variance explained (Autism-Friendship) to 42% (Autism-Supports).

Research Question 3

For special education teachers who work with students with autism, to what extent is there a relationship for Professional Characteristics (Teacher Efficacy and Teacher Burnout) with Teachers' Attitudes about Autism, controlling for the Environmental Factors?

Hierarchical Regression is utilized to answer Research Question 3. All independent variables are combined in the analysis to determine the effects of 13 Environmental Factors and six Professional Characteristics (two for Teacher Efficacy and four for Teacher Burnout) on Teachers' Attitudes about Autism. Tables 38, 39, and 40 present the three hierarchical regressions to answer this question.

Table 38

Hierarchical Regression of Autism-Inclusion on Professional Characteristics Controlling for Environmental Factors (N=267)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
Step 1					
Constant	3.752	.390		9.628	< .001
GEN	.068	.106	.040	.640	.523
ETH	-.076	.139	-.034	-.549	.584
DEG	.000	.062	.000	-.004	.997
TRAIN	.055	.095	.044	.582	.561
WORK	.062	.023	.185	2.723	.007
EXP	-.007	.005	-.102	-1.334	.183
CERT1	.185	.274	.051	.677	.499
CERT2	.049	.152	.038	.320	.749
CERT3	-.013	.183	-.008	-.069	.945
CERT4	-.020	.231	-.007	-.086	.932
LRE	.056	.052	.095	1.081	.281
TYPE	-.091	.092	-.063	-.996	.320
GRADE	.046	.046	.064	1.009	.314

(table continues)

Table 38. (*continued*)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
Step 2					
Constant	4.206	.346		12.151	< .001
GEN	.054	.093	.032	.578	.564
ETH	-.055	.123	-.025	-.445	.657
DEG	-.003	.055	-.004	-.060	.952
TRAIN	.028	.083	.022	.333	.739
WORK	.015	.021	.044	.692	.489
EXP	-.010	.005	-.145	-2.144	.033
CERT1	-.049	.242	-.014	-.204	.839
CERT2	-.053	-.133	-.041	-.395	.693
CERT3	-.138	.161	-.091	-.856	.393
CERT4	-.155	.202	-.054	-.767	.444
LRE	.058	.046	.098	1.281	.201
TYPE	-.059	.081	-.041	-.730	.466
GRADE	-.008	.041	-.011	-.199	.843
GENEFF	-.150	.043	-.225	-3.452	.001
PEREFF	.093	.042	.138	2.236	.026
TB-CS	-.011	.052	-.017	-.212	.833
TB-AS	-.054	.039	-.084	-1.378	.169

(*table continues*)

Table 38. (continued)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
TB-CWS	.212	.049	.306	4.352	< .001
TB-ATS	.046	.052	.071	.897	.370

Note. Adjusted $R^2 = .025$ for Step 1; Δ in Adjusted $R^2 = .264$ for Step 2 (p for Step 1 = .108; p for Step 2 < .001).

Table 38 presents the hierarchical regression for Autism-Inclusion. In Step 1, only the Environmental Factors are entered. The ANOVA model is not significant, $F(13, 253) = 1.257, p = .108$, although the time spent in a workshop for students with autism was significant as a predictor. The very low effect size (.025) reflects the non-significant findings.

In Step 2 of Table 38, the Professional Characteristics were added. The ANOVA model is now significant $F(19, 247) = 14.659, p < .001$, with adjusted $R^2 = .316$. Among the Environmental Factors, WORK (hours in autism workshops), significant in Step 1 loses that status when the Professional Characteristics are added. Teacher Experience becomes significant, but negatively so (more experience, lower scores on Autism-Inclusion). Both Teacher Efficacy subscales and the Coping with Stress burnout scale are significant, with standardized betas ranging from .036 for CWS to .138 for Personal Teacher Efficacy. The direction for General Teaching efficacy is negative, indicating that the higher scores on this measure are related to lower scores for Autism-Inclusion, again a reflection of the negative cast of the subscale.

Table 39

Hierarchical Regression of Autism-Supports on Professional Characteristics Controlling for Environmental Factors (N=267)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
Step 1					
Constant	3.733	.333		11.196	< .001
GEN	.105	.091	.072	1.161	.247
ETH	-.010	.119	-.005	-.082	.934
DEG	.024	.053	.031	.451	.652
TRAIN	-.047	.081	-.043	-.584	.560
WORK	.074	.020	.252	3.779	< .001
EXP	-.007	.004	-.114	-1.520	.130
CERT1	.461	.234	.147	1.967	.050
CERT2	-.061	.130	-.055	-.471	.638
CERT3	-.082	.157	-.062	-.524	.581
CERT4	-.109	.198	-.044	-.552	.581
LRE	.009	.045	.018	.208	.835
TYPE	-.053	.078	-.043	-.682	.496
GRADE	.043	.039	.069	1.102	.271

(table continues)

Table 39. (*continued*)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
Step 2					
Constant	4.103	.264		15.517	< .001
GEN	.123	.071	.083	1.722	.086
ETH	-.034	.094	-.018	-.364	.717
DEG	.017	.042	.021	.396	.693
TRAIN	-.072	.063	-.066	-1.133	.258
WORK	.020	.016	-.070	1.261	.208
EXP	-.009	.003	-.154	-2.591	.010
CERT1	.191	.185	.061	1.037	.301
CERT2	-.155	.102	-.139	-1.526	.128
CERT3	-.213	.123	-.162	-1.736	.084
CERT4	-.248	.154	-.100	-1.611	.109
LRE	.020	.035	.038	.571	.568
TYPE	-.024	.062	-.019	-.386	.700
GRADE	-.003	.031	-.004	-.085	.933
GENEFF	-.146	.033	-.250	-4.391	< .001
PEREFF	.048	.032	.082	1.524	.129
TB-CS	.037	.040	.064	.924	.357
TB-AS	-.030	.030	-.053	-.995	.320

(*table continues*)

Table 39. (continued)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
TB-CWS	.198	.037	.328	5.327	< .001
TB-ATS	.091	.039	.159	2.307	.022

Note. Adjusted $R^2 = .025$ for Step 1; Δ in Adjusted $R^2 = .434$ for Step 2 (p for Step 1 = .007; p for Step 2 < .001).

Table 39 presents the hierarchical regression for Autism-Supports. The ANOVA model is significant $F(13, 253) = 2.310, p = .007$ for Step 1; however, the effect size is rather low (.060). The amount of time spent in an autism workshop and the dummy contrast for provisional LBD versus provisional MSD were both found to be significant.

In Step 2 of Table 39, The ANOVA model is significant $F(19, 247) = 28.856, p < .001$, with Adjusted $R^2 = .434$. Among the Environmental Factors, neither WORK nor the dummy contrast (LBD vs. MSD) which were significant in Step 1 maintain significance when Professional Characteristics are entered. As for Autism-Inclusion, Teacher Experience becomes significant (again negative--more experience, lower scores on Autism-Supports). General Teaching Efficacy, Coping with Stress, and Attitudes Towards Students subscales are significant (negatively so for GENEFF--higher scores on GENEFF, lower scores on AS). The standardized betas range from .159 for Attitudes Towards Students to .328 for CWS.

Table 40

*Hierarchical Regression of Autism-Friendship on Professional Characteristics**Controlling for Environmental Factors (N=267)*

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
Step 1					
Constant	3.271	.469		6.973	< .001
GEN	-.043	.128	-.021	-.334	.738
ETH	.029	.167	.011	.173	.863
DEG	.045	.075	.042	.599	.550
TRAIN	.074	.114	.050	.648	.517
WORK	.046	.028	.116	1.678	.095
EXP	-.001	.006	-.015	-.187	.852
CERT1	.242	.329	.057	.734	.464
CERT2	-.096	.183	-.064	-.528	.598
CERT3	.064	.220	.036	.289	.773
CERT4	-.177	.278	-.052	-.635	.526
LRE	-.012	.063	-.017	-.186	.852
TYPE	-.004	.110	-.003	-.041	.968
GRADE	.010	.055	.012	.189	.850

(table continues)

Table 40. (*continued*)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
Step 2					
Constant	3.534	.460		7.680	< .001
GEN	-.034	.124	-.017	-.275	.784
ETH	.034	.164	.013	.205	.838
DEG	.050	.073	.047	.688	.492
TRAIN	.060	.110	.040	.541	.589
WORK	.004	.028	.010	.138	.891
EXP	-.003	.006	-.039	-.515	.607
CERT1	-.023	.321	-.005	-.072	.942
CERT2	-.167	.177	-.110	-.943	.347
CERT3	-.072	.214	-.041	-.339	.735
CERT4	-.241	.268	-.071	-.900	.369
LRE	-.006	.061	-.009	-.103	.918
TYPE	.012	.107	.007	.115	.909
GRADE	-.012	.054	-.015	-.229	.819
GENEFF	-.033	.058	-.042	-.572	.568
PEREFF	.026	.055	.032	.463	.644
TB-CS	.167	.070	.214	2.401	.017
TB-AS	.017	.052	.023	.338	.735

(table continues)

Table 40. (continued)

Variable	<i>B</i>	<i>SE B</i>	Beta	<i>t</i>	Sig <i>t</i>
TB-CWS	.208	.065	.254	3.212	.001
TB-ATS	-.168	.069	-.216	-2.447	.015

Note. Adjusted $R^2 = -.010$ for Step 1; Δ in Adjusted $R^2 = .070$ for Step 2 (p for Step 1 = .664; p for Step 2 < .001).

For the hierarchical regression for Autism-Friendship, Table 40, Step 1 presented no significance, $F(13, 253) = .796, p = .664$. The ANOVA model for Step 2 is significant $F(19, 247) = 4.623, p < .001$ with an Adjusted R^2 of .070. Career Satisfaction, Coping with Stress, and Attitudes Towards Students are all significant with standardized betas ranging from .214 for CS to .254 for CWS. Attitudes Towards Students is negative (beta = -.216), suggesting higher scores on Attitudes Towards Students are associated with lower scores on Autism-Autism Friendship.

Summary

The purpose of Chapter IV was to analyze data that were collected to explore relationships between the Independent and Dependent Variables, with the purpose reflected in the central research question of the study, What is the effect of teacher efficacy and teacher burnout on educators' attitudes towards students with autism? Information provided in this chapter has been organized according to Figure 1. Data analysis was done via quantitative methodology.

Data checking and coding were completed and unusable scales were discarded, leaving 267 surveys. Within the Ethnicity category, the majority of participants identified

as White, with two small groups as Black and Other. These two categories were compressed into one factor, Other. The levels of teacher certification were explored and the category of Other was decreased in size. Teachers who listed certifications similar to LBD and MSD were moved to the respective categories, leaving Other to teachers holding dual certifications or unique certifications (visual impairments).

Factor analysis was done on all three dimensions of the Autism Education Survey. The factor loadings for the Teacher Efficacy Scale and Teacher Burnout Scale both loaded as expected with factors for each subdimension consistent with the prior work of Hoy and Woolfolk (1993) and Seidman and Zager (1987), respectively. Cronbach's alpha for Teacher Efficacy and Teacher Burnout demonstrated adequate to strong reliability. The initial factor analysis for the Teacher's Attitudes about Autism Scale was problematic. Four factors emerged instead of the three intended; one of the four had only two items which produced a very low Cronbach's alpha, which was not acceptable. Because the "mealtime" question (ABI3) was distinct from the rest of the items and did not load adequately, it was removed. The analysis was redone with the 15 remaining items, again with problematic results. Based on that analysis, item ABI4 was removed, becoming a single-item factor. The final analysis was run with 14 factors revealing two distinct factors. These two factors, plus the single-item ABI4 had adequate psychometric properties.

