

ABSTRACT

Examination of the Effect of Professional Development on the Attitudes of Pre-service Teachers Regarding Inclusion of Students with Autism

Angela Kristine Ward, Ph.D.

Committee Chair: Julie Ivey-Hatz, Ph.D.

An experimental design was conducted to examine the change in mean scores of pre-service teachers after targeted professional development. A two-factor repeated measures design was used with professional development as the independent variable and raw scores on The Teacher Attitudes Toward Inclusion Scale (TATIS) as the dependent variable. A total of 65 participants responded to four administrations of the TATIS. Professional development targeting the characteristics of autism spectrum disorders and teaching strategies demonstrated to be effective in the literature was provided to a random sample of the participants. Results demonstrate a change in raw scores of participants in the experimental group following professional development. The scores of the participants in the control group remained constant across administrations of the TATIS. Significant differences were noted when comparing groups of participants specifically between participants majoring in secondary education and those majoring in special education.

Examination of the Effect of Professional Development on the Attitudes of
Pre-Service Teachers Regarding Inclusion of Students with Autism

By

Angela Kristine Ward B.S, M.S.Ed.

A Dissertation

Approved by the Department of Educational Psychology

Marley Watkins, Ph.D., Chairperson

Submitted to the Graduate Faculty of
Baylor University in Partial Fulfillment of the
Requirements for the Degree
of
Doctor of Philosophy

Approved by the Dissertation Committee

Julie Ivey-Hatz, Ph.D., Chairperson

Susan Johnsen, Ph.D.

Alex Beaujean, Ph.D.

Sandi Cooper, Ph.D.

Joyce Nuner, Ph.D.

Accepted by the Graduate School
May 2012

J. Larry Lyon, Ph.D., Dean

Copyright © by Angela Kristine Ward

All rights reserved

TABLE OF CONTENTS

List of Figures	vi
List of Tables	vii
List of Abbreviations	viii
Glossary	ix
Acknowledgments	xi
Dedication	xii
CHAPTER 1: INTRODUCTION OF THE STUDY	1
Nature of the Problem	1
Background and Significance of the Problem	2
Problem Statement	6
Research Question	7
Glossary	8
CHAPTER 2: REVIEW OF THE LITERATURE	10
Theoretical Framework	10
Bandura's Social Cognitive Theory	10
In-Service Teachers' Self-Efficacy	13
Pre-Service Teachers' Self-Efficacy and Attitudes	15
Inclusion	16
History of Inclusion	17
Benefits of Inclusion	19
In-Service Teachers' Attitude Regarding Inclusion	21
Pre-Service Teachers' Attitude Regarding Inclusion	24
Autism Spectrum Disorders	26
Prevalence of Autism Spectrum Disorders in Texas	28
Professional Development and Attitude	29
Professional Development and Attitudes of Pre-Service Teachers	31
Conclusion	34
CHAPTER 3: METHODS	35
Research Design	35
Participants	36
Instrument	38
Intervention	39
Procedures	41
Data Analyses	45

CHAPTER 4: RESULTS	46
Participants	46
Assumptions	49
The Influence of Professional Development on Participants' Attitudes	53
CHAPTER 5: DISCUSSION	58
Implications	62
Limitations	63
Future Research	65
Conclusion	67
APPENDICES	
Appendix A: Teacher Attitude Toward Autism Scale	70
Appendix B: Informed Consent to Participate in a Research Study	73
Appendix C: Demographics Questionnaire	75
Appendix D: Outline of Professional Development	76
REFERENCES	78

LIST OF FIGURES

Figure 1: Q-Q Plot TATIS 1	50
Figure 2: Q-Q Plot TATIS 2	51
Figure 3: Q-Q Plot TATIS 3	51
Figure 4: Q-Q Plot TATIS 4	52
Figure 5: Estimated Marginal Means of TATIS Administration	55

LIST OF TABLES

Table 1: Professional Development Schedule	43
Table 2: Administration Schedule of TATIS and Professional Development	44
Table 3: Participant's Major	47
Table 4: Participant Major Within Treatment Group	47
Table 5: Age of Participants	48
Table 6: Participant's Age Distribution	48
Table 7: Experience Working with Students with Disabilities	48
Table 8: Exposure to Students with Disabilities	48
Table 9: Normality of Data	50
Table 10: Kolmogorov-Smirnov Test of Normality	52
Table 11: Levene's Test for Homogeneity of Variance	52
Table 12: Mauchly's Test for Sphericity	53
Table 13: Comparison Means and SD across Administration of TATIS	54
Table 14: Tests of Within Subject Effects	55
Table 15: Tests of Between Subject Effects	56

LIST OF ABBREVIATIONS

Individuals with Disabilities Education Act (IDEA)	1
Autism Spectrum Disorders (ASD)	2
Centers for Disease Control (CDC)	3
Texas Education Agency (TEA)	3
Admission, Review, and Dismissal (ARD)	16
Least Restrictive Environment (LRE)	17
Free and Appropriate Public Education (FAPE)	18
No Child Left Behind (NCLB)	19
United States Department of Education (USDOE)	19
United States Department of Education, Office of Special Education and Rehabilitative Services	23
Diagnostic and Statistical Manual (4 th Edition) (DSM-IV)	27
Local Education Agency (LEA)	29
Individual Education Plan (IEP)	34

GLOSSARY

- Autism Spectrum Disorders – (ASD), a group of developmental disorders that share common social, communicative, and stereotyped and ritualistic behavioral similarities, varying in age of onset and severity of symptoms (McLeskey, et al., 2010, p 441)
- Highly qualified – must hold at least a bachelor’s degree, be fully certified to teach in Texas, and demonstrate competency in their core academic subject area
- Inclusion – Students with disabilities are valued and included in the school community. Students with disabilities are active members in academic and social aspects of general education classroom
- Individuals with Disabilities Education Act (IDEA) – federal legislation that ensures all children and youths with disabilities have the right to a free, appropriate public education
- Least restrictive environment – requirement of IDEA referring to the placement of students with exceptionalities. General education settings must be considered and students with disabilities educated with non-disabled peers to the maximum extent possible
- No Child Left Behind – federal legislation requiring states assess student performance in math, reading, and science; provide for highly qualified teachers; provide public school choice to students attending schools which don’t meet federal guidelines for adequate yearly progress

- Resource classroom – A separate classroom in which students with special education services may be taught for part of the educational day
- Self-contained classroom – A separate classroom in which students with more significant disabilities are taught for most or all of the educational day
- Texas Essential Knowledge and Skills (TEKS) – Texas state mandated curriculum

ACKNOWLEDGMENTS

Many people have contributed to the completion of this project and are deserving of gratitude. Thank you Julie Ivey-Hatz, my chair, for allowing me to be your first project to chair. The task is never easy and full of responsibilities. I appreciate all you did to organize the process and bring this journey to fruition.

My committee members, Dr. Susan Johnsen, Dr. Joyce Nuner, Dr. Alex Beaujean, and Dr. Sandi Cooper, have each contributed their expertise to develop a quality product. Thank you for reading each version of the dissertation and recommending revisions that would make it a better paper. I can only imagine the time it takes beyond your typical responsibilities to participate in a dissertation project. Thank you for your time and dedication given for my benefit.

Much appreciation is given to the Department of Educational Psychology faculty members. Each professor offered courses pertinent to the final leg of the doctoral journey. Each course built upon the previous one in order to build a solid foundation upon which students may frame their dissertation work.

Finally, thank you to the leadership in the Department of Educational Psychology who distribute scholarship funds. These monies have provided the means for me and many colleagues to pursue our goals. Without the generous gifts of scholarship funds this project would never have been attempted or finished.

DEDICATION

To my wonderful family,

To my husband, Rodney, thank you for your continued love and support. I could not have taken this ride without your willingness to assume so many family responsibilities. More importantly, I appreciate your belief in my ability to pursue this goal.

A special thanks is due to my wonderful children, Shane, Casey, and Madyson, for your patience and support over the last few years while I was in school.

Finally, thank you to my parents for raising me to have high standards and set lofty goals. You have been a blessing to me throughout this process.

CHAPTER ONE

Introduction

Nature of the Problem

Children with autism are educated in a general education setting with greater frequency than has been seen in history (Park, Chitiyo, & Choi, 2010). The influx of children in general education settings is due primarily to the Individuals with Disabilities Education Act (IDEA, 1994) mandating students to be educated with non-disabled peers to the extent practicable. However, students with autism present specific challenges to teachers who have not been adequately prepared or trained to meet the unique learning demands of a student with such disorders. Lack of training could impact a teacher's sense of self-efficacy in regard to reaching students with autism and other developmental disabilities. Undoubtedly, lack of self-efficacy regarding educating a child with autism could have a significant impact on a teacher's attitude toward the student. It is believed that "the attitude of the teacher can have a direct influence on the successful inclusion of children with disabilities" (Combs, Elliott, & Whipple, 2010, pp. 114).

Pre-service teachers represent the future of public and private school educators. The populations of pre-service teachers include those students who have declared an education major at a college or university and are learning to be either general or special education teachers. It is the intention of a university training program to present the learner with several opportunities to experience all that is required to be an effective teacher, including opportunities to work with children with disabilities. Unfortunately, coursework specific to disabilities is generally limited to a single course on

exceptionalities. Historically, each week the course focuses on one of the 13 categorical labels required for special education support and services. Additionally, most universities require students to participate in course work, with field experiences related to their chosen major, prior to their last semester of college, at which time the students engage in a semester of student teaching. Student teaching is an intense semester in which students apply much of what has been learned throughout the last few years of school in public school classrooms under the direction of field supervisors. Field experiences and student teaching placements are determined by the students' declared majors. By this point in their education, students have formed opinions about many social and educational issues they anticipate facing once they have completed their education including educating students with autism and other developmental disabilities. Sometimes opinions are formed based on prior direct experience with a person with a disability, which is generalized to a population. Other opinions form simply from ignorance about disabilities. A problem occurs when opinions about teaching students with autism and developmental disabilities affects a person's self-efficacy about whether they can teach the student with disabilities effectively or not (Gibson & Dembo, 1984). The opinions and attitudes of pre-service teachers need to be examined in light of minimal experience during their pre-service training and subsequent professional development offered.

Background and Significance of the Problem

Autism Spectrum Disorders (ASD) are neurodevelopmental disorders often termed a 'triad of impairment' (Wing, 1997) affecting three main areas: stereotypic behaviors, communication deficits, and social impairments. The American Academy of

Pediatrics indicates one in 91 children ages 3-17 are within the autism spectrum (Kogen et al., 2009). In 2007 The Centers for Disease Control (CDC) estimated the prevalence of autism to be one in 150 representing about .75% of the population. Most recently, the American Journal of Psychiatry published a study citing the prevalence of autism to be 2.64% of the population (Kim et al., 2011). As the numbers of children affected with an ASD increases, so does the number of children served by special education in public school across the country (Odom, Brown, Frey, Karasu, Smith-Canter, & Strain, 2003).

Texas is following national trends as indicated by recent data distributed by the Texas Education Agency (TEA). In 2010 there were 29,536 children in Texas with a primary disability of autism. Of those, 11,704 children were in self-contained classrooms, meaning that more than 50% of their day occurred within a more restrictive environment. Restrictive environment refers to the accessibility a student has to non-disabled peers. In this example, the indicated population spends more than 50% of the school day with student with varying disabilities rather than with peers without disabilities. This is in comparison to the 10,346 children who were served in a resource classroom for less than 3 hours per day, and 5,082 children who were served in a general education setting (TEA, 2011). Nine years earlier, in 2001, the TEA reported 7,156 children with a primary disability of autism. Of those children, 4,099 were served in self-contained classrooms, 1,861 in resource classrooms, and 515 in general education classes. The number of children participating in inclusionary and resource settings in 2008 represents a 78% increase in the number of children with autism in general education classrooms as compared to the 2001 reports.