Simultaneous multiple regressions were conducted for Research Questions 1 and 2 while hierarchical regression was conducted for Research Question 3. The analysis explored the relationships between Environmental Factors, Professional Characteristics, and Teachers' Attitudes about Autism as depicted in Figure 1. For Research Question 1, the Environmental Factors were essentially unrelated to either of the Professional Characteristics (The two subscales for Teacher Efficacy and the four subscales for Teacher

Burnout) or the three factors from Teachers' Attitudes about Autism Scale. The one factor that was found to be significant in these nine regressions was the hours of autism workshops that teachers had attended.

For Research Question 2, The Professional Characters demonstrated relationships with the three subscales on the TAAS in the area of Teacher Efficacy and several categories of Teacher Burnout. Attitudes Towards Students and Coping with Stress were consistently present in the three regressions, while Career Satisfaction was significant for the regression with Autism Friendship. The only dimension among the two subscales of Teacher Efficacy and four for Teacher Burnout that was nowhere related to the TAAS subscales was the Administrative Support category under Teacher Burnout.

Finally, Research Question 3, addressed the hierarchical regressions for the influence of Teacher Efficacy and Teacher Burnout on the three factors from Teacher's Attitudes about Autism, controlling for the Environmental Factors. The results for RQ3 essentially mirrored those for RQ2 as almost all of the influence on the TAAS came from the Teachers' Professional Characteristics, not the Environmental Factors.

CHAPTER V

DISCUSSION AND CONCLUSIONS

The Study in Brief

The number of students being served under the category of autism has increased drastically in public school districts throughout the United States. One cause could be greater understanding and greater awareness by professionals who diagnose autism as a disability. Until recently, many students with autism received their education in schools under a variety of categorical labels (e.g., developmental delay, functional mental disability). Depending upon a child's needs, a variety of program models are used such as collaboration and resource for higher functioning children or self-contained for children who have more severe needs. In JCPS, self-contained classes include students classified as learning disability, functional mental disability, and multiple disability.

Instruction for Students with Autism

Students with autism demonstrate a variety of sensory processing differences. Children who under-respond require strategies for alerting the central nervous system; children who over-respond to basic stimuli found in classroom settings need approaches for calming the central nervous system (Brownell & Walter-Thomas, 2001; Myles & Adreon, 2001; Parham & Mailloux, 1996; Tomchek & Dunn, 2007). Thus children with autism require a variety of specialized teaching strategies to benefit from their curriculum.

Teachers who work with students with autism often have high stress levels. These students typically do not offer the usual psychic satisfactions that are associated with rapid

learning, affection, and good behavior that reward teachers (Foster 1980). Further, the essence of the autism spectrum disorder is poor command of social cues, making interactions with these students difficult. Because of these maladaptive behaviors, teachers also have a difficult time when these students are placed in an inclusive setting. Further exacerbating this situation is the fact that their general education colleagues have even less training/skill in this realm than special education teachers (Giangrecco & Broer, 2007).

Because of the difficulties that children with autism experience, considerable work has been done to facilitate teacher's efforts. The two most common instructional methods are Applied Behavior Analysis (ABA) and Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) (Jennett et al., 2003; Miller et al., 1999). Both of these methods utilize systematic instruction to shape a student's behavior and help them be more receptive to learning. As a part of ABA and TEACCH, instructors might employ time delay techniques and discrete trial training sessions to facilitate a variety of academic skills, preparing their students for higher level learning. Naturalistic instructional techniques such as mand-model procedure, milieu teaching, and incidental teaching assist the learning of language and generalizing new skills through moments that occur during the school routine (Goldstein, 2002; Hart & Risley, 1968, 1969; Murphy et al., 2005; Nigam et al., 2006; Peterson, 2004; Reichle et al., 2005).

With an increase in students needing special education services, it is no surprise that there is a shortage of teachers certified for this population. To help meet this need, states are offering "provisional certification," allowing an individual with a bachelor (or higher) degree in another field to teach in a special education setting while taking graduate courses in special education. This results in a qualified certified teacher. For many instructors, however, the first one to two years in the classroom are critical. Teachers face

many challenges while they learn the skills and practices of special education. This is coupled with managing the required documentation (IEP and due process) and ensuring their students are accessing the curriculum. These are daunting tasks even for those who have gone through the traditional teacher education with the usual opportunities to learn through guided field placements. Those with provisional certifications, in contrast, are typically given responsibility for their own class with no previous training or field experiences. Not surprisingly, this “cold turkey” immersion can exacerbate the difficulties that all new special educators experience. This can often lead to lower levels of efficacy in the classroom and/or increasing levels of burnout, contributing to teachers leaving the classroom after just a few years (Billingsly, 1993; Brownell & Smith, 1993; Pullis, 1992).

Many districts have started to match newer teachers with more experienced staff who offer assistance with classroom set-up, data collection techniques, inclusion strategies, and managing individual educational plans (IEPs). Kentucky offers the Kentucky Teacher Internship Program (KTIP), in which the new teacher works under a more experienced mentor teacher, the school principal, and a university faculty member. This team assists the new teacher’s pedagogy through multiple classroom observations. These events document the new teacher’s instructional skill level and allow tweaking of the instructional methods as needed. One strategy to help new teachers is through the use of support groups designated for their area of certification. Through these networks that may happen during several meetings per year, teachers can review/relearn instructional techniques while also expressing successes and frustrations with their programs.

Problem and Purpose

Despite the development of instructional strategies specific to autism, teachers who work with this population still find life in the classroom stressful. Because success is

difficult to achieve, teachers may doubt their self-efficacy with these students (Gibson & Dembo 1984). Lacking success, teachers may also lose their excitement about teaching, becoming more prone to burnout (Lortie, 1975; Seidman & Zager 1987). Yet there is a minimal amount of research that examines both teacher efficacy and teacher burnout for special needs educators, a trend even more pronounced for those who work with students on the autism spectrum.

Thus this study examined attitudes of special education teachers (Learning Disability and Low Incidence) who typically have students with autism as a part of their caseload. A variety of Environmental Factors along with the Professional Characteristics of Teacher Efficacy and Teacher Burnout were explored for the influence of these factors regarding how teachers interact with their students with autism.

This research is focused on learning disability (LD) and low incidence (multiple disability, functional mental disability, and autism) teachers in Jefferson County Public Schools (a large metropolitan school district located in Kentucky). The study utilized a survey created from three scales, two previously used in other studies (Hoy & Woolfolk, 1993; Seidman & Zager, 1987) and one modified from the work of Olley et al., (1981). The teachers were invited to participate in the Autism Education Survey, administered electronically to 684 teachers through the district email system. All participants read a preamble and checked a consent statement agreeing to participate in the study. Approval had previously been obtained through the Office for Human Subjects' Research at the University of Louisville and the Jefferson County Public Schools' Research Department. The research study describes the 267 teachers who voluntarily participated in the study.

Methodology

After approval by the University of Louisville IRB, two survey experts gave

feedback on the instrument. Following changes, the final Autism Education Survey was administered to LD and low incidence teachers in Jefferson County Public Schools. The results were entered into SPSS version 19 for analysis. All variables were defined both conceptually (see Chapter III) and operationally (see Appendix B). Appropriate methodology for analyzing independent and dependent variables was discussed for each separate research question. A plan for replacing missing values was developed for incomplete surveys. Of the original 290 respondents, 23 had left blank sections of the survey amounting to more than 10%. These were eliminated resulting $N = 267$. Descriptive statistics; psychometric analyses including factor analysis, Cronbach's alpha, and interscale correlations; and multiple regression were the primary statistical methods utilized. The central research question to be answered was: What is the effect of teacher efficacy and teacher burnout on educators' attitudes towards students with autism?

Chapter IV reported the results of the descriptive statistics and statistical procedures that were used to describe the relationships between the variables. The feedback from the expert panel review are also noted in this chapter. The results are discussed in sections below organized by Descriptive Statistics, Psychometric Analysis, and the three research questions as well as an analysis specific to each. Because this research took place in a single school district in Kentucky, recommendations based on the findings are made for improvement, but may not be generalizable to other educational settings. Suggestions for future research are identified and overall conclusions complete this research.

Discussion

The Autism Education Survey consists of the Teacher Efficacy Scale-Short Form (Hoy & Woolfolk, 1993) as derived by Gibson and Dembo (1984), Siedman and Zager's

(1987) Teacher Burnout Scale, and the Teachers' Attitudes about Autism Scale (TAAS). The latter was modified from the Olley et al. (1981) Autism Attitude Scale for Teachers with updated language, new questions, and the removal of questions directly relating to teacher efficacy. The changes were sufficient to rename the scale. The overall survey was titled the Autism Education Survey (see Appendix A).

The investigation used quantitative measures to examine the data received through electronic survey administration. The relationships between Environmental Factors, Professional Characteristics, and the TAAS were analyzed. Professional Characteristics provided information based on two dimensions of Teacher Efficacy (General and Personal) and four dimensions of Teacher Burnout (Career Satisfaction, Administrator Support, Attitudes Towards Students, and Coping with Stress). For the dependent variable, autism specific questions (TAAS) were provided throughout the survey in three dimensions (Autism-Inclusion, Autism-Support, and Autism-Friendship). A complete listing of survey items and codings is included in Appendix B.

Descriptive Statistics

Descriptive statistics were reported for the Environmental Factors which were chosen to provide information about the participants' identity. Descriptives for the Professional Characteristics (the target independent variables) and the TAAS (dependent variable) were included under the Psychometric Analyses section.

Environmental Controls

Environmental Control factors were divided into three sections: Personal Identity (Gender and Ethnicity), Educational History (Highest Degree Earned, Training Program, Hours Spent in Workshops for Autism, Years Experience, Special Education Certification), and School Setting (Least Restrictive Environment, Type of School, and

Grade Level Taught). These factors were chosen due to their relationship with efficacy, burnout, and special education as demonstrated in the literature.

Participants (see Table 2) were predominantly female (84%) and identified themselves as white (91%). The mean of 2.23 for degree earned indicated that the majority of participants had earned a masters degree or higher. These special education teachers also received their certification through a traditional certification program (60%) versus alternative route. The majority of teachers in this study report being certified between 3-8 years though the mean score of 11.13 showed an average of just over 11 years, including one teacher with 42 years experience. The majority of teachers are fully certified LBD teachers (61%) with the next largest group being MSD teachers (18%). Teachers who listed themselves as “other” wrote in that their primary certification ranged from visual impairment, hearing impairment, trainable mentally handicapped, etc. In most instances, this appeared to be because teachers obtained certifications in states other than Kentucky. The researcher recoded these into the parallel category for Kentucky, leaving a smaller “Other” grouping, typically dual certification or other advanced work.

The overall mean for Least restrictive Environment (3.82) showed that the majority of teachers teach in a combination collaboration/resource setting (49%) followed by those who teach in a self-contained setting (40%). An overwhelming majority of respondents teach in a general education school (76%) versus a special education school with the majority of these respondents teaching elementary level students (52%).

Analysis. Overall, this study utilized a more comprehensive set of environmental factors than previous studies on special education teachers with respect to teacher efficacy or teacher burnout (Zabel & Zabel, 2001, 2002), a contribution to the field. More typically addressed are Gender, Race, and amount of time individuals had been in the teaching

profession. By creating three blocks of variables--Personal Identity (typically examined in such studies), Educational History (factors related to training, education, and experience (much less likely to be covered), and School Setting (the context in which special education occurs, seldom investigated)--this study was able to give a much richer overall picture of the participants and their background compared to past research (Hoy & Woolfolk, 1990, 1993; Seidman & Zager, 1987).

Psychometric Analyses

As mentioned previously, data for this study were collected via the Autism Education Survey, which consisted of 48 items, based on a 5-point Likert rating scale. Factor analyses were done for each set of questions to followed by Cronbach's alpha and interscale correlations.

Teacher Efficacy

Loadings for the factor analysis for the 10 items produced two factors: personal teacher efficacy (PEREFF) as factor one and general teaching efficacy (GENEFF) as factor two, explaining 49.6% of the variance. Cronbach's alpha for GENEFF was .696, essentially at the minimal acceptable level of .7 (Nunnally & Bernstein, 1994). For PEREFF, Cronbach's alpha was slightly higher at .759. The correlation between general teaching efficacy and personal teacher efficacy was -.413, consistent with the fact that general teaching efficacy has a negative cast to the items.

Analysis. The findings in this study represent a unique contribution to the field because the Teacher Efficacy Scale-Short Form (Hoy & Woolfolk, 1993) was done on a general school population, not special education teachers. The two factors for this study were identical to those of Hoy and Woolfolk who also found similar alpha coefficients for both types of efficacy, slightly higher at a score of .72 for general efficacy and essentially

the same for personal efficacy at .77. The nature of the population (special education teachers versus general education teachers) might account for the slight difference in alpha levels.

Teacher Burnout

Loadings for the factor analysis for Teacher Burnout produced four subscales: Career Satisfaction (TB-CS) loaded on factor one, Administrator Support (TB-AS) loaded on factor two, Coping with Stress (TB-CWS) loaded on factor three, and Attitudes Towards Students (TB-ATS) loaded on factor four. The Cronbach's alpha for the scales ranged from very strong ($\alpha = .922$ for TB-AS) to acceptable ($\alpha = .718$ for TB-ATS), with the other two moderate to strong. Interscale correlations ranged from .327 for TB-CS with TB-AS to .457 for TB-ATS with TB-CWS. Overall, the psychometric properties of these four Teacher Burnout subscales were very strong.

Analysis. The Teacher Burnout Scale (Seidman & Zager, 1987) was administered to 490 general education teachers in Texas. In contrast the current study involved 267 special education teachers (both LBD and low incidence certifications who work with the autism spectrum disorder) from a large urban district in Kentucky. The psychometric properties found in the current study mirrored closely those reported by Seidman and Zager. To the author's knowledge, this study is the first to investigate the psychometric characteristics of the Teacher Burnout Scale with a population of special education teachers, a contribution to the literature on burnout.

Teachers' Attitudes about Autism Scale

For this study the dimensions for the TAAS underwent three factor analyses. The first time, four factors appeared. Factor 1 consisted of autism inclusion/exclusion (AIE items 1-3 and 5-7) and had a Cronbach's alpha score of .889. The next factor consisted of

autism supports needed (ASN1, ASN2, ASN4) plus autism behavioral issues (ABI1) and had a Cronbach's alpha score of .801. Factor 3 consisted of AIE4, AIE8, ASN3, and ABI2 and had a weaker Cronbach's alpha score of .612, acceptable only for exploratory research. The last factor only consisted of ABI3 and ABI4 and had an unsatisfactory Cronbach's alpha of .445.

The author and co-chairs decided to remove ABI3 which was a question dealing with mealtime behaviors of students with autism, a topic not addressed elsewhere in the scale; in addition the factor structure loadings for ABI3 and ABI4 demonstrated that by far the stronger correlation with the underlying factor was ABI4 (.869 vs. .543). A second factor analysis was run with the fifteen items, still yielding problematic results. ABI4 did not demonstrate any loadings at the .32 level. It was then decided to leave ABI4 as an independent factor, because it deals with student relationships; it was named Autism-Friendship. The factor analysis was run an additional time minus ABI3 and ABI4 with Factor 1 again loading with AIE 1-3 and AIE 5-7; all other questions loaded on Factor 2. Both factors had strong or very strong Cronbach's alpha. Factor 1 was then renamed Autism-Inclusion; Factor 2 was renamed Autism-Supports. Combined with the singular item ABI4, the final version of the now 15-item TAAS has 3 dimensions. The factor scores for Autism-Inclusion and Autism-Supports were taken from this analysis and were utilized in calculating the multiple regressions to answer the research questions.

Analysis. The Autism Attitude Scale for Teachers was created to tap the attitudes of regular education teachers who were receiving students with autism into their classrooms for the first time (Olley et al., 1981). The old scale consisted of 14 questions and could be administered as two subscales or one single form with coefficient alphas of .85 and .78 for the short forms and .91 for the complete 14 question form. The original scale was

compromised with respect to its meaning vis-à-vis autism because it contained several self-efficacy items. That flaw plus its age and dated items made the Olley et al. work untenable as an instrument for examining teacher attitudes about autism.

The researcher and methodologist removed the items relating directly to teacher efficacy and added questions with the intention of creating three subscales on Inclusion/Exclusion, Supports Needed, and Behavioral Issues. After the Psychometric iterations described above, the new TAAS yielded alphas of .889 for Autism-Inclusion and .801 for Autism-Supports, with the area of behavior reduced to the single-item variable, Autism-Friendship. The end result of the psychometric work conducted for this study is a viable measure, Teachers' Attitudes about Autism Scale, with three dimensions. The findings of the psychometric analysis verified that both construct validity and reliability are adequate as determined by this population of special education teachers. This contrasts with the general education teachers who participated in the original AAST. Because no other comparable instrument exists, the creation and validation of the TAAS is a significant contribution to work on teachers' dispositions regarding their students with autism.

Research Questions

In this section, the three Research Questions are addressed. First, a brief recapitulation of the results from Chapter IV is presented followed by an analysis of the results. The research questions are treated separately according to the relationships shown in Figure 1.

Research Question 1

Research Question 1 reports on the association of the Environmental Factors with each of the dimensions of Professional Characteristics (Teacher Efficacy and Teacher

Burnout) as well as on the three dimensions of the AAST (Autism-Inclusion, Autism-Supports, and Autism-Friendship). Multiple regressions were done for each of the nine dimensions in these three scales. The ANOVA for the effect of the Environmental Factors on Teacher Efficacy was not significant for General Teaching Efficacy (GENEFF). From Table 24, Personal Teacher Efficacy (PEREFF) was significant but with very low effect size of .057. The ANOVAs for the influence of the Environmental Factors on Teacher Burnout showed significance for all areas except Attitudes Towards Students (TB-ATS), but with low effect sizes ranging from .045 for Career Satisfaction to .12 for Coping with Stress (Table 29).

For the Teachers' Attitudes about Autism Scale, only Autism-Supports (AS) had a significant ANOVA but with very low effect size of .06, demonstrating the minimal influence of the Environmental Factors on TAAS (Table 33).

Analysis of Research Question 1. This research question demonstrated that the subscales from Teacher Efficacy and Teacher Burnout and the dimensions of Teachers' Attitudes Towards Autism are essentially independent of the Environmental Factors. The ANOVAs for the nine regressions were not significant or produced very small effect sizes. The one exception is the hours that teachers had spent in autism workshops, which was significant in all of the nine regressions except Autism-Friendship ($p = .095$). The minimal influence is similar to the literature with respect to teacher efficacy and teacher burnout (Billingsley & Cross, 1992; Frank & McKenzie, 1993; Zabel & Zabel, 2001 & 2002). These findings extend the knowledge base on special needs teachers in a couple of respects. First, the current study involves both LBD and low incidence (MSD) teachers who work with the autism spectrum population. No study had examined this group; Zabel and Zabel (2002) stated that there were too few low incidence teachers to conduct their

study. Second, the range of environmental factors was extensive. Typically only teachers' gender and race are examined (e.g., Frank & McKenzie, 1993). This study investigated three blocks of background variables (Personal Identity, Educational History, School Setting). That the impact of this more extensive set of factors was still negligible suggests that, with respect to the three scales in this study (Teacher Efficacy, Teacher Burnout, and Teachers' Attitudes about Autism Scale), other factors such as conditions in the classroom are more salient. Third, the one factor that was consistently significant was hours spent in an autism workshop. This suggests that workshops and other professional development on autism are important for this population of teachers. Although this makes sense, to the author's knowledge, this is a new finding, not previously reported.

Research Question 2

This question explored the relationship of the Professional Characteristics (Teacher Efficacy and Teacher Burnout) on the Teachers' Attitudes about Autism Scale. Multiple regressions were conducted for the three TAAS factors. As illustrated in Table 37, the ANOVA for each regression was highly significant; effect sizes ranged from Autism-Supports with an adjusted R^2 of .419 to Autism-Friendship at .102. Given the negative cast of the construct, the negative influence of General Teaching Efficacy on both Autism-Inclusion and Autism-Supports suggests that teachers with lower general efficacy (meaning, not scores) are not supportive of inclusion for students with autism or providing them with supports. The Teacher Burnout Subscale, Attitudes Towards Students, was consistently significant in all three regressions, suggesting that the more positive special education teachers' attitudes towards their students, the more receptive they will be to favoring inclusion, attempting autism specific supports, and believing that peers can establish friendships with an autistic classmate. The Coping with Stress subscale was

significant for Autism-Supports and Autism-Friendship although negatively so for Autism-Friendship. The negative direction for Autism-Friendship is expected because of the negative wording of the items (those who cope with stress the best are more likely to believe regular students and those with autism can become friends). Perhaps the positive correlation for Autism-Supports (Table 35) is because teachers who cope with stress less believe that increasing supports would make life easier for them and therefore improve their harried experience. The Career Satisfaction subscale is significant only for Autism-Friendship. The Administrative Support Subscale was not significant for any of the three TAAS dimensions.

Analysis of Research Question 2. These findings established that although the Environmental Factors listed in Research Question 1 did not have much influence on Teachers' Attitudes Towards Autism, the Professional Characteristics have a considerably stronger relationship. General Efficacy had a much stronger relationship to Teachers' Attitudes about Autism than Personal Efficacy, suggesting that teachers questioned the ability of the overall teaching profession to help students with autism overcome barriers to learning. The lower standardized beta for Personal Teacher Efficacy indicates that their sense of personal inadequacies is less important than the lack of understanding about autism that pervades the profession. This is similar to the information found by Soodak and Podell (1993) and Brownell and Pajares (1999). Soodak and Podell, however, examined both special education and general education teachers while Brownell and Pajares only surveyed general education teachers.

Jennett, Harris, and Mesibov (2003) surveyed Teacher Efficacy and Teacher Burnout for teachers of students with Autism; however their research was focused on teachers' level of efficacy and burnout and their ability to utilize a philosophical

framework (Applied Behavior Analysis, or Treatment and Education of Autistic and other Children with Communication Handicaps--TEACCH). There is currently no other study available that combines the use of a Teacher Efficacy Scale, Teacher Burnout Scale, and the TAAS or another scale to measure attitudes towards students with autism. In that regard, this study provides new information to the field regarding special education teachers and autism.

Research Question 3

To answer Research Question 3, hierarchical regression was employed. This method entered the Professional Characteristics in a second step to control for the Environmental Factors. Table 38 for Autism-Inclusion was essentially the same as in RQ2. The Environmental Factors had even less influence in Step 2 with hours in an autism workshop losing its significance. Teacher Experience took on a negative influence (more experience, less acceptance of inclusion) but with very low standardized beta. This strengthens the conclusion from RQ2 that almost all of the influence on teachers attitudes about autism come from conditions other than their environmental background and that efficacy and burnout are prime considerations. Again, the influential subscales were both Teacher Efficacy Subscales and the Coping with Stress and Attitudes Towards Students subscales from teacher burnout. Similarly the new finding that General Teaching Efficacy had a stronger influence than Personal Teacher Efficacy held up, going against the trend from previous studies (Egyed & Short, 2006; Hoy & Spero, 2005; Onafowora, 2004).

Table 39 illustrates the hierarchical multiple regression for Autism-Supports. As noted in Table 39, significance was initially found for hours spent in a workshop for students with autism and the criterion CERT1. Significance for both of these components was lost in Step 2 when the Professional Characteristics were entered, with Teacher

Experience again taking on a negative influence. Again, almost all effect on teacher attitudes towards autism comes from the Professional Characteristics. General Teaching Efficacy (but not Personal Teacher Efficacy) was significant along with Coping with Stress and Attitudes Towards Students from Teacher Burnout. Again, the trend of stronger influence for General Teaching Efficacy compared to personal efficacy goes against data that had been published in previous studies (Egyed & Short, 2006; Hoy & Spero, 2005; Onafowora, 2004).