The marked increase in general education participation is primarily due to Public Law 94-142, now known as the Individuals with Disabilities Education Act (IDEA). This law states:

to the maximum extent appropriate, handicapped children, including those children in public and private institutions or other care facilities, are educated with children who are not handicapped, and that special classes, separate schooling, or other removal of handicapped children from the regular educational environment occurs only when the nature or severity of the handicap is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily (P.L. 94-142, Section 1412 [5] [B]).

The demands of IDEA stipulate that children with disabilities are to be served in the least restrictive environment where students have the greatest access to grade level curriculum from content teachers using scientifically based strategies (Odom et. al, 2003). This practice is often referred to as inclusion. Inclusion builds relationships with peers and promotes emotional, social, and cognitive development and is evidenced in most developed countries (Yianni-Coudurier et. al., 2008).

Despite the known benefits and widespread practice of inclusion, teachers express great concerns about mainstreaming students with disabilities (Jull, 2006). Some teachers question the development of children with disabilities in a general education setting (Yianni-Coudurier et al., 2008). Teachers in all subject and content areas report feelings of inadequacy with regard to teaching students with disabilities and experience frustration along with the student and the family. Teachers experience apprehension and concern within the community of school regarding including students with disabilities in the general education classroom (Harding, 2009). A survey by Agbenyega (2007) revealed three themes related to including students with disabilities in the regular

classroom. The first theme involved a general belief about inclusion. Results indicated teachers did not think students with sensory impairments and other disabilities belong in the regular school setting. One participant commented, “With usual students you do not have to waste too much time supporting and guiding them...we do not believe this is going to work. It is better if they remain in the special schools” (Agbenyega, 2007, p. 51). The second theme to arise was regarding professional issues. Teachers did not believe they possessed the knowledge and skills necessary to adequately teach students with disabilities. One teacher commented, “How do the policy makers expect us to work with students that we have not been trained for?” (Agbenyega, 2007, p. 51). The third theme concerned resource issues including space concerns, accessibility, and material shortages.

The myriad of concerns expressed by teachers regarding inclusion of students with autism in a general education classroom would undoubtedly affect the attitude of the teacher. Harding (2009) investigated teacher attitudes about inclusion and identified four attitudes having a direct impact on how the teacher would react to the student and further, accept him into the classroom. Those attitudes are attachment, concern, indifference, and rejection, defined as unwillingness. The teacher’s perception of the children’s ability to control their own behavior dictated which attitude they possessed and their willingness to accept a child as a member of the class. Rose and Smith (1992) report 57.9% of respondents on a national survey indicated attitudes and values are a “disincentive or prohibition” (p. 6) to the placement of preschoolers with disabilities in a general education classroom. Poor attitudes ranked second to personnel training and standards on the survey. Avramidis, Bayliss, and Burden (2000) surveyed experienced teachers and

discovered several factors to affect teacher attitudes including self-confidence and professional training. Teachers who possessed greater confidence in their skills and those who had received significant pre-service or in-service training demonstrated more positive attitudes toward inclusion. Clearly a teacher's previous training and concern about students with disabilities in the classroom can impact the quality of the education a student receives (Agbenyega, 2007).

Problem Statement

One factor affecting teacher attitude is professional development and training. The general problem is that pre-service teachers who are certified to teach in general education classrooms have had minimal experience working with children with disabilities, specifically autism. The specific problem is that, despite limited experience of pre-service teachers, attitudes and beliefs about their abilities to teach children with autism have formed. The current study will address concerns regarding the attitude of pre-service general education teachers who must effectively include students with autism into the general education setting, not just to fulfill a requirement, but as participating members with educational demands and expectations. This study evaluated pre-service teacher's attitude about inclusion of children with disabilities, specifically autism, in a general education classroom before and after targeted professional development about autism spectrum disorders.

Research Question

The following research question was examined: Do the group means of pre-service teachers' attitudes improve following targeted professional development about inclusion of students with autism?

Glossary

- Autism Spectrum Disorders – (ASD), a group of developmental disorders that share common social, communicative, and stereotyped and ritualistic behavioral similarities, varying in age of onset and severity of symptoms (McLeskey, et al., 2010, p 441)
- Highly qualified – must hold at least a bachelor’s degree, be fully certified to teach in Texas, and demonstrate competency in their core academic subject area
- Inclusion – Students with disabilities are valued and included in the school community. Students with disabilities are active members in academic and social aspects of general education classroom
- Individuals with Disabilities Education Act (IDEA) – federal legislation that ensures all children and youths with disabilities have the right to a free, appropriate public education
- Least restrictive environment – requirement of IDEA referring to the placement of students with exceptionalities. General education settings must be considered and students with disabilities educated with non-disabled peers to the maximum extent possible
- No Child Left Behind – federal legislation requiring states assess student performance in math, reading, and science; provide for highly qualified teachers; provide public school choice to students attending schools which don’t meet federal guidelines for adequate yearly progress
- Resource classroom – A separate classroom in which students with special education services may be taught for part of the educational day

- Self-contained classroom – A separate classroom in which students with more significant disabilities are taught for most or all of the educational day
- Texas Essential Knowledge and Skills (TEKS) – Texas state mandated curriculum

CHAPTER TWO

Review of the Literature

The following literature review examined research conducted in the field of education regarding the attitudes formed by pre-service teachers about the inclusion of students with autism and developmental disabilities in general education classrooms. Additionally, the attitudes of in-service teachers who already formed opinions regarding the inclusion of children with autism in general education classrooms were examined. The study relied upon Bandura's concepts of self-efficacy as the theoretical framework. Research of in-service and pre-service teacher's self-efficacy was reviewed. A thorough discussion about inclusion, including the historical development of inclusion and benefits of inclusion will follow. In-service and pre-service teacher's attitudes about inclusion were included in the review. Inclusion involves students with many disabilities; however, this study specifically addressed autism spectrum disorders (ASD). As such, a review of the literature about autism was discussed. Finally, the role of targeted professional development as it relates to affecting pre-service teacher's self-efficacy concluded the literature review.

Theoretical Framework: *Bandura's Social Cognitive Theory*

Bandura began his theory formation in the late 1950s with the publication of *Adolescent Aggression* (Bandura & Walters, 1959). The framework of social learning theory at the time centered on principles of psychoanalytic and learning theories (Grusec, 1992). Bandura's second book quickly excluded the influence of psychoanalytic ideas

and shifted to a more behavioral concept. Though behaviorism indeed influenced Social Learning Theory, Bandura denied such reliance on conditioning to change behaviors and placed greater emphasis on the role of modeling, inviting information processing concepts into the theory formation. The role of imitation and the process of cognition so influenced the theory, that in 1980 Bandura renamed Social Learning Theory to Social Cognitive Theory. Imitation became the central theme of the theory. Bandura recognized that novel behavior did not always occur in the presence of the model. Therefore reinforcement could not serve as the explanation of the behavior change. The main tenet of Social Cognitive Theory rests in the manner in which humans cognitively process social situations and in turn alter personal behaviors as a result of the social experience (Bandura, 1977b).

Bandura began studying phobic behaviors and the role participant models played in correcting such phobias in the late 1970s (Grusec, 1992). More recently researchers have suggested self-efficacy affects a person's attitudes and beliefs (Berry, 2010; Lifshitz et al., 2004). The self-efficacy and ultimately the attitude of a teacher will have a significant impact on the education of a student with a disability. The concept of self-efficacy arose from the treatment of phobias and refers to a belief that one can perform a task effectively (Van Der Roest, Kleiner, & Kleiner, 2011). More specifically, people form beliefs about their ability to perform a task within a certain domain which in turn influences the person's willingness to try the task and further, the amount of effort extended toward the task (Bandura, 1977a). Performance beliefs about a behavior, or behavior change, occur through a cognitive process. Learning occurs through successful performance of the task. A person's belief that he or she can successfully perform the

task will be dependent on past successful attempts of the task. Thus, self-efficacy theorists determined to separate the person's existing abilities from an anticipated specific behavior and a realized specific outcome. A person maintains efficacy expectations regarding a specific behavior. Efficacy expectation is the belief that one can successfully achieve the behavior necessary to elicit a certain outcome. Secondary to efficacy expectations are outcome expectations, which are estimates that a specific behavior will produce an expected result (Bandura, 1977b). A person must have high levels of efficacy expectation before he or she will even attempt a behavior.

Self-efficacy is developed through multiple sources, as described by Bandura. He suggests people develop self-efficacy through performance accomplishments (Bandura, 1977a). By participating and achieving success in an activity, a person develops self-efficacy. Bandura (1977b) suggests performance accomplishments may be attained through participant modeling, performance desensitization, performance exposure, and self-instructed performance. Self-efficacy can also be developed through vicarious experience by way of live modeling and symbolic modeling. Verbal persuasion through suggestion, exhortation, self-instruction, and interpretive treatments also increases self-efficacy. Finally, self-efficacy is affected through emotional arousal by way of attribution, relaxation, symbolic desensitization, and symbolic exposure. Performance accomplishments are generally the most effective means to enhance self-efficacy followed by vicarious experiences and modeling (Sims & Lorenzi, 1992).

Armor et al.(1976) and Berman and McLaughlin (1977) illustrated the effect teachers' beliefs had on their capabilities to instruct diverse students effectively. Berman and McLaughlin (1977) found self-efficacy to be the most important characteristic to

effect change in student learning. Armor et al. (1976) examined the selection of a reading program within a particular school district. Again, a teacher's sense of self-efficacy determined with greater magnitude which reading program would be implemented in the schools. Gibson and Dembo (1984) expanded on Bandura's theory of self-efficacy to develop a construct which specifically addressed teachers' sense of self-efficacy in the classroom. Through a series of three phases, Gibson and Dembo aligned teacher's self-efficacy with Bandura's theory of self-efficacy. Bandura (1977a) described outcome expectancy as the belief that a certain behavior will lead to a certain outcome. Gibson and Dembo (1984) equated Bandura's concept to the relationship between a behavior and an outcome as teaching efficacy. Teaching efficacy is the belief a teacher holds that the environment can be controlled in order that students can be taught. Teaching efficacy is further described as a belief that external circumstances such as socio-economic status, parental involvement, and intelligence quotient can be overcome with persistence and effort on behalf of the teacher. Secondly, Bandura (1977a) described personal efficacy as a belief that one can perform the behaviors necessary to achieve a certain outcome. Gibson and Dembo (1984) equate this with a concept entitled personal teaching efficacy. Personal teaching efficacy is the belief that the teacher has the abilities necessary to facilitate positive change in student learning.

In-Service Teacher's Self-Efficacy

The behaviors adopted by teachers and their decision-making practices are governed by the teacher's level of self-efficacy (Almog & Shechtman, 2007). A high level of teacher self-efficacy has been shown to affect many domains within the school environment for general educators. High self-efficacy has positive correlations to

increased academic success, increased dedication from the teacher, and reduced numbers of referrals for special education services (Viel-Ruma et al., 2010). High rates of self-efficacy also inversely correlate with reports of burnout in the classroom (Friedman, 2003).