Table 40 illustrates the hierarchical regression for Autism-Friendship. No environmental factors were found to be significant in either step of this regression. Professional Characteristics that were found to be significant are the teacher burnout scales Career Satisfaction, Attitudes Towards Students, and Coping with Stress. TB-ATS was negatively correlated but the construct has negatively cast items suggesting that the worse teachers' attitudes towards their students, the less they feel that a peer can be friends with a child with autism, consistent with the literature that negative feelings can be created as the level of burnout in a teacher increases (Seidman & Zager, 1987).

Analysis of Research Question 3. As presented in RQ3, the Professional Characteristics override the Environmental Factors for these special education teachers with respect to their feelings about students with autism. While hours in an autism workshop was significant when only environmental factors were entered, once efficacy and burnout statements were included, the influence was lost, focused primarily on General Teaching Efficacy and Attitudes Towards Students. With respect to teacher efficacy, this contrasts with the literature, as studies have reported that the stronger influence for teachers typically is their personal efficacy while the general teaching efficacy is much lower. Previous studies, however, had surveyed pre-service/novice teachers (Hoy &

Spero, 2005; Onafowora, 2004) or if they discuss special education, autism is not the main focus (Brownell & Pajares, 1999; Paneque & Barbeta, 2006; Soodak & Podell, 1993).

Again, to the author's knowledge, the only study to investigate Teacher Efficacy and Teacher Burnout with respect to Autism are by Jennett et al. (2003); that work did not look at how the Environmental Factors and Professional Characteristics interact with Teachers' Attitudes about Autism, focusing instead on the effect of training in ABA or TEACCH, two specific strategies for instructing students on the autism spectrum. Another study done by Egyed and Short (2006) addressed Teacher Efficacy, Teacher Burnout, and Special Education; however this work explored teachers referring disruptive students for special education and does not consider autism at all. Thus this study stands as the first to examine Teacher Efficacy and Teacher Burnout vis-à-vis teachers' dispositions towards their students with autism spectrum disorders. Further, the finding that general teaching efficacy has a stronger influence than personal teacher efficacy stands in contrast to previous work on teacher efficacy. The implication here is that these teachers generally despair that their field has the requisite knowledge and skills needed to be successful with students with autism. That does not appear to be the case for either regular education or other disabilities in special education.

Recommendations

Special Education teachers consistently feel high levels of stress. These demands become more challenging when a student with autism is added to the classroom, often disrupting the flow of routines that many teachers, both new and seasoned, have created for their classrooms. This study provides one window into the attitudes of special education teachers towards autism, specifically in relation to Environmental Factors and Professional Characteristics (teacher efficacy and burnout). Several findings (or lack thereof) suggest

additional research for the future.

Policy and Practice

Teacher Efficacy and Teacher Burnout are two invisible components dealt with by teachers on a day-to-day basis. As research continues to grow and address this topic in special education, especially with autism, school districts will hopefully begin to develop ways to support their teachers and boost their overall understanding of this disability along with more effective strategies for instruction (General Teaching Efficacy), which in turn should help decrease burnout levels and hopefully boost overall moral in special education.

First, this study was quantitative in nature; therefore, the researcher is only able to speculate about the actual feelings of the teachers for the areas where significance was found. It is likely that a qualitative investigation could provide insights about why and how their professional characteristics or other factors are related to their thoughts/feelings about their students on the autism spectrum. By interviewing a selected sample from the population surveyed, researchers could understand better the links between teacher efficacy, teacher burnout, classroom instruction, and the characteristics of their students with autism.

Second, this study was done in Jefferson County Public Schools, a large metropolitan school district, the largest in Kentucky. The rest of the state is divided into regional co-ops, which contain smaller school districts, many of which are rural. Teachers often have to travel to access workshops towards students with autism. It is possible that were the survey administered through the co-ops throughout the state, the results might be different than those in JCPS, where teachers have greater access to in-service opportunities. Rural-urban distinctions could also be germane. More research is needed because of the limited generalizability of these findings.

Third, throughout the United States there is continuing increase in students who are identified with autism. It is possible that this study (Kentucky) may not generalize to other states where policies, teacher certifications, and the concentrations of urban areas are different. A national study could produce different results, especially if different classroom instructional models are provided to students. For example, in southern Indiana, a 20 minute drive from Louisville, KY, students are placed either in a self-contained special education classroom for a variety of disabilities or they are educated in the general classroom. This school district does not have the variety of categorical classroom distinctions found throughout JCPS and the rest of the state of Kentucky. To what extent do statewide special education policies affect how teachers respond to students with autism?

Fourth, this study was conducted with teachers who currently work with students in grades K-12, or age 21 for students who are on a certificate track. Another group who works with students with autism is the early childhood teachers. Like many other students with disabilities, the services for a child with autism often begin at the age of three in an inclusive preschool classroom. The general education preschool teacher is usually the first person providing an educational program to these children, often with support from early childhood special education teachers. Even at this early age some students with autism are educated through a self-contained preschool classroom. Thus it would be beneficial to conduct parallel research with a population of early childhood teachers, both general and special education. How similar or different would be the results? How soon do teachers begin to feel (reflect) the stress of working with these students?

Fifth, general education teachers were originally administered the Olley et al. Autism Attitude Scale for Teachers back in 1981 when students with autism were

beginning to enter the classrooms. Since then, more instructional techniques and support systems have been put into place and more students with autism are becoming successful, often through inclusion into a general education classroom. A survey of a population of general education teachers would provide further insight on their feelings of efficacy, burnout, and attitudes towards students with autism. These regular education teachers have less training, knowledge about autism from special educators yet are increasingly coming into contact with these students.

Sixth, research (Brownell & Pajares, 1999; Hoy & Spero, 2005; Onafowora, 2004; Paneque & Barbetta, 2006; Soodak & Podell, 1993) demonstrates that the influence of personal teacher efficacy is typically stronger than general teaching efficacy. Yet the special education teachers in JCPS demonstrated that their general teaching efficacy has a much stronger impact regarding attitudes towards autism. Additional research on teacher efficacy with attitudes about autism would be beneficial to explore further both levels of efficacy and how they interact with a teacher's ability to instruct students with autism. Is this reversal of influence unique to the realm of autism? Does this new finding hold up in subsequent studies?

Recommendations for Future Research

This present research utilized a quantitative design to investigate Teacher Efficacy, Teacher Burnout, and the Teachers' Attitudes about Autism Scale. Though significant information was gained, the population was rather narrow, focusing on a specific group of teachers in a single school district. Overall, this study found that professional characteristics such as efficacy and burnout are more important to attitudes about autism than environmental factors and that general teaching efficacy has a stronger influence in this population than personal teacher efficacy.

The single greatest limitation of this study is the nature of the subjects. From a population of 684 special education teachers who hold learning and behavioral disorders (LBD) or moderate/severe disability (MSD) certification in a larger urban district, only 267 volunteers responded (39%). There is no way to know the extent that the dispositions of these respondents differed from non-respondents. Although this same restriction applies to most survey research, the limitations on generalizability of the research cannot be taken lightly. Beyond this consideration, other questions and ideas have also been raised, worthy for future research.

First, further work is needed on the Teachers' Attitudes about Autism Scale. While these factors (after three factor analyses) are distinct, it is less than desirable to have a single-item construct as is Autism-Friendship. Further, are there other dimensions that should be added to inclusion, support, and friendship?

Second, more research is needed on ABA with respect to teachers' attitudes towards students with autism. Is it possible that as teachers develop a better foundation in this instructional framework, their attitudes towards these students will improve due to increased efficacy in the classroom?

Third, research needs to be conducted on TEACCH methodology compared to teacher efficacy and attitudes towards autism. As teachers increase their classroom programming through this model and students begin to show success, is it possible that their level of efficacy will increase and thus lower their levels of burnout?

Fourth, the evidence-based practices for instructing students with autism should be explored to see whether attending training and becoming competent with these practices has an impact on levels of teacher efficacy and teacher burnout, thus improving their attitudes towards students with autism.

Fifth, too often, instruments that measure dispositions become an end in themselves. Rather, the next question regarding use of the Teachers' Attitudes about Autism Scale in its effect on *outcomes* for students with autism. Specifically, do teachers who score better on the TAAS achieve better outcomes?

Sixth, teachers of students with autism and other low incidence disabilities with high levels of success in the classroom display certain characteristics (e.g. energy levels, positive attitudes, knowledge that their students are receiving the best education). These characteristics appear to help with their ability to manage and organize their classrooms, thus creating an environment with a structured flow. Is it possible that these characteristics can be modeled and taught to teachers with lower levels of efficacy?

Seventh, as mentioned previously, students with autism display a variety of sensory needs, which typically require the expertise of an occupational therapist. Typically, coursework for students receiving their special education certifications focuses on behavioral strategies for students, but does not address sensory needs. Would it be possible that if sensory processing differences were addressed in teacher preparation coursework, that levels of efficacy would increase?

Eighth, a variety of technology has been made available for the education of students with disabilities, though all students can benefit from its use (e.g., smart boards). Would it be possible that increased training on how to embed technology into instructing core content could decrease levels of burnout, by offering teachers a more efficient approach to professional practice for students with more challenging learning needs?

Conclusions

The purpose of this study was to research how Environmental Factors and Professional Characteristics impact teachers' scores on the Teachers' Attitudes about

Autism Scale, thus answering the central research question: What is the effect of teacher efficacy and teacher burnout on educators' attitudes towards students with autism?

Analysis

This study involved the use of two Teacher Efficacy subscales (Hoy & Woolfolk, 1993) and four Teacher Burnout subscales (Seidman & Zager, 1987) and their effects on teachers' feelings about working with students with autism. In addition, this study created a comprehensive block of environmental factors that went beyond traditional personal identity factors such as gender, ethnicity, and teaching experience to include educational history and school setting. The setting involved learning disability and low incidence disability teachers from Jefferson County Public Schools, the largest urban district in Kentucky.

The analysis proceeded in several steps. First, the original Teacher Efficacy and Teacher Burnout scores had been normed on non-special education populations. Because these scales had not previously been tested with special education teachers, let alone special education teachers who work with autism, psychometric computations on Teacher Efficacy and Teacher Burnout were needed. Because the focus of this study was teachers' dispositions toward students with autism, the outdated work from Olley et al. (1981) needed modification. This necessitated psychometric assessment of the new Teachers' Attitudes about Autism Scale (TAAS). Next, the influence of teachers' environmental backgrounds on Teacher Efficacy, Teacher Burnout, and the new TAAS instrument was examined in a series of multiple regressions. Those results can be summarized briefly.

First, the psychometric evaluation of both Teacher Efficacy and Teacher Burnout parallel closely the previous work by Hoy and Woolfolk (1993) and Seidman and Zager (1987), confirming their validity for a population of special education teachers, a

contribution to the literature.

Second, the TAAS produced three distinct factors: Autism-Inclusion, Autism-Supports, and Autism-Friendship. Each of those subscales in turn were used as dependent variables in a series of univariate regressions.

Third, when the two efficacy subscales, four burnout subscales, and three dimensions from the Teachers' Attitudes about Autism Scale (TAAS) were regressed on the Environmental Factors (RQ1), they were found to be essentially independent of teachers' backgrounds. Several of the regressions were non-significant and those that were produced very low effect sizes. The only environmental factor that was consistently significant was hours spent in an autism related workshop.

Fourth, the Professional Characteristics (two Teacher Efficacy and four Teacher Burnout subscales) were examined for their influence on the three TAAS subscales (RQ2). Here the results were much stronger. For Autism-Inclusion, General Efficacy, Personal Efficacy, and Teacher Burnout-Attitudes Towards Students were significant with effect size of .267. For Autism-Supports, General Teaching Efficacy, Attitudes Towards Students, and Coping with Stress were significant with an effect size of .419. For Autism-Friendship, Attitudes Towards Students, Career Satisfaction, and Coping with Stress were all significant but with a rather low effect size of .102.