Teachers with positive attitudes generally have high levels of self-efficacy with high beliefs that they have the ability to teach a student with a disability (Berry, 2010; Lifshitz et al., 2004). Soodak and Podell (1993) suggest high levels of teacher self-efficacy result in initial student placement in a general education classroom rather than a more restricted environment. To the contrary, teachers with lower sense of self-efficacy believe students with disabilities should not be educated in the general education classroom as they may reduce the learning of other students (Lopes et al., 2004).

Other research has shown the difference efficacy contributes to the attribution of student problems. Teachers with high rates of self-efficacy attribute student problems to the environment as opposed to those with lower rates of self-efficacy who attribute the problems experienced by the student to the teacher themselves (Brophy & McCaslin, 1992; Jordan et al., 1993).

Self-efficacy also has an impact on the special educator. Special education teachers with higher rates of self-efficacy plan for instructional practices at a greater rate and are more organized (Allinder, 1994). Viel-Ruma et al. (2010) conducted a study to examine the relationship between self-efficacy and job satisfaction among special education teachers. The authors surmised that since self-efficacy has been shown in research to be a predictor of job satisfaction for general educators, the relationship may

exist for special educators as well. In fact, results indicated a significant relationship between self-efficacy and job satisfaction among special education teachers.

Almog and Shechtman (2007) conducted a study to examine the relationship between efficacy and coping style identified by the use of helpful responses to special education students with behavior problems. The study involved 33 general education teachers in Israel with three to five students with special needs in each classroom. Each teacher completed a questionnaire regarding his or her self-efficacy given a learning context. They also participated in interviews in which vignettes were provided depicting hypothetical settings. Finally, the teachers were observed in their classrooms to view actual responses to problem behaviors. Results indicated that teachers with higher rates of self-efficacy tended to use helpful responses and strategies during hypothetical situations in all types of incidents except when students are at risk of failure. In regards to actual classroom settings, results yielded positive correlations between high rates of efficacy and helpful responses given to students regarding impulsiveness and passive-aggressive behaviors.

Pre-Service Teachers' Self-Efficacy and Attitude

A sense of self-efficacy is developed throughout the training period for pre-service teachers. Lin, Gorrell, and Taylor (2002) studied American pre-service teachers and determined between the beginning and end of their training, their self-efficacy increased. Additional research has demonstrated the link between self-efficacy and attitude. Berry (2010) conducted a study to examine the role of self-efficacy in the developing attitude of a pre-service teacher. Results supported previous studies by Carroll et al. (2003) and Taylor and Sobel (2001) indicating a lack of confidence in their

abilities to teach in an inclusive environment. More specifically, Berry demonstrated positive attitudes among pre-service teachers but inexperience and lack of knowledge led to anxiety and worry about including students with disabilities. Berry (2010) concluded the study with suggestions to increase pre-service teachers' self-efficacy by illustrating previous successes pre-service teachers had in using effective teaching strategies with students in general education.

Inclusion

The placement of a student with a disability in an educational setting is made by the Admissions, Review, and Dismissal (ARD) committee formed to make decisions regarding the education of the student with a disability. The ARD committee includes the parent of the student, a general education teacher if the child is served in general education, a special education teacher, a representative of the school district, someone able to interpret evaluation data, other related experts as necessary, and when appropriate, the student (Texas Administrative Code, Rule 89. 1050).

Among the many responsibilities of the ARD committee, one includes determining the best place in which the student will be educated. The Individuals with Disabilities Act (IDEA) has specific guidelines by which ARD committees must make a placement decision. IDEA refers to placement of a student with a disability in the Least Restrictive Environment (LRE) defined as, "a strong preference, not a mandate, for educating children with disabilities in regular classes alongside their peers without disabilities" (71 Fed. Reg. 46585). Further explanation is as follows:

- (i) To the maximum extent appropriate, children with disabilities, including children in public or private institutions or other care facilities, are educated with children who are nondisabled; and
- (ii) Special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only if the nature or severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily [§300. 114(a)].

History of Inclusion

The concept of inclusion is relatively new. Persons with developmental disabilities have experienced a wide range of educational and treatment options ranging from institutionalization to what are seen in the classrooms today. Popular opinion during the late 19th century through the mid-20th century maintained a facilities-based orientation toward people with disabilities (Beirne-Smith, Patton & Kim, 2006). Segregation was considered the only viable option to discontinue the perpetuation of the gene pool responsible for creating individuals with such abnormalities. It was thought that by segregating men and women during childbearing years then the chance of producing “feebleminded” children would be diminished.

These thoughts prevailed through the beginning of the 20th century when the testing movement began and ultimately changed the opinion of the people. Binet and Simon developed an intelligence test in France to screen for children who might benefit from instruction specifically designed to meet their unique educational needs. The test was eventually translated into English by Goddard in 1911 and refined by Terman in 1916 opening the door for broader ideals regarding the education of children with disabilities.

The next several decades prompted many opportunities to view people with developmental disabilities in a more appropriate manner. Special education became a

recognized profession in 1922 when an international organization aimed at the education of children with disabilities was formed. The organization is now known as the Council for Exceptional Children. As time progressed through the middle of the century, schools adopted a service-based orientation for children with disabilities. The thought was to provide children with skills necessary to transition from public schools to independent living. It was during this time period that self-contained classrooms were developed as well as a continuum of services offered to children with disabilities. The continuum included self-contained classes as well as resource classrooms and sheltered workshops. Public Law 94-142 passed in 1975 ensuring the right of a free and appropriate public education (FAPE) to children with disabilities. Most children with mental retardation spent at least half of their school day in self-contained classrooms and the other half in general education settings. However, placement in the general education setting was primarily limited to the physical placement in the classroom as opposed to content-related instruction.

The mid-80s turned the focus to a supports-based model with high content oriented expectations for students with disabilities. The new model promoted including children with disabilities in the general education setting with the supports necessary for an appropriate education. This high expectation was further expressed in the Individuals with Disabilities Education Act (1990, 1997, 2004), which strengthened the demands for inclusion of children with disabilities. The primary concern of inclusion is to bring necessary assistance to the general classroom rather than removing the child from his same age peers to accommodate for his special education needs (Kilanowski-Press, Foote & Rinaldo, 2010).

The purpose of inclusion is not only systemic; it is also to allow for all students to participate in activities of value (Reindal, 2010) thus creating a secondary purpose of inclusion. The No Child Left Behind Act (NCLB; U. S. Department of Education [USDOE], 2002) requires teachers to be highly qualified in their respective content areas (Kilanowski-Press, et al., 2010). Consequently, many special education teachers do not meet the expectations of the act simply due to their teacher certification. Most special education teachers hold general special education certifications without specializations in a content area. Therefore, students identified as needing special education services must be instructed by a teacher who maintains highly qualified status in that particular content. This demands students with disabilities to be placed in general education settings for content courses when the special educators are not content certified. Ideally, a special educator will also be assigned to the specific content course to collaborate with the general education teacher furthering the possibility for success of the student with special needs.

Benefits of Inclusion

Despite the concerns expressed by teachers regarding the practice of inclusion, much research has been conducted regarding the success of inclusionary practices (McLeskey, Rosenberg, & Westling, 2010). Benefits of inclusion affect children with and without disabilities. Students with disabilities demonstrate benefits in the areas of behavior and social skills. Behavioral benefits include reduction in stereotypical behaviors, increase in self-help skills, acceptance of transition and routine disruptions, and independence (Eldar, Talmor, & Wolf-Zukerman, 2010). Children with disabilities make great strides socially when fully included in a general education setting

demonstrating increased engagement, more developed skills in forming friendships, and give and receive greater social supports (Eldar et. al., 2010). Research has shown that students with disabilities increase self-esteem, contribute to the development of friendships, and increase social status among peers in inclusive classrooms (Boutot & Bryant, 2005; Freeman & Alkin, 2000; Salend & Duhaney, 1999). Sun (2007) reported greater likelihood of a student with special needs living independently if they engage more frequently in general educational settings as opposed to pull-out programs.

Students without disabilities benefit from inclusion through gaining acceptance of differences among peers, greater understanding of disabilities, feel personal self-worth gained from helping others, and reciprocate friendships with students with disabilities (Boutot & Bryant, 2005; Burstein, Sears, Wilcoxon, Cabello, & Spagna, 2004; Galucci & Schwartz, 2004; Salend & Duhaney, 1999). Jones (2007) conducted a qualitative study specifically focusing on typically developing students selected to be peer tutors for children with autism. The children were interviewed following the study. Many personal benefits were gained by the peer tutors including, “a better understanding of autism, feel good about themselves, more responsible, recognize how lucky they are and not to take things for granted” (p. 6). Other research has described the benefits of improving work habits, self-confidence, on-task behavior, and risk taking activities due to the inclusion of students with special needs (Dore, Dion, Wagner, & Brunet, 2002; Foreman, Arthur-Kelly, Pascoe, & King, 2004; Waldron, McLeskey, & Pacchiano, 1999).

A great concern among many educators and administrators is the impact inclusion would have on high stakes testing results. Idol (2006) evaluated eight schools in a southwestern city to examine whether inclusion was occurring in each of the schools and

to what extent inclusion impacted test scores as well as other factors. Results indicated that at three of the four elementary campuses examined, test scores increased over a period of four years. The fourth school had one grade level's scores remain the same over the four-year time period. Similar results were noticed on the secondary campuses included in the study.

In-Service Teachers' Attitudes Regarding Inclusion

The literature describes many models of inclusion including co-teaching whereby a general educator and a special educator share the responsibilities of teaching (McLeskey et al., 2010). In other instances the special educator may serve a consultative role. The focus of inclusion and its success, however, does not rest on the model by which a teacher subscribes. Inclusion's success is more about the attitudes regarding student learning held by each of the many contributing parties involved in the school process (Kilanowski-Press et. al, 2010). Key members contributing to the success and failure of inclusion include the student, the parents, administrators serving on the campus as well as in higher administrative positions, general and special education teachers, paraprofessionals, and support professionals including related services and specialized professionals such as music and physical education teachers. Each member of the team brings a predetermined set of beliefs and attitudes regarding how best to educate a student with a disability (Rose & Smith, 1992).

Often considered a good predictor of behavior, teacher attitudes have long been a topic of research (Fazio & Zanna, 1978). Attitude generally refers to a person's belief about a certain topic and drives the anticipated behaviors regarding the topic (Combs et al., 2010). Ross-Hill (2009) suggests inclusion practices cannot prove successful if not

for the positive attitude of teachers. Agbenyega (2007) also reports attitudes of teachers have a direct impact not only on placement of students with disabilities but also on the materials and quality of instruction delivered to children with disabilities. A teacher's attitude will have a direct impact on the implementation of interventions known to be successful with children with disabilities such as autism (McGregor & Campbell, 2001).

Studies have yielded mixed results concerning the prevailing attitudes of teachers regarding inclusion of children with disabilities. Some research indicates teachers have high inclinations towards including children with disabilities (Hwang & Evans, 2011). Villa et al. (1996) surveyed 578 general education teachers questioning their attitude about inclusion. A positive attitude was reported in 78.8% of respondents. Data further suggest collaboration among staff members and administrative support were critical predictors of positive attitudes among general education teachers. Similar results were reported by Scruggs and Mastropieri (1996) in a much larger survey including 7,385 general education teachers. In this study, 65% of respondents indicated positive attitudes toward the concept of inclusion. Additionally, 53.4% reported a willingness to provide necessary accommodations for the various students in their classrooms who have disabilities. The positive attitudes of teachers reported in several cited studies also yield caveats to the interpretation. Some teachers express willingness to accommodate yet demonstrate their willingness is dependent upon the presenting disability, specifically emotional and behavioral problems, deafness, and severe cognitive deficits (Hwang & Evans, 2011).

Other studies have yielded less positive attitudes held by teachers regarding inclusion of students with disabilities. The U.S. Department of Education, Office of

Special Education and Rehabilitative Services (U.S. DE OSERS, 2006) investigated attitudes of general education teachers. The teachers indicated a lack of understanding and preparedness to teach students with disabilities in their general education classroom.

Rose and Smith (1992) conducted a national survey to determine if obstacles exist in the education system blocking the process of inclusion of preschool children.

Respondents included educators, parents, and administrators. Participants were requested to identify from a list of potential barriers, hindrances to placing children with disabilities in general education settings. The number one hindrance identified in the survey was personnel training and standards. The number two hindrance was values and attitudes. Further examination of the respondents revealed 65% of local special education directors and 100% of parents replied attitudes and values to be a contributing barrier to general education placement. Respondents were further requested to identify the attitude barriers. Turf issues were cited by 29% of the participants. Teacher preparedness was cited by 28% of participants.

Additional research studies have reported various causes of negative attitudes of teachers regarding the inclusion of children with disabilities (Beare, 1985, Norrell, 1997; Snowden, 2003). This negativity is influenced by several factors. Block and Obrusnikova (2007) and Detres (2005) cited teacher preparation/training as contributing factors toward teacher attitude. Scruggs and Mastropieri (1996) conducted a meta-analysis of studies occurring between 1958 and 1995. Analyses indicated one-third of teachers reported lack of resources, training, and skills necessary for successful inclusion thus affecting teacher attitude.

Other studies have examined the severity of the disability and comfort working with people with disabilities and found this too affected teacher negativity (Gary, 1997; Scruggs & Mastropieri, 1996). Downing (2004) and Campbell (2003) cited behavior as barriers toward successful inclusion of students with disabilities thus affecting a teacher's attitude about the inclusion of students with disabilities in the general education classroom. Robertson, Chamberlain, and Kasari (2003) examined relational issues among teachers and children with autism. Some children with disabilities, particularly autism, often have varying levels of behavioral concerns. The researchers used a Student-Teacher Relationship Scale (Pianta, 1992) to measure the relationship that exists between the teacher and the student with autism. Results indicated students with more significant behavior issues maintained lesser quality relationships with teachers. The researchers noted strained relationships existed between teachers and typically developing children who displayed behavioral problems. Eldar et al. (2010) conducted a qualitative study involving inclusion coordinators who served to transition children into general education settings. One contributing factor toward a negative attitude about inclusion was the refusal of key team members to accept the child as a contributing member of the classroom. One participant commented, "...homeroom teacher is awful. She is not emotionally available for inclusion and she gives the feeling that she should be saluted for the fact that she had even agreed to take such a child under her care" (Eldar et al., 2010, p. 105).

Pre-service Teachers' Attitudes Regarding Inclusion

The attitude of a pre-service teacher may be a good predictor of future behaviors in regards to the inclusion of a student with a disorder, specifically autism. Studies have

reported mixed results regarding the attitudes of pre-service teachers toward inclusion. Several international studies of pre-service teachers indicated poor attitudes (Alghazo, Dodeen & Alyaryouti, 2003; Ellins & Porter, 2005; Romi & Leyser, 2006; Sharma & Desai, 2003) whereas pre-service teachers in the United Kingdom indicated positive attitudes toward inclusion (Avramidis et al., 2000).

Ryan (2009) conducted a study to examine pre-service teachers' attitudes toward inclusion. Ryan defined attitude as a trait with multiple components including cognition, affect, and behavior. Cognition includes a person's beliefs and knowledge of a subject which influences affect, a person's emotional standing and behavior, and the physical actions in which a person engages. This study included students who had participated in extensive training in inclusion as part of their preparation program. Results indicated a positive attitude toward inclusion with caveats suggesting they would prefer additional training.

Park, Chitiyo, and Choi (2010) conducted research to examine the attitudes of pre-service teachers regarding the inclusion of children with autism. Results indicated the pre-service teachers maintained high positive attitudes as measured by The Autism Attitude Scale for Teachers (AAST). Further investigation revealed pre-service teachers whose majors were in special education had higher rates of positive attitude than did students whose majors were general education.

Silverman (2007) examined the relationship between pre-service teachers' attitude toward inclusion and their epistemological beliefs. Epistemological beliefs were defined as "beliefs about knowledge and learning" (Silverman, 2007, p. 43). The study included 71 pre-service teachers in master's level and undergraduate certifying programs.

Participants completed surveys measuring epistemological beliefs and attitudes toward inclusion. Results indicated strong correlations between high epistemological beliefs and high attitudes suggesting teachers with strong beliefs about learning and knowledge are more likely to persist in the process necessary to teach students with disabilities in inclusive settings.

Autism Spectrum Disorders

The prevalence of Autism Spectrum Disorders has been on the rise since 1943 when Leo Kanner first described the disorder (Kanner, 1943). At the time of initial recognition of the disorder, opinion regarding the presence of autism in an individual was different than is known today. Specialists believed autism to be categorical in nature. A person would either be diagnosed as definitely having autism or alternatively, they did not have autism (Baron-Cohen, 2008). At the time, the prevalence of autism was thought to be 4 in 10,000 people (Baron-Cohen, 2008) and was limited to what is considered classic autism. Dr. Lorna Wing refuted the categorical nature of autism and suggested classic autism to be more of a spectrum disorder and accounted for 10-20 per 10,000 individuals (Wing & Gould, 1979).

The Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV) defines autistic disorder as follows:

- A. A total of six (or more) items from (1), (2), and (3), with at least two from (1), and one each from (2) and (3):
 - (1) qualitative impairment in social interaction, as manifested by at least two of the following:
 - (a) marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction
 - (b) failure to develop peer relationships appropriate to developmental level

- (c) a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e. g., by a lack of showing, bringing, or pointing out objects of interest)
 - (d) lack of social or emotional reciprocity
- (2) qualitative impairments in communication as manifested by at least one of the following:
- (a) delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime)
 - (b) in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others
 - (c) stereotyped and repetitive use of language or idiosyncratic language
 - (d) lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level
- (3) restricted repetitive and stereotyped patterns of behavior, interests, and activities, as manifested by at least one of the following:
- (a) encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
 - (b) apparently inflexible adherence to specific, nonfunctional routines or rituals
 - (c) stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole body movements)
 - (d) persistent preoccupation with parts of objects
- B. Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years: (1) social interaction, (2) language as used in social communication, or (3) symbolic or imaginative play.
- C. The disturbance is not better accounted for by Rett's Disorder or Childhood Disintegrative Disorder. (American Psychiatric Association, 1994, Diagnostic and Statistical Manual of Mental Disorders, p. 70-71).

Research into the prevalence of autism continued through the decades with rates ever increasing. By the 2000 reporting period, the Centers for Disease Control (CDC) indicated a prevalence rate among children eight years of age to be on average 6.7 per 1,000 children. By 2006 a prevalence rate of approximately one in 110 children with an autism spectrum disorder (Rice, 2007). Most recently, a study was conducted in Korea focusing on every child in the elementary school population of a region including children without known autistic disorders and those with a high probability of having a

disorder. Results indicated a prevalence rate of 2.64% (Kim et. al., 2011). Results concluded that of the elementary students identified with an autism spectrum disorder, two-thirds were included in the typical classroom population. The children were being educated among their typical, nondisabled peers though had not been diagnosed with autism. The researchers concluded that earlier detection and assessment was crucial (Kim et. al, 2011).

Prevalence of Autism Spectrum Disorders in Texas

Texas schools have experienced the same increase in prevalence of autism spectrum disorders as has been seen in the national data. Local Education Agencies (LEAs) report to the Texas Education Agency (TEA) the numbers of children who receive special education services according to their primary eligibility category. Many children with disabilities have co-morbid conditions beyond the initial disorder. For data purposes, however, only the primary disability is reported. Texas has experienced a 313% increase in children in special education with a primary eligibility of autism. In 2001, there were 7,156 children in the state with autism. This number increased to 29,536 in 2010 (TEA, 2011). Further data analysis reveals that of the 29,536 students with autism eligibility, approximately 20% were educated in a general education classroom and not removed for more than 21% of the day. Approximately one-third was educated in a resource classroom for 21-60% of the school day and another one-third were educated in a self-contained classroom for more than 60% of the school day. The remaining 20% of children were educated in other settings including preschool programs, home, vocational programs, residential institutions, and state schools.

Professional Development and Attitude

In-service general education teachers are offered multiple opportunities to participate in professional development through their assigned district and campus, regional service centers, or through commercially designed and produced conferences. DeSimone and Parmar (2006) reported positive effects of professional development on teachers' efficacy about teaching students with learning disabilities. However, the study also revealed the limited number of training opportunities in which teachers actually participated. In a survey, 43% of general education math teachers attended fewer than three professional development training sessions. Comments from the participants suggested the sessions were not useful as they did not provide instructional strategies for teaching students with learning disabilities. Based upon this information, Kosko and Wilkins (2009) examined the correlation between number of hours of professional development and perceived self-efficacy of in-service teachers. Results indicated any amount of professional development increased perceived self-efficacy; however, at least eight hours of professional development tended to double the levels of self-efficacy. This study demonstrated the value of professional development for in-service teachers but illuminated the difficulties evident in providing sufficient development after the teacher has completed a teacher preparation program. Additionally, an increase in self-efficacy following professional development would also result in an increase in attitude as was described in the literature.

In-service teachers have little opportunity to develop positive attitudes toward inclusion of students with disabilities; therefore the education programming for pre-service teachers is the best avenue to ensuring teachers develop the attitude necessary to

effectively teach in an inclusive classroom (Sharma et al., 2006). However, teacher preparation programs generally offer limited exposure about teaching students with autism and other developmental disabilities to general education students (Sharma et al., 2008). Most schools require one course on exceptionalities to general education pre-service teachers. The course is often designed in such a way as to allot one week of instruction to each of the 13 categorical labels for special education. Research has demonstrated that training may have a direct impact on a teacher's sense of self-efficacy (Berry, 2010). Education about specific disabilities has been shown in many studies to be a constant contributing factor to the attitude of teachers toward inclusive instruction (Avramidis & Norwich, 2002; Center & Ward, 1987; Hastings & Graham, 1995; Loreman & Earle, 2007; Loreman, Forlin, & Sharma, 2007; Sharma et al., 2006; Subban & Sharma, 2006).

Jenkins and Ornelles (2007) developed a survey instrument to measure pre-service teachers' confidence in supporting students with disabilities. The survey was administered to two different groups at the University of Hawaii. Participants were either general education students or were in a dual certification program. The participants in the general education program reported significantly lower responses in all areas demonstrating lower confidence levels in working with students with disabilities. The survey was later administered to in-service teachers in Hawaii to examine levels of confidence for teaching diverse learners. The study included 827 general education and special education teachers. The researchers additionally examined confidence levels in reference to years of service with groups including zero-three, four-eight, nine-15, and greater than 16 years' experience. The results indicated years of experience did not affect

a teacher's confidence level. The researchers suggested teachers need professional development at the earliest point in their career to develop self-efficacy necessary to instruct diverse learners (Jenkins & Ornelles, 2009).