Fifth, Hierarchical regression was performed with the Environmental Factors held constant in Step 1 and the six Professional Characteristics added in Step 2 (RQ3). Here the results were very similar to RQ2 with only Professional Characteristics as the predictors. The one additional finding was that the influence on Environmental Factors was reduced from very low to essentially zero when Professional Characteristics were added, including the fact that the hours in an autism workshop became non significant when efficacy and

burnout variables were added. Teacher experience became significant but with low standardized beta and negative impact.

Sixth, the most important finding of the study was regarding the effects of teacher efficacy for a population of special education teachers who work with autism. In previous studies of teacher efficacy, for both regular and special education teachers, scores on the General Teaching Efficacy scale are higher than they are on the Personal Teacher Efficacy scale, reflecting the reality that teachers who struggle with special education students typically understand that the teaching profession has individuals who can work with these groups more effectively than they, i.e., my personal efficacy is not as strong as that of more experienced and better qualified teachers. Even more important than the composite scale score is the relative influence. In this study, general teaching efficacy is almost double the impact of personal teacher efficacy as measured by standardized betas.

For this first investigation to examine the effects of teacher efficacy and teacher burnout who work with individuals with autism, General Teaching Efficacy was more influential than Personal Teacher Efficacy for the TAAS subscales for inclusion and supports. These findings represent a distinct and notable exception to the dynamics of teacher efficacy (personal teacher efficacy typically stronger) and the impact on special education teachers who work with various subpopulations of students. The key distinction appears to be autism. Teachers apparently do not have the confidence that knowledge and skills related to instructing students with autism are adequate to the challenge.

Implications

There are several implications to the findings of this study. First, several of these relate to the literature about special education teachers by extending external generalizability of the instrumentation in question. This includes a more comprehensive set

of environmental factors than is typically used in studies with special education students, from personal identity only (typically only race, gender, and experience) to include educational history that involves education and training, and school setting which provides context for the conditions within which classroom instruction occurs. Including these broader factors in addition to personal identity is more likely to capture how teachers think about their students and the degree of instructional experience they have obtained. The implications of these findings can have profound impact with respect to educational practice vis-à-vis students with autism.

Second, neither the Teacher Efficacy scales nor the Teacher Burnout scales have previously been validated for special education teachers. The current study conformed that the original psychometric work from Hoy and Woolfolk (1993) and Siedman and Zager (1987) hold up for special education teachers so that researchers can confidently utilize these two scales with this population in the future.

Third, despite the increasing number of students with autism in the classroom, no adequate instrumentation existed to measure teachers' attitudes about these students. The lone scale that was located, created in 1981 by Olley et al., had three primary faults: (a) the work was now outdated, (b) the original report provided essentially no validity evidence, and (c) the original AAST included a subfactor that was essentially teacher efficacy rather than a component regarding teachers' attitudes about autism. In the current study, the original Olley et al. work was revisited with items modified, the efficacy component removed, and new questions written, leaving three distinct dimensions of teachers' attitudes. The new instrument was named the Teachers Attitudes about Autism Scale and has three components: Autism-Inclusion, Autism-Supports, and Autism-Friendship. Considerable work had to be done on the new TAAS as conceptualized by the researcher

and his committee in order to have three adequate factors. Even with these modifications, the TAAS, viable as a working instrument, could benefit from further psychometric development, because the Autism-Friendship dimension turned out to be a single-item variable.

Fourth, the influence of the Environmental Factors and the Professional Characteristics of Teacher Efficacy and Teacher Burnout on the three TAAS subscales was significant. The Environmental Factors, even though there was an extensive block including Personal Identity, Educational History, and School Setting, have essentially no influence on the three TAAS subscales, nor for that matter on the six subscales from teacher efficacy and teacher burnout. Although hours in an autism workshop was a significant predictor when Environmental Factors were entered alone, this influence was minimal and it washed away when accounting for the Professional Characteristics. This suggests that teachers' cognitions and dispositions regarding how best to work with students with autism are more important in this respect than the amount of training.

Fifth, the Professional Characteristics, the two Teacher Efficacy subscales were significant for both Autism-Inclusion and Autism-Supports, suggesting that teachers' sense of self capacity clearly affects their dispositions towards their ASD students. The two efficacy subscales had no impact on Autism-Friendship. That finding coupled with the fact that Autism-Friendship turned out to be a single-item variable suggests rethinking whether friendship is a necessary component to teachers' feelings about autism. Further, additional inquiry is warranted as to whether there are additional dimensions for an instrument such as TAAS.

Sixth, the four Teacher Burnout subscales had differential impact on the TAAS subscales. For Autism-Inclusion, the significant subscale was Attitudes Towards Students.

For Autism-Supports, the significant subscales were Attitudes Towards Students and Coping with Stress. For Autism-Friendship, the significant subscales were Career Satisfaction, Attitudes Towards Students, and Coping with Stress. Looking across the three subscales it is clear that teachers' attitudes towards their students influences their ability to support inclusion, utilize support, and believe in peer friendships for a student with autism. Teachers who have difficulties coping with stress want greater supports for students with autism and are likely more negative about peer friendships between students in regular education and those with autism. Lastly Teachers who are satisfied with their careers are more likely to facilitate friendships between students with autism and their peers. The one factor that was consistently not significant was Administrator Support, suggesting that administration did not increase or improve feelings of burnout for the teachers.

Seventh, General Teaching Efficacy was significant for Inclusion and Supports for students with autism, but not for Friendship. This suggests that teachers with higher general efficacy are more likely to favor students with autism attending an inclusive setting and utilizing various supports and evidenced-based practices.

Finally, the most profound finding in this study was the reversal of General Teaching Efficacy and Personal Teacher Efficacy with respect to their relative strength as predictors for the three TAAS subdimensions. Because this reversal has previously not been reported, further research is needed to confirm this result. However, previous studies of special education and regular education teachers have consistently found that Personal Teacher Efficacy with respect to various educational outcomes is more influential than General Teaching Efficacy--a finding that makes sense conceptually. Put another way, general professional standards of practice and confidence would clearly be beyond neophyte or weak teachers who look at themselves in comparison to those higher

professional norms. Yet here, when the topic is dispositions about students with autism in a special education setting, there is the sense that teachers perceive that the profession is floundering, that an established and trusted knowledge base on how to work effectively with these students is simply not yet available. These results suggest a general sense that teachers simply do not understand or have access to instruction that is effective for these students on the autism spectrum. Concomitantly, these teachers' Personal Teacher Efficacy was higher (compared to other areas of education), with the implication that for autism, they sense that their own personal skills are actually consonant with that of the profession. This is the reverse of years of research on the two dimensions on teacher efficacy.

What to do about this? The implications are (a) more research on instructional practices for teachers who work with students on the autism spectrum and (b) much more effective professional development for teachers who work with students with autism regarding the current knowledge base. Here, the work of Jennett et al. (2003) is instructive. Those researchers found that when given a philosophical framework (Applied Behavioral Analysis or Treatment and Education of Autistic and Children with Related Communication Handicaps), their levels of efficacy increased and they displayed less burnout. These teachers felt better about how they were teaching their students and were ready to reenter their classrooms.

The Jennett et al. (2003) work indicates that, at least based upon the population in this large urban district, special educators who work with students with autism are not yet aware nor practiced in the skills and knowledge of ABA or TEACCH. What if the work of Jennett et al. can be extended and it is found that special educators generally who are trained and skilled in ABA or TEACCH are more efficacious than those without such professional development (i.e., their General Teaching Efficacy scores rebound to a level

higher than their scores of Personal Teacher Efficacy with respect to working with people with autism)? This extensive program of professional development has the potential to help all special educators become more confident in their ability to be successful with students who have autism. That is a challenge for all policy makers, administrators, teachers, and parent advocacy groups. Until such advances can become commonplace, special educators are likely to continue to experience frustration and lack of success reflected in lower teacher efficacy and higher teacher burnout. More profoundly, the *students* on the autism spectrum are *not* getting the help they need or could get. That is a tragedy for those students and for American education.

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APPENDIX A

AUTISM EDUCATION SURVEY

Dear Jefferson County Public Schools E.C.E. Teacher:

You are being invited to participate in a research study by answering the attached survey titled: Autism Education Survey. This survey examines teachers' current levels of efficacy and burnout and how they relate to attitudes about their students with autism. There are no known risks for your participation in this research study. The information collected may not benefit you directly. The information learned in this study may be helpful to others. The information you provide will assist the researcher in understanding teacher efficacy, teacher burnout, and how they impact teacher Attitudes towards students with autism. Your completed survey will be stored at the researcher's locked file cabinet in his office. The survey will take approximately 15 minutes time to complete. Upon completion of the survey, your name will be added to a list of all participants which will be kept separate from the survey responses. Ten names will be randomly drawn from this list and those participants will be awarded a \$10.00 gas card. The gas card will be sent to the winning individuals through the "pony" to their current school location.

The study you are about to participate in deals with opinions about students with autism as well as statements about teacher efficacy and teacher burnout. You will be asked to respond to these statements on a scale of 1-5, 1 being strongly disagree and 5 being strongly agree. You will also be asked to give more information about your role in the classroom. When making your choice, do not be influenced by previous choices. It is important that you respond with your actual perceptions and not according to how you feel you should believe.

Individuals from the Department of Teaching and Learning, College of Education and Human Development, the Institutional Review Board (IRB), the Human Subjects Protection Program Office (HSPPO), and other regulatory agencies may inspect these

records. In all other respects, however, the data will be held in confidence to the extent permitted by law. Should the data be published, your identity will not be disclosed.

Taking part in this study is voluntary. By completing this survey you agree to take part in this research study. You do not have to answer any questions that make you uncomfortable. You may choose not to take part at all. If you decide to be in this study you may stop taking part at any time. If you decide not to be in this study or if you stop taking part at any time, you will not lose any benefits for which you may qualify. If you have any questions, concerns, or complaints about the research study, please contact: Dr. Debra Bauder, 502-852-0564. If you have any questions about your rights as a research subject, you may call the Human Subjects Protection Program Office at (502) 852-5188. You can discuss any questions about your rights as a research subject, in private, with a member of the Institutional Review Board (IRB). You may also call this number if you have other questions about the research, and you cannot reach the Dr. Bauder, or want to talk to someone else. The IRB is an independent committee made up of people from the University community, staff of the institutions, as well as people from the community not connected with these institutions. The IRB has reviewed this research study.

If you have concerns or complaints about the research or research staff and you do not wish to give your name, you may call 1-877-852-1167. This is a 24 hour hot line answered by people who do not work at the University of Louisville.

Sincerely,

Debra K Bauder, Ed.D.