Professional Development and Attitudes of Pre-service Teachers

Training pre-service teachers in different types of disabilities as well as teaching them strategies shown to be effective for certain disability characteristics may result in a positive increase in attitude regarding inclusion (Sze, 2009). Cook (2002) conducted a study to examine pre-service teacher's attitudes regarding inclusion of children with disabilities, not specifically autism. Students in the study participated in general education coursework that infused concepts typical of special education within the content. The researcher examined the resulting effects of the infused special education concepts in general education content on the attitudes of pre-service teachers. Similar to Scruggs and Mastropieri (1996), results demonstrated attitude dependent upon the presenting disability. Additionally, participants indicated their pre-service training was not adequate to prepare them for teaching students with diversity in their classrooms.

Silverman (2007) identified training needs of pre-service teachers addressing attitudes and beliefs. Training should include collaboration between general and special educators and their respective roles, strengthening epistemological beliefs, and a manner in which to connect beliefs with needs of students with disabilities resulting in improved attitudes and greater self-efficacy. Sims and Lorenzi (1992) suggest training involving social persuasion in combination with modeling and vicarious learning to be effective in developing self-efficacy.

A search of Education Research Complete, Academic Search Complete, ERIC, Professional Development Collection, PsycARTICLES, PsycBOOKS, Psychology and Behavioral Sciences Collection, PsycINFO databases using the key words 'autism', 'professional development' and 'attitude' yielded only one research article and three dissertations. Further examination of the article and dissertations led to few additional papers regarding including students with other disabilities and pre-service teachers' attitudes.

Leblanc, Richardson, and Burns (2009) suggest an understanding about the specifics of autism is crucial given the prevalence rates reported among various institutions. Teachers working with children with autism must have adequate and sufficient training (Jennett, Harris, & Mesibov, 2003). Leblanc et al. (2009) conducted a study in which the attitude and knowledge level of secondary pre-service teachers were examined before and following a total of three hours and 20 minutes of training over a two month period. The training consisted of two parts. The first training session focused on characteristics of ASD, communication styles and applied behavioral analysis. The second training session concentrated on behavior, social skills, and anxiety demonstrated by students with ASD. Leblanc (2009) used the ASD Inventory developed by Algonquin Child and Family Services' SSP-ASD in this study. The instrument primarily measures attainment of technical knowledge related to ASD. Only the first three questions of the instrument measure attitude about students with autism. Results indicated the secondary certifying pre-service teachers' attitudes and perceptions demonstrated a significant increase following the training. Additionally, pre-service teachers' technical knowledge defined as knowledge about ASD demonstrated a significant increase following training.

Finally, results indicated a significant increase in pre-service teachers' knowledge of behavioral teaching strategies.

de Boer Ott (2005) examined the training teachers attained and their attitudes toward the inclusion of students with autism in general education classrooms. Results revealed teachers need support in several domains including specific disorder information, training for placement of students, inclusion, assessment, and in-class support. Results confirmed the need for explicit training in the area of autism for pre-service and in-service teachers.

Professional development is further encouraged and even required for teachers of students with autism spectrum disorders in Texas. The Texas Administrative Code (§89.1055) specifies 11 strategies for the instruction of students with autism. One strategy included in the regulation is general and specific professional and educator support. General training related to the disorder includes techniques, strategies, and Individualized Education Plan (IEP) implementation. Specific training includes support and training about a particular student and the specific needs of that student. The state of Texas considers training of a general nature as well as specific to a student important enough to include in the Commissioner's Rules in the Texas Administrative Code. Another strategy set forth in the Commissioner's Rules concerns the use of teaching strategies that are research-based and peer-reviewed to the extent practicable. This requirement does not speak specifically to professional development however; the implication is that teachers would have to be trained to implement research-based techniques with fidelity.

Conclusion

Children with autism present a unique challenge to the general education teacher. A lack of knowledge may create fears of the uncertainty and result in a lack of self-efficacy to perform the tasks necessary to teach students with special needs. The National Research Council (2001) identified nine components of effective programs for students with autism spectrum disorders. Included among the components was trained staff. It is crucial to develop a sense of self-efficacy which leads to positive attitudes in teachers during their preparatory training in order to lay a foundation for a successful career. The literature offers a few examples of pre-service teacher training from short three hour 20 minute professional development sessions (Leblanc et al., 2009) to infusion of special education topics into general education classes (Cook, 2002). Each type of training yielded similar results suggesting the need for specific disorder training during the pre-service years and the resulting effect on attitude. This study aims to add to the literature by examining the attitudes of pre-service teachers before and after targeted professional development about the characteristics of autism spectrum disorders as well as strategies for including students with ASD in the general education classroom. This will be accomplished by offering a two hour 30-minute targeted professional development training session to pre-service teachers focused on the characteristics of autism spectrum disorders using effective research based strategies for including students with autism as outlined by the Texas Administrative Code.

CHAPTER THREE

Methods

The current study is an experimental design to examine the attitudes of pre-service teachers toward the inclusion of students with autism in the general education classroom after targeted professional development about autism spectrum. While much research exists about the characteristics of autism, teacher attitudes, and inclusion in general, there is a gap in the existing literature when all three specifics are combined. There is minimal literature about the attitudes of pre-service teachers regarding including students with autism and the effect professional development has on their attitude. Chapter three will describe the methodology employed in this study of pre-service teachers' attitudes regarding the inclusion of children with autism in a general education classroom.

The research question was: Do the group means of pre-service teachers' attitudes improve following targeted professional development about inclusion of students with autism?

Research Design

This study used an experimental design to examine the change in attitudes about the inclusion of students with autism in the general education classroom of pre-service teachers who participated in targeted professional development about autism. Experimental studies are conducted when individuals are put into groups on the basis of random assignment (Kirk, 1995). Participants were randomly assigned to two different

groups: an experimental group that received the treatment of specific, targeted professional development and a control group that did not receive the treatment. The dependent variable in this study was the attitudes of the participants as reported on the Teacher Attitude Toward Inclusion Survey (TATIS) (Appendix A). The independent variable was participation or non-participation in specific professional development in the form of a two-hour 30 minute training session. The TATIS instrument was administered twice before professional development and again twice after professional development.

Participants

The participants were undergraduates pursuing a degree in education with a certificate in elementary, secondary, special education, or other certificates at a small, private university in Central Texas. A total of 65 pre-service teachers agreed to participate in the study. This included 15 elementary education majors, 11 secondary education majors, 12 majoring in special education or interdisciplinary studies, and 27 who were majoring in other all-level areas such as physical education, music education or art education. The Interdisciplinary studies degree is an education major through which students certify in both elementary education as well as special education. Additionally, students are prepared to add the English as a Second Language supplement to their certificates. The participants ranged in age from 20-45 with 80% between the ages of 20-25. Seniors accounted for 75% of the participants. The remaining 25% were juniors. Females contributed to 68% of the sample population. Males contributed the remaining 32%.

All participants in this study had completed a course on exceptionalities which is a course required for all education majors. That course introduced education majors to

the 13 categorical labels for special education eligibility in Texas, including autism spectrum disorders. This was the only course general education majors took that included material related to specific training in special education issues. As such, students who took this course had at least a minimal understanding of disorders, specifically autism, and the influence a disorder had in the management of the general education setting. The participants majoring in special education had taken as many as five courses designed for pre-service special educators. It was assumed that the special education majors had an understanding of inclusion as well as autism spectrum disorders.

Secondary majors and those students majoring in other all level areas such as art, physical education, and music education take only four courses from the Education department. The courses include an introduction to education, the exceptionalities course, a course on classroom management, and a curriculum class. All other courses are content specific. A total of 65 pre-service teachers participated in this study. Of the 65 participants, 38 were secondary or other certifying majors. Secondary majors accounted for 11 of the 38, while 27 participants were other all level certifying majors.

General and special education students who had taken the course on exceptionalities and were enrolled in education courses at the university in the spring 2012 were selected to participate in the study. Professors from two general education courses agreed to allow the researcher specific times during the spring semester to come to the classroom and administer the TATIS. The selected courses were night classes and met on Monday and Wednesday evenings. The special education majors were not enrolled in the night courses but came independently to participate. The researcher attended each course during the designated timeline to administer the TATIS and deliver

the professional development. During the first visit the researcher requested volunteers to participate in the study. Volunteers completed a consent form for participation (Appendix B). A total of three students elected not to participate in the study. Those electing not to participate joined their professor in another classroom to continue with course specific activities as usual. Nine students did not complete all four administrations of the TATIS. Incomplete data were eliminated from the study. A total of 65 participants completed all four administrations of the TATIS and were included in the data analyses.

Instrument

Cullen and Noto (2007) first developed the Attitudes of Pre-Service Teachers Toward Inclusion Scale (APTAIS) which consisted of a 14-item Likert-type questionnaire designed to measure attitudes of general education teachers regarding the inclusion of students with disabilities in the general education classroom. Following the development of the APTAIS, Cullen, Gregory, and Noto (2010) developed The Teacher Attitudes Toward Inclusion Scale (TATIS) to measure pre-service and in-service teachers' attitudes toward the inclusion of students with mild to moderate disabilities in the general education classroom. The TATIS is a 14-item, Likert-type questionnaire. Participants respond to statements on a scale of 1 (Agree Very Strongly) to 7 (Disagree Very Strongly). Construct validity was confirmed with a principal components analysis. The TATIS items reflected the key factors shown in the literature to be evident when a teacher possesses a positive attitude toward inclusion. Reliability of the TATIS instrument was confirmed through Chronbach's alpha correlation procedure and was found to have an overall correlation coefficient of .82.

Scoring of the TATIS involves obtaining raw scores for each of the three components. The raw scores are combined to acquire a total raw score. A low raw score on the TATIS would indicate a teacher had a positive attitude toward inclusion of children with disabilities and is supportive of inclusionary practices.

Intervention

Professional development may take on many forms as was described in the literature. The professional development offered in this study was provided during the regularly scheduled classes during the spring semester. Students were provided the opportunity to participate or elect not to participate. For the students who elected to participate, it was necessary to differentiate this professional development from typical course work. Several factors were implemented to accomplish this goal. The researcher provided the training. The researcher had previous experience as both a regular and special educator and had served as an autism specialist at the Education Service Center, Region 12. This experience afforded the researcher/presenter extensive knowledge of the subject which may have exceeded the knowledge generally provided during a typical class lecture. Given the historical experience of the researcher, real-world experiences and examples were used within the training. Most of the students in each training session did not know the presenter/researcher due to their chosen majors. The presenter/researcher primarily teaches special education courses and most of the participants had majors other than special education.

An additional factor that contributed to the differentiation between this professional development and typical classroom activity was the source of the material used for the training. The state of Texas is divided into 20 regions, each with an

Education Service Center (ESC) to serve as a liaison between the Texas Education Agency (TEA) and the local education agencies. Each service center is staffed by a special education consultant who serves as the autism specialist for that region. The 20 Autism Specialists serve on the Texas Statewide Leadership for Autism to coordinate services and training for the state of Texas in an effort to streamline and prioritize training needs. The Texas Education Agency charged the Texas Statewide Leadership for Autism with developing online training modules so that Texas teachers would have access to consistent, accurate information regarding characteristics of autism spectrum disorders and effective teaching strategies. One of the online modules is designed for the general education teacher and has been developed as a live presentation as well. The researcher obtained permission from the director of the Texas Statewide Leadership for Autism to use the live version of the module for this study. The professional development, entitled “Autism in the General Education Classroom” is originally designed as a six-hour live presentation. Since the university classes used in this study were each three hours in length, the researcher modified the training. The resulting professional development consisted of a two hour and 30 minute presentation. Participants were first provided with a visual schedule to illustrate the strategy necessary for many students with autism. Participants checked off each section of the training at its completion. The training began by defining autism spectrum disorders. The researcher described current brain research regarding the possible causes and outcomes for persons affected by autism. The spectrum nature of autism was discussed including childhood disintegrative disorder, Rhett’s syndrome, classic autism, Asperger’s syndrome, and pervasive developmental disorder-not otherwise specified. The early indicators of autism

were described in the training. Autism was described as a triad of impairments affecting the child behaviorally, socially, and in communication. Sensory issues were discussed and their effects on behavior in students with autism. Following the analysis of the characteristics of autism, the researcher transitioned into a discussion of the value of this knowledge for general education teachers. The characteristics of autism such as the sensory impairments, communication deficits and behavioral concerns have an impact on the way teachers can conduct their classrooms and the academic expectations for students. The learning differences of students with autism were included in the training such as the need for visual supports in instruction, transition, procedures, and routines. Also included in the training were strategies for developing positive classroom culture. This section focused on preparing the incoming student with autism, his/her parents through consistent contact, and the non-disabled peers. Examples in the form of videos, pictures, and activities were used throughout the training. A general format of the training is provided in Table 1. A complete description of the training including activities, videos, and applicable examples is provided in Appendix D.

Procedures

A power analyses for repeated measures between subjects design was conducted using $\alpha = .05$, power of .80, Cohen's f of 0.3 effect size, and 0.5 correlation. The researcher was unaware of any test-retest correlation measures of the instrument though some correlation was expected. As such, the researcher selected a moderate correlation for sample size analysis. Using these parameters, power analyses indicated a total sample size of 58 participants. The participants were drawn from two courses students typically take after the prerequisite exceptionalities course required for this study. The schedule

for administration of the TATIS and professional development is displayed in Table 2. The researcher attended the first class one week prior to the intervention. The researcher attended the second class two weeks prior to the intervention. Volunteers were recruited from both classes. Students who elected to participate completed a demographics questionnaire (Appendix C). The questionnaire asked participants about their chosen major, age, year in school, gender, opportunities to work with students with autism and other disabilities, and exposure to people with autism and other disabilities. Students were then asked to complete the TATIS. The researcher checked the enrollment roster for each class. One participant was enrolled in both courses used in this study. That participant was not given the demographic questionnaire or the TATIS twice.

Following the first visit, the researcher randomly assigned each participant to one of the two treatment groups. This was accomplished by collecting all the demographic questionnaires. The questionnaires were sequentially divided into three groups. The researcher then sequentially divided the questionnaires from the third group between the first and second group. Of the resulting two groups, one was randomly chosen to be the experimental group; the other the control group.

The researcher attended the first class one week after the initial visit. The researcher attended two weeks after the initial visit. All participants completed the TATIS for a second measure. The experimental group remained in the classroom to participate in the targeted professional development training. The control group went to another similar classroom with the course professor whereupon class continued as regularly scheduled.

Table 1
Professional Development Schedule

Theme	Content
Autism and General Education	Spectrum nature of autism Subcategories of autism Causes Statistics Diagnosis vs. eligibility Common early indicators Triad of impairment: communication, social, restricted/unusual behaviors Unique learning differences: video of child with autism
Welcoming Classroom Culture	Positive and accepting attitude Family involvement Gather information and a team Prepare student/peers Curricular connections Sensory consideration Reinforcement/motivation Expect success
Importance of Communication	Characteristic of communication Communication results in a behavior Using/modeling language What can educators do?
Plan Instructional Strategies	Visual strategies Universal Design for Instruction Structure in the classroom Social skills Peer modeling

All participants, experimental and control remained in their respective sessions for the same period of time. Students who elected not to participate in the study went with the course professor to another classroom and continued with regularly scheduled activities. Participants in the experimental group were not denied access to course material by virtue of participation in the study. The professors in the control groups employed activities that were review material and did not provide new instruction.

Table 2
Administration Schedule of TATIS and Professional Development

February 6 & 8, 2012	February 13 & 22, 2012	February 29 & March 5, 2012	March 7 & 19, 2012
Participants completed consent form	Participants completed TATIS	Participants completed TATIS	Participants completed TATIS
Participants completed demographics questionnaire	Participants randomly assigned to groups		
Participants completed TATIS	Experimental group received professional development in separate classroom		
	Control group continued with normal classroom activities		

Participants in the experimental group were provided specific professional development which was be obtained from the Texas State Autism Network. This training was developed by the Texas Statewide Leadership for Autism and modified by the researcher for use in the study.

Three weeks following completion of the professional development, the researcher attended the first class used in this study to provide the third administration of the TATIS. The second class used in this study completed the TATIS one week following professional development. Participants from the experimental and control groups were asked to complete the TATIS survey again as a measure of attitudes following professional development. Students who did not participate in the study remained in the classroom while the survey was completed. It took less than 10 minutes to complete the survey.

The researcher attended the first class used in this study again two weeks later to provide the fourth and final administration of the TATIS. The second class participated in the fourth and final administration of the TATIS one week following the third administration (Table 2).

Data Analysis

There were four administrations of the TATIS; two prior to professional development and two following professional development. The assumptions of normality, homogeneity of variance and sphericity were examined. A two-factor repeated measures ANOVA was conducted with professional development as the independent variable and group mean scores reflected on the TATIS as the dependent measure. Interactions within and between groups were examined as well as measures of effect size using generalized eta squared. Generalized eta squared has been described by Bakeman (2005) as an appropriate measure of effect size when conducting repeated measures designs. Generalized eta squared considers the variance within subjects and between subjects in the denominator. Certain administrations were examined as well, specifically the first and third administration of the TATIS. Means from both treatment groups were compared at the first administration of the TATIS, prior to the intervention. As the third administration represented the attitudes of the participants in the experimental group just following intervention, an independent-means *t*-test was examined to determine if a significant value is noted in the variance at the 3rd administration of the TATIS instrument. Cohen's *d* was used as a measure of effect size.

CHAPTER FOUR

Results

The purpose of this study was to determine if a targeted professional development would effect change in the attitudes of pre-service teachers at a small, private university.

Participants

Participants were recruited from two education courses offered during the spring semester. Additional participants from a course designed for students majoring in special education were included in the study. A total of 65 pre-service teachers participated in all four administrations of the TATIS, measuring attitude toward inclusion of children with autism in a general education setting. Distribution of participants' majors and majors by treatment groups can be seen in Tables 3 and 4. Students in the group labeled "Elementary Education" are acquiring certification to teach early childhood through sixth grade. The "Secondary Education" group members are either acquiring certification in grades 4-8 or in a particular content area and will teach in grades 8-12. The participants in the "Special Education/Interdisciplinary" group are either majoring in all levels of special education or are dually certifying in elementary education and special education. The group labeled "Other" includes students whose major includes physical education, art, or music education. The majority of participants in this group are certifying to teach all levels of physical education and also desire to coach athletics. This group represented twice as many participants as were in any other group. The heavy participation from the

Exercise and Sport Science department may have contributed to the results of this study and would warrant further research.

Table 3
Participant's Major

Major	Number of Participants
Elementary Education	15
Secondary Education	11
Special Education/Interdisciplinary	12
Other	27

Table 4
Participant Major Within Treatment Group

Treatment Group	Major	Number of Participants
Experimental	Elementary Education	7
	Secondary Education	6
	Special Education/Interdisciplinary	7
	Other	17
Control	Elementary Education	8
	Secondary Education	5
	Special Education/Interdisciplinary	5
	Other	13

Tables 5 and 6 provide descriptive statistics regarding the participants' ages. Seniors in the process of student teaching accounted for 75% of the participants. The remaining 25% were juniors.

Participants were asked to report their experience working with students with disabilities as well as their exposure to students with disabilities. Each question asked participants to rank their answers on a four-point scale with zero indicating no experience/exposure, one indicating minimal experience/exposure, two indicating often

having experience/exposure, and three indicating extensive experience/exposure. Results are displayed in Tables 7 and 8

Table 5
Age of Participants

Age of Participants				
Age Range	Minimum	Maximum	Mean	Standard Deviation
20-48	20	48	24.71	7.25

Table 6
Participant Age Distribution
Participant Age Distribution

Age range	Frequency	Percent
20-25	52	80.0
26-30	4	6.2
30+	9	13.8

Table 7
Experience Working with Students with Disabilities

	Frequency	Percent
None	14	21.5
Minimal	37	56.9
Often	12	18.5
Extensive	2	3.1

Table 8
Exposure to Students with Disabilities

Exposure to Students with Disabilities		
Categories	Frequency	Percent
None	4	6.2
Minimal	34	52.3
Often	23	35.4
Extensive	4	6.2

The research question in this study was, “Do the group means of pre-service teachers’ attitudes improve following targeted professional development about inclusion of students with autism”? To determine pre-service teachers’ attitudes toward inclusion of students with autism in the general education classroom, participants responded to the TATIS, an attitude toward inclusion survey at 4 successive points in time. Each administration of the instrument is indicated by a number following the instrument title. For example, the first administration is referred to as TATIS1. The second administration is referred to as TATIS2. The same pattern continues for the third and fourth administration.

Assumptions

Before analyses of the data were completed, tests of normality were conducted to ensure the assumption of normality was met. Descriptive data of normality are presented in Table 9. TATIS1 and TATIS3 were not significant in tests of skewness. TATAS2 and TATIS4 were somewhat negatively skewed. All administrations of the TATIS were normally distributed in regards to kurtosis. Examination of the Q-Q plot as seen in Figures 1-4 visually illustrates the normality evident in each TATIS administration.

The Kolmogorov-Smirnov test was conducted using SPSS (*vs.* 19). The scores of the TATIS1, $D(34) = .093, p > .05$; TATIS2, $D(34) = .20, p > .05$; and TATIS3, $D(34) = .20, p > .05$, were each non-significant suggesting the sample is probably normal (Field, 2009). The scores of the TATIS4, $D(34) = .042, p < .05$, were slightly significant (Table 10).

Table 9
Normality of Data

Administration	N	Mean	Std Dev	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std Error	Statistic	Std Error
TATIS1	65	43.65	8.48	-.566	.297	-.490	.586
TATIS2	65	43.57	8.31	-.702	.297	-.240	.586
TATIS3	65	41.68	10.04	-.581	.297	-.114	.586
TATIS4	65	41.97	11.39	-.708	.297	.023	.586