Associate Professor

Rm 156, College of Education And

Human Development

University of Louisville

Louisville, KY 40292

And

Joshua Skuller M.Ed OTR/L

J.C.P.S Occupational Therapist

Ahrens Educational Center

546 South 1st St.

Louisville, KY 40202

Environmental Information

1) Please circle your gender:

Male Female

2) Please indicate your ethnicity:

Black White Other

3) Please indicate the type of school/program in which you teach:

General Education School Special School

4) Please indicate the type of setting in which you teach:

1 = Regular Education Classroom 2 = Collaboration Only

3 = Resource and Collaboration 4 = Resource Only

5 = Special Education Self-Contained

5) Please indicate the grade level you teach:

1 = High School 2 = Middle School 3 = Elementary School

6) Please indicate the highest degree you have obtained:

1 = Bachelors 2 = Masters 3 = Rank I/Specialist 4 = Doctorate

7) Please indicate the way in which you obtained your teaching certificate:

Traditional Certification Program Alternate Certification Program

8) Please select the estimated number of hours you have spent in a workshop designed
for students with autism

0 = none 1 = 1-6 2 = 7-12 3 = 13-18 4 = 19-24 5 = 25+

9) Please write in your number of years experience as a certified teacher _____

10) Please select your primary special education certification

Provisional LBD Provisional MSD LBD MSD Other

If other (please specify) _____

Autism Education Survey

Key:

1= Strongly Agree

2= Agree

3= Neutral

4= Disagree

5= Strongly Disagree

1) The amount a student can learn is primarily related to family background.	1 2 3 4 5
2) A teacher is very limited in what he or she can achieve because a student's home environment is a large influence on his or her achievement.	1 2 3 4 5
3) When it comes right down to it, a teacher really can't do much because a student's home environment is a large influence on his or her achievement.	1 2 3 4 5
4) If students are not disciplined at home, they aren't likely to accept any discipline.	1 2 3 4 5
5) If parents would do more for their children, I could do more.	1 2 3 4 5
6) I look forward to teaching in the future.	1 2 3 4 5
7) I am glad that I selected teaching as a career.	1 2 3 4 5
8) Teaching is more fulfilling than I had expected.	1 2 3 4 5
9) If I had it to do all over again, I would not have become a teacher.	1 2 3 4 5
10) I look forward to teaching every day.	1 2 3 4 5
11) Regular schools are too advanced for children with autism.	1 2 3 4 5
12) I would not want the children in my	

class to have to put up with classmates who have autism.	1 2 3 4 5
13) Regular education students and students with autism should be taught in separate schools.	1 2 3 4 5
14) Schools with both typical and autistic children enhance the learning experience of the typical children.	1 2 3 4 5
15) Children with autism are too impaired to benefit from the activities of a typical school.	1 2 3 4 5
16) Children with autism cannot socialize well enough to benefit from contact with typical children.	1 2 3 4 5
17) It is unfair to ask teachers to accept children with autism at their school.	1 2 3 4 5
18) Schools with both typical and autistic children enhance the learning experience of the autistic children.	1 2 3 4 5
19) When I really try, I can get through to the most difficult students.	1 2 3 4 5
20) If a student did not remember the information I gave in a previous lesson, I would know how to increase his or her retention in the next lesson.	1 2 3 4 5
21) When a student gets a better grade than he or she usually gets, it is because I found a better way of teaching.	1 2 3 4 5
22) If a student in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him or her quickly.	1 2 3 4 5
23) If I try hard, I can get through to even the most difficult or unmotivated students.	1 2 3 4 5
24) I get adequate praise from my supervisors for a job well done.	1 2 3 4 5

25) I feel that the administrators are willing to help me with my classroom problems, should they arise.	1 2 3 4 5
26) I believe that my efforts in the classroom are unappreciated by the administrators.	1 2 3 4 5
27) My supervisors give me more criticism than praise.	1 2 3 4 5
28) I feel the administrators will not help me with classroom difficulties.	1 2 3 4 5
29) The administrator blames me for classroom problems.	1 2 3 4 5
30) It takes too much time to prepare lessons to include a child with autism.	1 2 3 4 5
31) The needs of a child with autism get in the way of instruction for the class.	1 2 3 4 5
32) Supports used for a child with autism can also be used for other students, allowing for all to benefit from the instruction.	1 2 3 4 5
33) Children with autism require too many supports to be in the general classroom.	1 2 3 4 5
34) I feel depressed because of my teaching experiences.	1 2 3 4 5
35) The teaching day seems to drag on and on.	1 2 3 4 5
36) I find it difficult to calm down after a day of teaching.	1 2 3 4 5
37) I feel that I could do a much better job of teaching if only the problems confronting me were not so great.	1 2 3 4 5
38) The stresses in this job are more than I can bear.	1 2 3 4 5
39) Children with autism are too disruptive to benefit from a regular class.	1 2 3 4 5

40) Nonautistic classmates can be good role models for a child with autism.	1 2 3 4 5
41) Mealtime behaviors of children with autism are disruptive and negatively influence the behavior of children around them.	1 2 3 4 5
42) Children with autism are well liked by their classmates.	1 2 3 4 5
43) The students act like a bunch of animals.	1 2 3 4 5
44) Most of my students are decent people.	1 2 3 4 5
45) Most students come to school ready to learn.	1 2 3 4 5
46) Students come to school with bad attitudes.	1 2 3 4 5

THANK YOU FOR YOUR TIME!!!

APPENDIX B

OPERATIONAL DEFINITIONS AND
CODINGS OF VARIABLES

Operational Definitions and Codings of Variables

The variables listed in this appendix are organized according to Figure 1. The Independent Variables are Environmental Factors and Professional Characteristics. These are presented in turn, followed by the Dependent Variable, Teachers' Attitudes about Autism Scale. For each variable, the operational definition and variable label code are given. All data included in the research are self-reported by the participating classroom teachers.

Independent Variables

Environmental Factors

Socio-demographic information includes three broad groups: Personal Identity (Gender and Ethnicity), Educational History (Highest Degree Earned, Training Program, Hours in Autism Workshops, Years Experience, and Special Education Certification) and School Setting (Least Restrictive Environment, Type of School, and Grade Level). All of this information is gathered through the environmental component of the Autism Education Survey. All of the teachers included in this survey work with students who have learning disabilities (LD) or low incidence disabilities (autism, multiple disability, functional mental disability).

Personal Identity

These factors reflect identities of the participating teachers with regard to gender and ethnicity.

Gender (GEN). The field of education is typically female dominated (Hansen & Mulholland, 2005). This variable is a nominal scale, coded 0 = male, 1 = female.

Ethnicity (ETH). Individuals who pursue teaching degrees are typically from a

middle class and white background (Haddix, 2008). For this study, the nominal scale was coded 0 = black, 1 = white, 2 = other. Based on results from Chapter IV, only 5 subjects (1.9%) responded as “other.” These were collapsed with “black” so that the final coding was 0 = white and 1 = black and other.

Educational History

The five factors included in this section reflect how and to what extent teachers have accumulated their knowledge, skills, and dispositions regarding students with autism.

Highest Degree Earned (DEG). Education past the bachelors level is often optional and may very well show a teacher’s dedication to the field (McIntyre, 1982). The measure is a 4-point interval scale, coded 1 = Bachelors, 2 = Masters, 3 = Rank I/Specialist, 4 = Doctorate.

Training Program (TRAIN). Due to the shortage of special education teachers, many individuals are becoming certified through an alternate process by taking courses while teaching in a classroom (Justice et al., 2003; Shepherd & Brown, 2003; Stoddart & Floden, 1995). This construct is nominally coded as 0 = traditional certification program, 1 = alternate certification program.

Hours in Autism Workshops (WORK). Due to the increased identification of students with autism, districts are beginning to offer more inservice training to teachers, educating them on best practices for serving this population (Lerman et al., 2008). Teachers are asked to select the total estimated number of hours they have spent in workshops designed for students with autism, a modified interval/ratio scale, coded 0 = none, 1 = 1-6, 2 = 7-12, 3 = 13-18, 4 = 19-24, 5 = 25+.

Years Experience (EXP). The first few years of teaching are often the most challenging for teachers as they are expected to show competence in their classrooms

while perfecting their own style of instruction (Onafowora, 2004). This construct is a ratio measurement, with teachers asked to list their previous years of teaching.

Special Education Certification (CERT). Special educators earn certificates that relate to the content and training in various aspects of disabilities (Justice et al., 2003). For this study, this construct is a nominal scale, coded 1 = Provisional Learning and Behavioral Disorder (LBD), 2 = Provisional Moderate/Severe Disability (MSD) Certification, 3 = LBD Certification, 4 = MSD Certification, 5 = Other (list). This variable was dummy coded with Provisional Learning and Behavioral Disorder as the referent category, resulting in four Z contrasts. The four new variables are CERT1 coded as 2 = 1, 0 = all others; CERT2 coded as 3 = 1, 0 = all others; CERT3 coded as 4 = 1, 0 = all others; and CERT4 coded as 5 = 1, 0 = all others.

School Setting

The measures in this section all describe characteristics of the classrooms in which teachers work with students with disabilities.

Least Restrictive Environment (LRE). Special education students can receive services in a variety of settings; therefore it is important that a special education teacher be available to program for these diverse needs (Taylor, 2004). For this study, the concept is measured as an interval scale, coded according to the extent of services received, 1 = Regular Education, 2 = Collaboration only, 3 = Collaboration/Resource, 4 = Resource only, 5 = Special Education Self-Contained.

Type of School (TYPE). Special education teachers are often employed in general education schools; however there are times when students need a more restrictive setting and therefore are placed in a special school (Williams & Gersch, 2004). This is a nominal scale, coded 0 = general school, 1 = special school.

Grade Level (GRADE). Children often receive special services throughout their academic careers, requiring school districts to employ special teachers at all levels (Karaca, 2008), although conditions and supports vary somewhat depending on the maturity of the students. The construct represents an ordinal/interval scale coded 1 = high school, 2 = middle school, 3 = elementary school.

Professional Characteristics

Professional Characteristics consist of two broad groups: Teacher Efficacy (General and Personal) and Teacher Burnout (Career Satisfaction, Administrative Support, Coping with Stress, and Attitudes towards students). The data for these two sections are collected through questions on the Autism Education Survey, which ask the participants to rate their opinions in scale format.

Teacher Efficacy

Teaching Efficacy-General (GENEFF). General Teaching Efficacy is based on the belief that teaching as a profession can impact students' learning, i.e., teachers can empower all students to learn, regardless of their home background (Gibson & Dembo, 1984; Woolfolk & Hoy, 1993). The questions on this section of the survey constitute an interval 5-point Likert scale from 1 = strongly disagree to 5 = strongly agree from Hoy and Woolfolk's Teacher Efficacy Scale (short form). The questions in the original Teacher Efficacy Scale (short form) contained a 6-point Likert-type scale; however for this study the researcher decided to offer the participants a neutral point (3). The other subscales were also created in a 5-point format, thus ensuring consistency for the entire instrument. The scale has a negative cast, i.e., agreement equates to doubts about the teaching profession being able to overcome risk factors. The questions listed here are from the Teacher Efficacy-General section.

- 1) The amount a student can learn is primarily related to family background. 1 2 3 4 5
- 2) A teacher is very limited in what he or she can achieve because a student's home environment is a large influence on his or her achievement. 1 2 3 4 5
- 3) When it comes right down to it, a teacher really can't do much because most of a student's home environment is a large influence on his or her achievement. 1 2 3 4 5
- 4) If students are not disciplined at home, they aren't likely to accept any discipline. 1 2 3 4 5
- 5) If parents would do more for their children, I could do more. 1 2 3 4 5

Teacher Efficacy-Personal (PEREFF). Personal efficacy involves the teacher's belief in having the ability to impact the student's learning, i.e., I can empower this student to learn (Gibson & Dembo, 1984; Woolfolk & Hoy, 1993). The questions on this section of the survey represent an interval 5-point Likert scale with 1 = strongly disagree to 5 = strongly agree from Hoy and Woolfolk's Teacher Efficacy Scale (short form). Once again, the questions were modified to fit a 5-point scale format rather than the original 6-point format. The questions listed here, worded positively, are from the Personal Teacher Efficacy section.

- 1) When I really try, I can get through to the most difficult students. 1 2 3 4 5
- 2) If a student did not remember the information I gave in a previous lesson, I would know how to increase his or her retention in the next lesson. 1 2 3 4 5
- 3) When a student gets a better grade than he or she usually gets, it is because I found a better way. 1 2 3 4 5

4) If a student in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him or her quickly.	1 2 3 4 5
5) If I try hard, I can get through to even the most difficult or unmotivated students.	1 2 3 4 5

Teacher Burnout

Teacher Burnout-Career Satisfaction (TB-CS). This subscale examines teachers' happiness with their careers. A career in teaching can range from staying for life, to others who may not be as happy with their choice of career and could very well look for a different type of classroom setting or leave the profession altogether (Seidman & Zager, 1987). The statements in this subsection are rated on an interval 5-point Likert scale where 1 = strongly disagree and 5 = strongly agree. The construct has a positive cast; reverse score items are indicated.