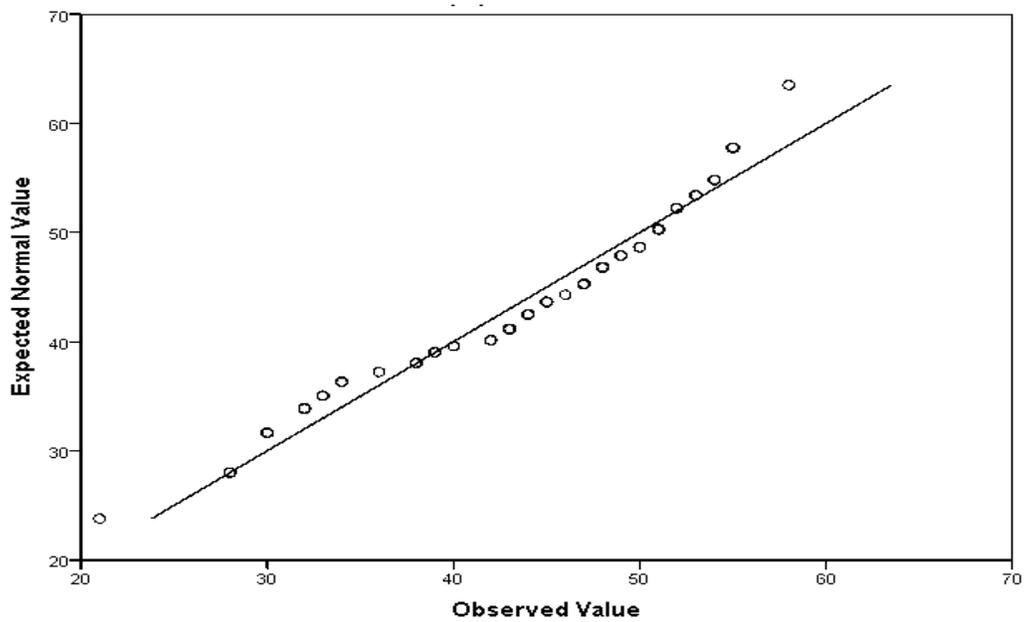


Figure 1 *Q-Q Plot TATIS1*

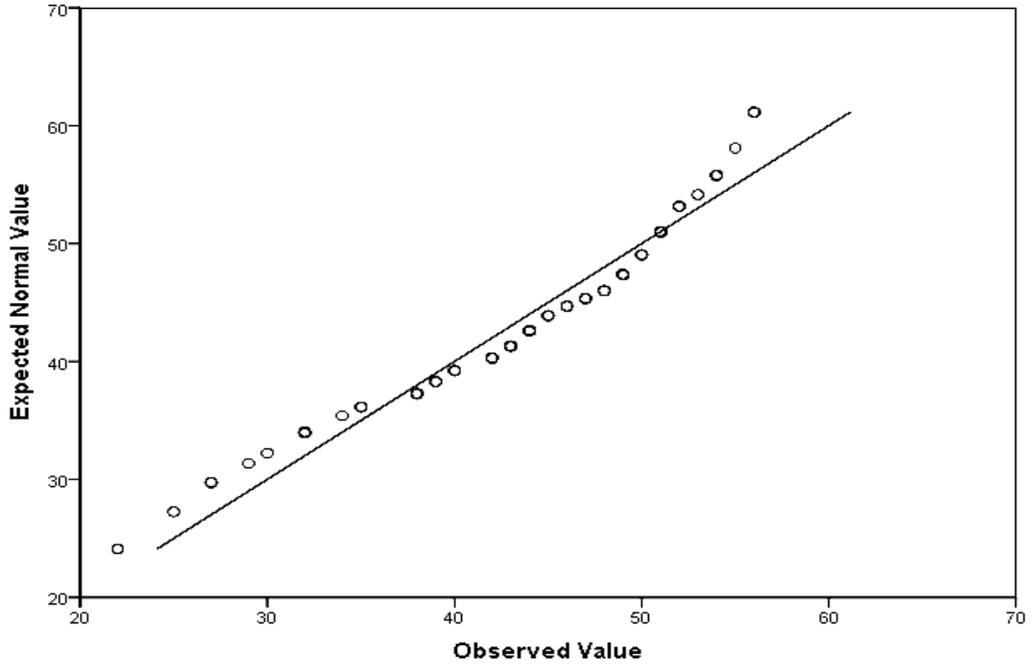


Figure 2 *Q-Q Plot TATIS2*

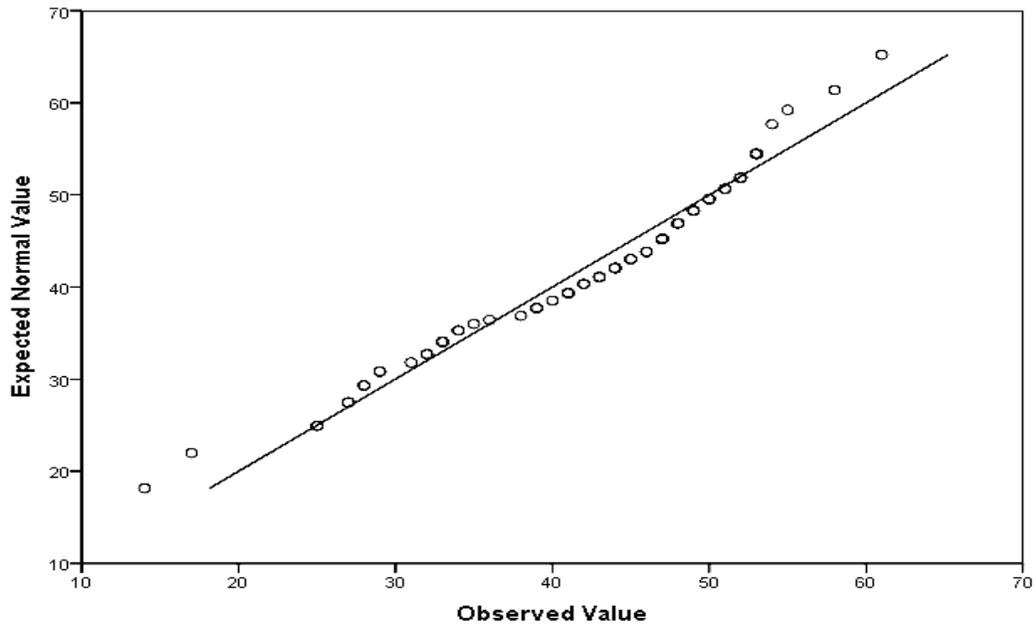


Figure 3 *Q-Q Plot TATIS3*

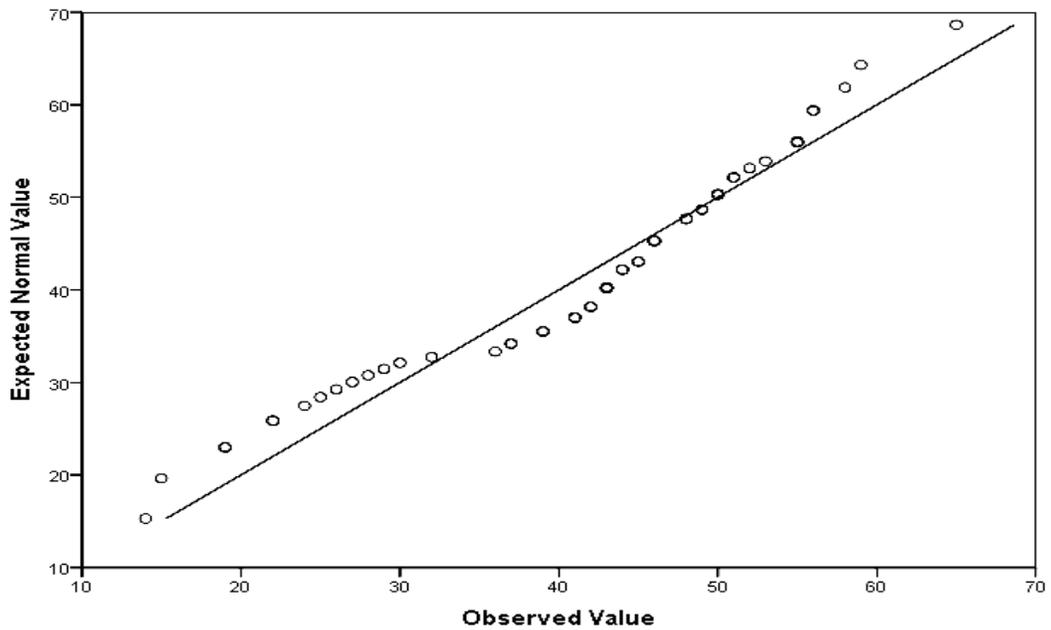


Figure 4 *Q-Q Plot TATIS4*

Table 10
Kolmogorov-Smirnov Test of Normality

Instrument Administration	Kolmogorov-Smirnov		
	Statistic	DF	Sig.
TATIS1	.139	34	.093
TATIS2	.124	34	.200
TATIS3	.104	34	.200
TATIS4	.153	34	.042

Table 11
Levene's Test for Homogeneity of Variance

	F	df1	df2	Sig.
TATIS1	.068	3	61	.977
TATIS2	.070	3	61	.976
TATIS3	.043	3	61	.988
TATIS4	.586	3	61	.627

Homogeneity of variance was tested using Levene’s test. For the scores on the TATIS instrument, the variances were equal on all administrations (Table 11). Homogeneity of sphericity was tested using Mauchly’s test. Sphericity assumes that the variances of the differences between treatment groups are equal. Mauchley’s test indicated that the assumptions of sphericity had been violated $\chi^2(5) = 32.12, p < .05$ indicating significant differences exist between the differences of the variances between groups resulting in unreliable *F*-ratios (Table 12). To correct for the violation of sphericity, a correction must be made to the degrees of freedom. A conservative correction can be made using Greenhouse-Geisser correction. Greenhouse-Geisser corrections to degrees of freedom are used when estimates are greater than .75.

Table 12
Mauchly’s Test for Sphericity

Within subjects effect	Mauchly’s W	Approx. Chi-Square	df	Sig.	Greenhouse-Guisser	Epsilon Huynh-Feldt	Lower-Bound
	.631	27.453	5	.000	.779	.852	.333

The Influence of Professional Development on Participants’ Attitudes

Following verification of assumptions, the results were analyzed. The scale for each item on the TATIS requires participants to indicate a 1 if they agree very strongly with the statement and a 7 if they disagree very strongly with the statement. Low raw scores are indicative of a more positive view toward inclusion. Raw scores range from 32 – 68. Raw scores for each group are reported in Table 13.

Table 13
Comparison Means and SD Across Administrations of TATIS Instrument

Treatment Group	TATIS1	TATIS2	TATIS3	TATIS4
1 Mean	43.71	44.06	40.59	41.29
N	34.00	34.00	34.00	34.00
SD	7.54	7.64	10.38	11.04
2 Mean	43.58	43.03	42.87	42.71
N	31.00	31.00	31.00	31.00
SD	9.53	9.09	9.69	11.90

The raw mean of TATIS1 for the experimental group was 43.71 and the control group was 43.58 (Table 12). A score of 43 is at the 88th percentile for the TATIS norming sample indicating that all of the study’s participants had a positive attitude toward inclusion prior to professional development. Following professional development the experimental group’s raw score decreased to 40.59 (97th percentile) representing an improvement in attitude.

A two-factor repeated measures design was conducted to determine the effect of the increased mean scores of the experimental group as a result of participation in professional development. Mean scores of both treatment groups at each administration are visually represented in Figure 5. Series 1 represents the experimental group. Series 2 represents the control group. The one-way, within-subjects ANOVA revealed there was not a significant difference within the sample across the four administrations of the TATIS, $F(2.26, 142.26) = 1.50, p > .05$, *generalized* $\eta^2=.01$ indicating a small effect size. (Table 14) The intervention does not account for but a small amount of variance noted in the results. However, this variation may be the result of the standard error within the instrument. Results indicate a non-significant effect between subjects $F(1,63) = .087, p > .05$ (Table 15).