1) I look forward to teaching in the future.	1 2 3 4 5
2) I am glad that I selected teaching as a career.	1 2 3 4 5
3) Teaching is more fulfilling that I had expected.	1 2 3 4 5
4) If I had it to do all over again, I would not have become a schoolteacher. (R)	1 2 3 4 5
5) I look forward to each teaching day.	1 2 3 4 5

Teacher Burnout-Administrative Support (TB-AS). Effective teaching is paired with support from the administrator. How the administration in the school chooses to work with the special education department is often a major consideration as to how teachers perform at their jobs and the extent to which they are able to stay "fresh" or succumb to the rigors of their job (Seidman & Zager, 1987). The statements in this subsection are rated on an interval 5-point Likert scale where 1 = strongly disagree and 5 = strongly agree. Again, this

construct represents positive feelings; reverse score items are indicated.

1) I get adequate praise from my supervisors for a job well done.	1 2 3 4 5
2) I feel that the administrators are willing to help me with my classroom problems, should they arise.	1 2 3 4 5
3) I believe that my efforts in the classroom are unappreciated by the administrators. (R)	1 2 3 4 5
4) My supervisors give me more criticism than praise. (R)	1 2 3 4 5
5) I feel the administrators will not help me with classroom difficulties. (R)	1 2 3 4 5
6) The administrator blames me for classroom problems. (R)	1 2 3 4 5

Teacher Burnout-Coping with Stress (TB-CWS). Teaching can become very stressful at times and teachers do need to have a way to be able to relieve those pressures. This could be personally or school based. Often collegial support can help to reduce the stress that teachers are feeling (Seidman & Zager, 1987). The statements in this subsection are rated on an interval 5-point Likert scale where 1 = strongly disagree and 5 = agree. The construct is negatively posed, i.e., greater agreement equates to greater stress and burnout.

1) I feel depressed because of my teaching experiences.	1 2 3 4 5
2) The teaching day seems to drag on and on.	1 2 3 4 5
3) I find it difficult to calm down after a day of teaching.	1 2 3 4 5
4) I feel that I could do a much better job of teaching if only the problems confronting me were not so great.	1 2 3 4 5
5) The stresses in this job are more than I can bear.	1 2 3 4 5

Teacher Burnout-Attitudes Towards Students (TB-ATS). Students come to school with myriad problems. How teachers choose to work with this mix can also relate to the level of burnout they are experiencing. A classroom with extensive behavioral problems can often wear on a teacher much faster than a classroom with only an occasional behavior (Seidman & Zager, 1987). The statements in this subsection are rated on an interval 5-point Likert scale where 1 = strongly disagree and 5 = strongly agree. The subscale is written to represent a negative stance toward students, with agreement equating to higher burnout and greater frustration. Reverse score items are marked.

1) The students act like a bunch of animals.	1 2 3 4 5
2) Most of my students are decent People. (R)	1 2 3 4 5
3) Most students come to school ready to learn. (R)	1 2 3 4 5
4) Students come to school with bad attitudes.	1 2 3 4 5

Dependent Variable

The dependent variable is the set of questions specific to students with autism. The Teachers' Attitudes about Autism Scale has three subscales (Inclusion/Exclusion, Supports Needed, and Behavioral Issues).

Teachers' Attitudes about Autism Scale

The majority of questions for this variable were taken from the Autism Attitude Scale for Teachers (AAST) by Olley et al. (1981). The items were updated with present day language. Several questions were removed from the AAST because they duplicated items from teacher efficacy, one of the independent variables. Additional items pertaining to autism were also created to reflect current conditions in the classroom.

Inclusion/Exclusion (I/E)

This subscale examines how teachers respond to having a student with autism in their classroom. Some teachers may perceive that this population would be better educated in a self-contained setting or even in another location altogether due to the nature of the disability. The scale constitutes an interval 5-point Likert scale, scored from 1 = strongly disagree to 5 = strongly agree. The items as written reflect negative attitudes about autism.

Positive items are marked as reverse scored.

1) Regular schools are too advanced for children with autism.	1 2 3 4 5
2) I would not want the children in my class to have to put up with classmates who have autism.	1 2 3 4 5
3) Typical children and children with autism should be taught in separate schools.	1 2 3 4 5
4) Schools with both typical and autistic children enhance the learning experience of the typical children. (R)	1 2 3 4 5
5) Children with autism are too impaired to benefit from the activities of a typical school.	1 2 3 4 5
6) Children with autism cannot socialize well enough to profit from contact with typical children.	1 2 3 4 5
7) It is unfair to ask teachers to accept children with autism at their school.	1 2 3 4 5
8) Schools with both typical and autistic children enhance the learning experience of the autistic children. (R)	1 2 3 4 5

Supports Needed (SN)

Students with autism need a vast amount of support to benefit from their education

programming (visual cues, sensory diets, social stories), all of which help to regulate their nervous systems and allow them to interpret their environment and the social cues that are given within their day to day activities more effectively. Teachers could find trying to incorporate all these needs into their educational programs to be daunting. This subscale is scored as an interval 5-point Likert scale, from of 1 = strongly disagree to 5 = strongly agree. Again, the items reflect negative feelings about students with autism; the positive item is reverse scored.

1) It takes too much time to prepare lessons to include a child with autism.	1 2 3 4 5
2) The needs of a child with autism get in the way of instruction for the class.	1 2 3 4 5
3) Supports used for a child with autism can also be used for other students, allowing for all to benefit from the instruction. (R)	1 2 3 4 5
4) Children with autism require too many supports to be in the classroom.	1 2 3 4 5

Behavioral Issues (BI)

Students with autism often present with various behavioral issues from mild (calling out answers in class) to severe (aggression). These behaviors often stem from sensory needs and misunderstanding of social cues. Intervention from the classroom staff as well as input from parents may be required to allow these students to be successful in school. The subscale is scored as an interval 5-point Likert scale, from 1 = strongly disagree and 5 = strongly agree. To be consistent with the other two subscales, the construct is scored with a negative cast. Reverse score items are indicated.

1) Children with autism are too disruptive to benefit from a regular class.	1 2 3 4 5
2) Classmates can be good role models for	

a child with autism. (R)	1 2 3 4 5
3) Mealtime behaviors of children with autism are disruptive and negatively influence the behavior of children around them.	1 2 3 4 5
4) Children with autism are well liked by their classmates. (R)	1 2 3 4 5

APPENDIX C

LETTERS TO CONTENT EXPERTS

Letter to Content Experts

March 15, 2010

Dear Content Experts:

I am a doctoral student in the College of Education and Human Development at the University of Louisville. I am writing to ask your participation as a Content Expert who will review constructs and scales proposed for my dissertation research, a study of teacher efficacy, teacher burnout, and Attitudes towards students with autism. The subjects are low incidence (multiple disability, functional mental disability, and autism) and learning disability (resource and self-contained) teachers in a local school district. Dr. Debra K. Bauder, Department of Teaching and Learning, is my committee chair.

In my study, data will be collected through a self-report from teachers relating to teacher efficacy (general and personal), teacher burnout (career satisfaction, administrative support, coping with stress, and Attitudes towards students), and Attitudes towards students with autism (inclusion/exclusion, supports needed, and behavioral issues). Other environmental factors include personal identity, educational history, and school setting. You will note that these dimensions are combined on the survey.

Your feedback is critical to determining the validity of the items in the instrument. A complete copy of the proposed instrument is attached for your review and feedback (you are receiving this letter in both hard copy and electronic form). The attachment has two forms: Appendix A, the actual teacher survey; Appendix B, variable operational definitions, including questions grouped together for each scale and any reverse score items. Please note that theoretical rationale and literature to support these constructs are documented in Chapter III of my dissertation. Should you wish to see that section of Chapter III, please let me know. Also attached is a set of questions designed to elicit and guide specific feedback regarding the variables. Your feedback will be considered in the decisions for the final revisions to the instrument prior to its use.

Should you agree to participate, please email me at JSkuller@juno.com or if it would be more convenient, you may call me at 502-876-0896. I will appreciate any assistance you can give me with my exploration of this topic.

Thank you for your time.

Sincerely,

Joshua Skuller

Content Expert Review Questions

Please respond to the following questions regarding teacher efficacy, teacher burnout, and Attitudes towards students with autism as well as other demographic constructs in the Autism Education Survey. Comments may be written directly on the instrument. If additional space is needed, please attach a separate sheet of paper and specify to which item the comments refer.

Note that the complete survey (Appendix A) and the operational definitions (Appendix B) are both attached for your convenience. It would be more helpful to me if you direct comments primarily to Appendix B where the questions that comprise each scale are grouped together, along with negative or positive cast of the scale and any reverse score (R) items.

Please be aware that theoretical perspective and literature grounding for the various scales and constructs are given in the text of Chapter III. If you would like to see this, please let me know and I will forward it to your attention.

Thank you again for your time.

The Autism Education Scale (Appendix A)

1) Introduction:

Is the introductory statement of purpose clear?

2) Format:

Is the format clear?

Easy to follow?

3) Directions:

Are the directions clear and understandable?

4) Feasibility:

Is the instrument practical?

Is the full instrument too long?

5) Do you have any general comments or suggestions on the overall format and presentation of the Autism Education Survey?

Operational Definitions and Coding of Variables (Appendix B)

Environmental Factors

6) Do the groupings of variables under Personal Identity, Educational History, and School Setting make sense?

7) Do the constructs appear to be valid?

8) Are the operational definitions clear? Can they be managed in a database?

Professional Characteristics

9) Are the operational definitions of the sub-domains for Teacher Efficacy and for Teacher Burnout clear and appropriate?

10) Items:

Do the items in the different sub-scales “hang together?”

Do they seem appropriate for the respective constructs?

Is there overlap or redundancy among the items across the sub-scales?

11) Wording:

Is the wording of the items clear and understandable?

Attitudes towards students with Autism

12) Do the opinion statements about autism appear to be valid?

13) Items:

Do the items in the different subscales appear to “hang together?”

Do the items seem appropriate?

Is the wording of the items clear and understandable?

Psychometric Analysis

14) Do the assumptions regarding level of measurement seem defensible? Could these scales reasonably be considered as data for factor analysis and multiple regression analysis?

Note: rationale for these decisions are in text for Chapter III as well as paragraphs describing coding in Appendix B.

15) Do you have any final thoughts about the scale and/or constructs? Any particular suggestions?

THANK YOU VERY MUCH FOR YOUR TIME!

APPENDIX D

IRB APPROVAL LETTERS

INSTITUTIONAL REVIEW BOARDS

University of Louisville
MedCenter One, Suite 200
501 E. Broadway
Louisville, Kentucky 40202-1798
Office: 502-852-5188
Fax: 502-852-2164

To: Bauder, Debra
From: The University of Louisville Institutional Review Board (IRB)
Date: Tuesday, April 27, 2010
Subject: Approval Letter

Tracking #: 10.0141
Title: Teacher Efficacy, Teacher Burnout, and Attitudes Towards Students with Autism
Approval Date: 4/26/2010 12:00:00 AM
Expiration Date: 4/25/2011 12:00:00 AM

The Protocol changes and Informed Consent for the above referenced study has been received and contains the changes requested in our letter of 04/16/2010. This study was reviewed on 04/26/2010 by the chair/vice chair of the Institutional Review Board (IRB) and approved through the Expedited Review Procedure, according to 45 CFR 46.110(b), since this study falls under Expedited Category (7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

This study was also approved through 45 CFR 46.117(c), which means that an IRB may waive the requirement for the investigator to obtain a signed informed consent form for some or all subjects if it finds either:

- ° That the only record linking the subject and the research would be the consent document and the principal risk would be potential harm resulting from a breach of confidentiality. Each subject will be asked whether the subject wants documentation linking the subject with the research, and the subject's wishes will govern; or
- ° That the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context.

The following items have been approved:

- Autism Education Survey, not dated
- Skuller Research Invitation to teachers for participation
- Follow-up invitation to participate via email
- Initial survey invitation via email
- Skuller Research Invitation, dated 03/09/2010
- Skuller Data Collection Sheet from Survey Monkey
- Skuller SurveyMonkey Preamble, dated 04/22/2010
- Skuller Preamble, dated 04/22/2010
- JCPS Research Department Skuller, not dated

This study now has final IRB approval from 04/26/2010 through 04/25/2011. You should complete and return the Progress Report/Continuation Request Form EIGHT weeks prior to this date in order to ensure that no lapse in approval occurs. The committee will be advised of this action at their next full board meeting.

Site Approval

If this study will take place at an affiliated research institution, such as Jewish Hospital/St Marys Hospital, Norton Healthcare, or University of Louisville Hospital, permission to use the site of the affiliated institution may be necessary before the research may begin. If this study will take place outside of the University of Louisville Campuses, permission from the organization should be obtained before the research may begin. Failure to obtain this permission may result in a delay in the start of your research.

Privacy & Encryption Statement

The University of Louisville's Privacy and Encryption Policy requires such information as identifiable medical and health records; credit card, bank account and other personal financial information; social security numbers; proprietary research data; dates of birth (when combined with name, address and/or phone numbers) to be encrypted. For additional information: <http://security.louisville.edu/PolStds/ISO/PS018.htm>.

1099 Information (If Applicable)

As a reminder, in compliance with University policies and Internal Revenue Service code, all payments (including checks, gift cards, and gift certificates) to research subjects must be reported to the University Controller's Office. Petty Cash payments must also be monitored by the issuing department and reported to the Controller's Office. Before issuing compensation, each research subject must complete a W—9 form.

For additional information, please contact the Controller's Office at 852—8237 or contro1l@louisville.edu.

The following is a link to an Instruction Sheet for BRAAN2 "How to Locate Stamped/Approved Documents in BRAAN2"

<https://louisville.edu/research/braan2/help/Docs.pdf>

Please begin using your newly approved (stamped) consent(s) at this time. The previous versions are no longer valid. If you need assistance in accessing any of the study documents, please feel free to contact our office at (502) 852—5188. You may also email our service account at hspofc@louisville.edu for assistance.

Best wishes for a successful study. If you have any questions please contact the HSPPO at (502) 852-5188 or hsppofc@louisville.edu.

Thank you.

Board Designee: Quesada, Peter

Once you begin your human subject research the following regulations apply:

1. Unanticipated problems or serious adverse events encountered in this research study must be reported to the IRB within five (5) work days.
2. Any modifications to the study protocol or informed consent form must be reviewed and approved by the IRB prior to implementation.
3. You may not use a modified informed consent form until it has been approved and validated by the IRB.
4. Please note that the IRB operates in accordance with laws and regulations of the United States and guidance provided by the Office of Human Research Protection (OHRP), the Food and Drug Administration (FDA), the Office of Civil Rights (OCR) and other Federal and State Agencies when applicable.
5. You should complete and SUBMIT the Continuation Request Form eight weeks prior to this date in order to ensure that no lapse in approval occurs.

Letter Sent By: Block, Sherry, 4/27/2010 4:32 PM

Full Accreditation since June 2005 by the Association for the Accreditation of Human Research Protection Programs, Inc.

**ACCOUNTABILITY, RESEARCH, AND
PLANNING DEPARTMENT**

Jefferson County Public Schools
VanHoose Education Center
3332 Newburg Road
Louisville, Kentucky 40218

Office: 502-485-3036
Fax: 502-485-6255

RESEARCH PERMISSION

May 20, 2010

Debra Bauder, Ph.D.
University of Louisville
College of Education and Human Development
Louisville, KY 40292

Study Title: Teacher Efficacy, Teacher Burnout, and Attitudes Towards Students with Autism

Dear Dr. Bauder,

The Jefferson County Public Schools Internal Review Board (IRB) has received your research study request for initial approval. Thanks for providing the IRB approval from the University of Louisville (**Tracking #:** 10.0141). Your request to conduct your study is approved under **Expedited Review Procedure**, according to 45 CFR 46.110(b), since this study falls under Expedited Category (7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Approval does not guarantee participation of a particular school in the research study. If the research study interferes with the educational process in a school, the principal may request that his/her school be excluded from the study. A copy of the final report must be sent to the Accountability, Research, and Planning Department when the study has been completed.

If you have any questions or concerns, please feel free to contact our office at (502) 485-3036. Thank you for your interest in conducting research associated with our schools, particularly in the area of students with disabilities.

Sincerely,

Marco Muñoz

Marco A. Muñoz, Ed.D.
Evaluation Specialist
Internal Review Board

APPENDIX E

SUPPLEMENTAL TABLES

Table E1

Structure and Pattern Coefficients for Teachers' Attitudes about Autism Scale (N = 267)
with Item ABI3 Omitted

Item	Factor Structure Matrix			Factor Pattern Matrix		
	F1	F2	F3	F1	F2	F3
AIE1	.649	.444	-.192	.574	.107	-.087
AIE2	.700	.458	-.192	.639	.085	-.080
AIE3	.833	.450	-.545	.788	-.042	-.421
AIE4	.270	.464	-.190	-.017	.459	-.147
AIE5	.864	.531	-.141	.834	.054	.001
AIE6	.793	.406	.164	.882	-.069	.301
AIE7	.737	.508	-.065	.672	.129	.058
AIE8	.276	.388	-.210	.054	.340	-.168
ASN1	.332	.696	.060	-.080	.753	.121
ASN2	.437	.711	.037	.062	.687	.115
ASN3	.320	.429	.021	.124	.366	.077
ASN4	.445	.669	-.226	.067	.615	-.155

(table continues)

Table E1. (continued)

Item	Factor Structure Matrix			Factor Pattern Matrix		
	F1	F2	F3	F1	F2	F3
ABI1	.566	.764	-.299	.158	.653	-.209
ABI2	.380	.525	-.139	.106	.457	-.077
ABI4	.138	.279	.081	-.015	.298	.108

Note. AIE = Inclusion/Exclusion, ASN = Supports Needed, ABI = Behavioral Issues.

Table E2

Pearson r Correlation Matrix for Independent and Dependent Variables (N = 267)

	GEN	ETH	DEG	TRAIN	WORK	EXP	CERT1	CERT2	CERT3	CERT4	LRE
GEN	--										
ETH	-.020	--									
DEG	-.081	.018	--								
TRAIN	-.196**	.119*	.097	--							
WORK	.078	-.052	.112*	.078	--						
EXP	.090	-.093	.278**	-.456**	.170*	--					
CERT1	.054	-.053	.021	.056	.256**	.007	--				
CERT2	-.015	.054	-.127*	.223**	.291**	-.076	.340**	--			
CERT3	.026	-.021	-.100	.064	.078*	-.101*	.158*	.192**	--		
CERT4	.091	-.068	-.030	-.059	.064	.024	-.182**	-.153*	-.155*	--	
LRE	-.015	-.001	-.127*	.223**	.291**	-.076	.201**	-.638**	.590**	.192**	--

(table continues)

Table E2. (continued)

	GEN	ETH	DEG	TRAIN	WORK	EXP	CERT1	CERT2	CERT3	CERT4	LRE
TYPE	.026	.119*	-.100	.064	.078	-.101*	.056	-.164**	.163**	.118	.192**
GRADE	.091	-.072	-.030	-.059	.064	.024	.051	.156**	-.130	-.148**	-.153**
GENEFF	-.30	-.034	-.102*	-.053	-.215**	-.027	.005	-.054	-.002	.011	.002
PEREFF	.014*	-.037	.076	-.024	.242**	.051	-.001	.021	.007	.026	.004
TB-CS	-.060	.082	.057	.063	.248**	-.008	.071	-.044	.088	-.018	.063
TB-AS	-.059	.152**	.078	.057	.214**	-.024	.015	-.056	.053	-.011	-.012
TB-ATS	.020	-.080	-.014	.039	.312**	.129*	.133*	-.156**	.176**	.009	.142**
TB-CWS	-.063	.075	.049	.028	.138*	.017	.026	-.016	.012	.022	-.002
AE	.039	-.042	-.019	.108*	.191**	-.088	.077	-.053	.077	-.020	.123*
AS	.091	-.030	-.015	.030	.235**	-.039	.169**	-.076	.045	-.030	.086
AF	-.026	.009	.042	.097	.140*	-.016	.066	-.097	.166*	-.054	.085

(table continues)

Table E2. (continued)

	TYPE	GRADE	GENEFF	PEREFF	TB-CS	TB-AS	TB-ATS	TB-CWS	AE	AS	AF
TYPE	--										
GRADE	-.155**	--									
GENEFF	-.060	-.085	--								
PEREFF	-.042	.181**	-.413**	--							
TB-CS	.051	.004	-.423**	.294**	--						
TB-AS	.031	-.028	-.260**	.261**	.327**	--					
TB-ATS	-.067	.127*	-.445**	.359**	.453**	.297**	--				
TB-CWS	-.027	.037	-.331**	.262**	.697**	.398**	.457*	--			
AE	-.036	.083	-.413**	.336**	.286**	.128*	.457**	.274**	--		
AS	-.021	.108*	-.499**	.365**	.445**	.224**	.564**	.437**	.717**	--	
AF	.016	.011	-.195**	.146*	.225**	.119*	.292**	.086	.132*	.239**	--

Note. Variable label codes listed in Table 22.

* $p < .05$. ** $p < .$

CURRICULUM VITAE

Name: Joshua Benjamin Skuller

Address: Jefferson County Public Schools OT/PT Department
546 South 1st Street.
Louisville, KY 40202

DOB: Columbus, OH - March 6, 1979

Education
& Training: B.S., Occupational Therapy
Spalding University
1997-2001

M.Ed., Special Education
University of Louisville
2001-2002

Ph.D., Curriculum and Instruction
University of Louisville
2002-2011

Employment Experiences:

October 2008- Present: PRN Occupational Therapist from Kosair Charities Pediatric Convalescent Center at the Home of the Innocents.

July 2005- Present: Occupational Therapist for ECE department in Jefferson County Public Schools.

June 2005: Taught EDSP 594: Problems and Methods of Teaching Individuals with Physical, Health Related, and Multiple Disabilities at the University of Louisville as a part of doctoral internship.

August 2001- May 2005: Employed as a multiple disability teacher (low incidence) at Stonestreet Elementary School in Louisville, Kentucky where I was the ECE team leader for my last two years.

Lecture Experiences:

November 2009: Guest lectured on cognitive perceptual problems: identification of the role of the primary care practitioner for Myra Goldman's Special Topics for Nurse Practitioner course at the University of Louisville.

November 2007: Guest lectured on sensory processing needs of students in the classroom as well as demonstrated adaptive equipment to Darlene Hilsenbeck's EDSP 637 class at the University of Louisville.

October 2006: Guest lectured about occupational therapy services in the school setting to Sherri Moore's EDSP 594 class at the University of Louisville.

March 2006: Guest lectured about assistive devices and the role of the occupational therapist in the school setting to Sherri Moore's EDSP 594 classes at the University of Louisville.

January 2006: Guest lectured about developing a working relationship with teachers in the classroom to Jeff Lederer's OT 520 class at Spalding University.

June 2004: Guest lectured about alternate assessment and alternate portfolios in Karen Ender's EDSP 594 class at the University of Louisville.

May 2004: Guest lectured about teaching and modifying curriculum to students with moderate/severe disabilities to Dr. Moore's EDSP 540 class at the University of Louisville.

March 2004: Guest lectured about teaching and modifying curriculum to students with moderate/severe disabilities to Mary Ryan's EDSP 540 class at the University of Louisville.

March 2004: Conducted a faculty meeting at Stonestreet Elementary on the importance of inclusion and helping to prepare students for success in their alternate portfolio.

Student Supervision Experience:

October-January 2011: Level II OTR student from Spalding University.

February-April 2010: Level II OTR student from Spalding University.

February- April 2009: Level II OTR student from Spalding University.

March –May 2008: Level II OTA student from Jefferson Community College.

October-December 2007: Level II OTR student from Spalding University.