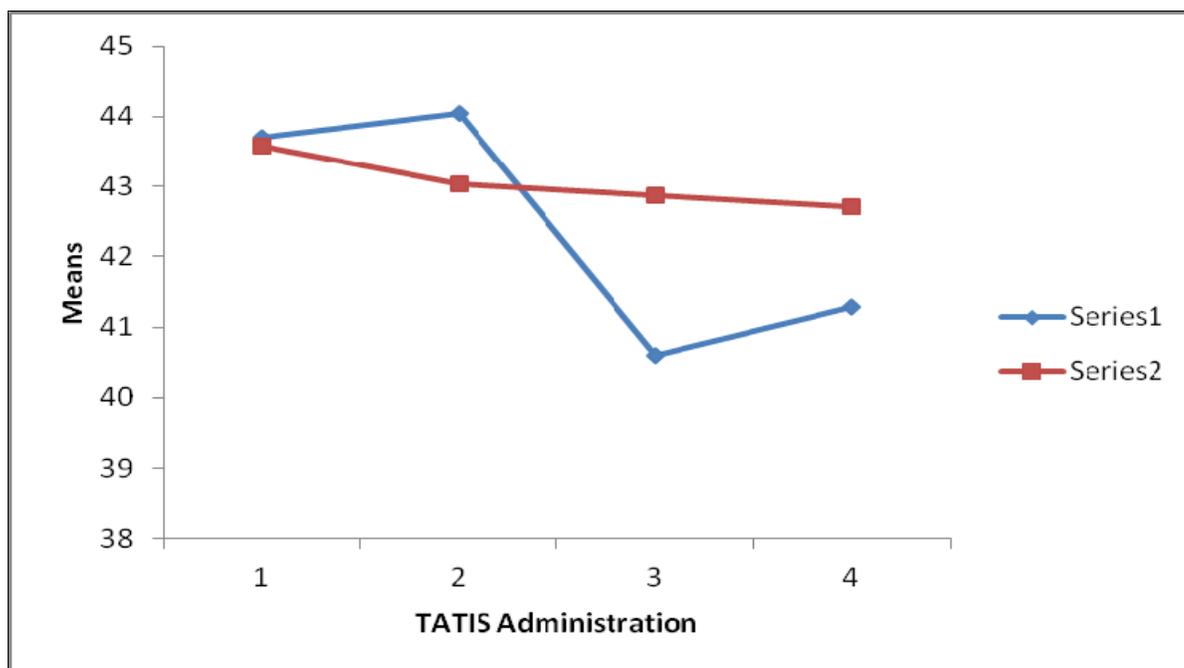


Figure 5 *Estimated Marginal Means of TATIS Administration*

Table 14
Tests of Within-Subject Effects

Sessions*groups	Type III Sums of Squares	df	Mean Square	F	Sig.
Greenhouse-Geisser	108.044	2.261	47.779	1.496	.226
Error Greenhouse-Geisser	4549.472	142.463	31.934		

Examination of the first and third administration of the TATIS reveals differences in the means of the treatment groups. Data reflect the means of both the experimental (M = 43.71) and control group (M = 43.58) demonstrated equivalent scores at the first administration of the TATIS. Following professional development, the control group

scores remained constant ($M = 42.87$) while the experimental group ($M = 40.49$) demonstrated a notable increase in attitude. The differences in means indicate the professional development provided to the experimental group did impact pre-service teachers' attitudes toward the inclusion of students with autism in the general education setting.

Table 15
Tests of Between-Subject Effects

Source	Type III Sums of Squares	df	Mean Square	F	Sig.
Intercept	118428.049	1	118428.049	1562.903	.000
Group	6.572	1	6.572	.087	.769
Error	4773.788	63	75.774		

The third administration of the instrument represents the point in time directly after professional development was delivered. An independent-means *t*-test was conducted to compare the means between the treatment and control group. Results indicated there was not a statistically significant difference between the experimental ($n = 34$, $M = 40.59$, $SD = 10.38$) and control group ($n = 31$, $M = 42.87$, $SD = 9.69$), $t(-.914)$, $p > .05$. However, results did indicate an increase in positive attitudes following professional development. The researcher anticipated to demonstrate an increase in positive attitudes as a result of professional development regarding including students with autism in the general education setting.

Consideration of participant's majors was not part of the research question; however, data were collected within the demographics questionnaire. The distribution

among majors was relatively equal with the exception of the “all level” majors consisting of physical education, music education, and art. There were twice as many participants in this group as were in any other group. A repeated measures ANOVA was calculated to examine whether a student’s major impacted their attitude toward inclusion of students with autism. A significant effect was evident when considering participant’s major across time, $F(7.01, 142.53) = 2.20, p < .05, \text{partial } \eta^2 = .098$ representing a large effect size. A large effect size indicates much of the variance can be attributed to the intervention and not error. An adjusted Bonferroni post hoc comparison was conducted to consider variance between the Secondary majors and Special Education/Interdisciplinary majors. Bonferroni comparisons are considered conservative and control for Type I error. The post hoc test noted significant differences ($p < .05$) between Secondary majors ($M = 48.36, SD = 9.15$) and Special Education/Interdisciplinary majors ($M = 35.08, SD = 9.27$).

CHAPTER FIVE

Discussion

This study sought to determine if a two hour and 30 minute targeted professional development effected pre-service teachers' attitudes toward the inclusion of students with autism in the general education classroom. The literature indicates a teacher's attitude will have an effect on the manner in which they construct learning and the success to which students learn. Some research exists indicating professional development is a valuable tool toward effecting change in teacher attitudes. Sze (2009) suggested training pre-service teachers about specific disabilities was necessary to yield a positive attitude toward inclusion. Consequently, this study employed professional development created by the Texas Statewide Leadership for Autism to facilitate consistent training on autism spectrum disorders across the state. The training was originally developed as an online module. Viewers could access the training via Education Service Center Region XIII and complete the series of modules at their own pace. Several teachers in the region indicated a preference for live training. As a result, the training was re-formatted to include a six-hour live presentation. Six hours of concurrent training was not available for the current study so the live training was modified to a two hour and 30 minute training to include key components of the live presentation. The two hour and 30 minute version trained participants on characteristics of autism spectrum disorders, communication, behavior, and sensory concerns using direct instruction, collaborative strategies, videos, and discussion. Embedded within each topic was classroom management and instructional

strategies demonstrated through research to be effective when instructing students with autism.

The results of the study demonstrated that the use of a two hour 30 minute professional development slightly changed the mean scores of pre-service teachers in the experimental group while the control group's mean scores remained constant. The amount of time provided in the training in this study is equivalent to the amount of time generally provided to the study of autism spectrum disorders in an exceptionalities class as part of a pre-service teachers' college curriculum. Though a slight change in the mean scores of the experimental group was noticed, this study supports the work of Jennett, Harris, and Mesibov (2003) indicating the need for adequate and sufficient training in the areas of autism and other developmental disorders. Further research by Cook (2002) is supported suggesting the current programming for pre-service teachers is not sufficient for effecting significant changes in pre-service teachers' attitudes toward inclusion.

Previous research demonstrated that teachers' attitudes may be a good predictor of behavior (Fazio & Zanna, 1978). Behaviors such as placement of students with disabilities (Agbenyega, 2007), inclusion practices (Ross-Hill, 2009), and implementation of best practices (McGregor & Campbell, 2001) are directly impacted by attitudes justifying the need to provide avenues to positively effect pre-service teachers' attitudes.

Results did demonstrate; however, that a participants' major significantly impacted their attitudes and any resulting effects of professional development. The greatest difference in attitudes was noted between secondary majors and special education/interdisciplinary majors. Additionally, with the exception of the first administration of the TATIS, secondary majors had the highest raw scores when

compared to all other majors. A high raw score indicates poor attitudes toward inclusion and a preference for more traditional, exclusionary settings for students with autism. Secondary majors' scores continually increased even after participation in professional development. This indicates the poorest attitudes toward including students with autism in the general education classroom. Moreover, the difference between secondary majors' scores and special education majors' scores indicates that when pre-service teachers have extensive training in teaching children with disabilities, they are more likely to have more positive attitudes toward inclusion.

As was noted in the review of the literature, secondary students with special needs are often forced into more restricted environments due to the "highly qualified" requirement set forth by the No Child Left Behind Act. The students whose functioning level is high enough to permit access to the general education classroom are often accompanied by a paraprofessional, who often assumes the role of primary educator for the students with disabilities in the general education classroom. The paraprofessional is often physically in close proximity to the students with special needs. Common practice dictates that the general education teacher delivers initial instruction to the whole class followed by the paraprofessional who may re-teach the material to the student for further explanation and instruction. In some cases, it is the special education teacher who co-teaches with the general education teacher in the general education classroom. In either event, the responsibility for the student is seemingly removed from the secondary general education teacher. Due to staff limitations, the paraprofessionals and special education teachers must divide their time among all general education classes. The result is that students in general education classrooms may not receive the necessary supports when

they need them. This leaves the student with special needs in the general education classroom with no outside supports and the responsibility is placed back upon the general education teacher who has received minimal, if any, training in the education of students with special needs.

The group of participants who demonstrated the greatest change in attitude from the first administration to the third was the elementary majors. This group demonstrated a medium to large effect size ($d = 0.67$). The video and pictures in the professional development included young children and classrooms typical of elementary settings. It is possible that the elementary majors were more familiar with the visual representations seen in the training and could imagine themselves participating in the suggested practices. To the contrary, the videos and pictures did not visually represent what a typical secondary classroom may look like and consequently did not make a personal connection to the secondary majors participating in this study.

The special education/interdisciplinary majors did not show a significant change in attitude following professional development. However, this group scored in the 98th percentile before the intervention and increased to the 99th percentile after intervention. One would surmise that special education majors in this study previously possess an attitude toward inclusive practices and the intervention further solidified their beliefs. Moreover, these participants had previous extensive training in serving students with special needs suggesting that to increase the attitude of all teachers, courses in addition to the single course on exceptionalities may need to be included throughout pre-service coursework.

Implications

As was noted in Chapter 3, secondary and all level majors only participate in four education courses. Given the limited exposure to pedagogical principles and students with special needs, it is not surprising that secondary general education teachers have poorer attitudes toward inclusion of students with autism and developmental disabilities. Considering the continued decline in attitude noted in this study, one might surmise that the information provided during a short professional development may have further secured the attitude of general education majors knowing their special education staff support is limited and the needs of the students are so great. Given that most of the general education curriculum for secondary majors is geared toward content specific topics, it may be necessary to increase the amount of special education training provided to this population during their pre-service courses. The research conducted by Leblanc (2009) included a three hour and 20 minute training for secondary pre-service teachers and demonstrated significant results regarding attitudes. However; in Leblanc's study, the training was provided over two months and two training sessions. It may be necessary to offer a similar amount of training but over a longer period of time to impact the attitudes of secondary pre-service teachers.

The implications of this study toward teacher preparation programs are significant. Secondary and other all level majors are content focused. However, stipulations of IDEA demand placement of students with disabilities in their general education classrooms. Institutions of higher education may need to consider the exposure secondary and all level certifiers have to pedagogical courses and those focusing on students with disabilities. The literature is clear concerning the direct link between

attitudes and resulting behaviors. Teachers without training may have positive attitudes and be willing to implement best practices but have not the knowledge base upon which to build their skills. Many suffer because of this lack of exposure. Certainly the students are affected. They are in classrooms with teachers who have had minimal instruction in pedagogy and even less exposure and instruction on exceptionalities. The teacher suffers simply due to lack of knowledge and understanding. The school and the local education agency are affected when students with disabilities participate in high stakes testing. The students in the general education classrooms would likely take the general examination with few accommodations. Results of the exam directly impact the status of the school as well as the opportunities available to the student.

Limitations

One limitation of this study involved the modifications made to the intervention. The professional development was originally designed as an on-line module for individual use. At the request of in-service teachers, the module was converted to a six-hour live delivery model. The participants in this study were not available for a continuous six-hour time period. Consequently, the researcher modified the live presentation and reduced it to a two hour 30 minute presentation to meet the demands of the participants. The modification included the key components of the original training; however, it left out much of the time consuming practice activities. As such, participants did not have the opportunity to engage fully in group discussions to the extent desired by the researcher to aid in clarification of concepts. Greater group discussions may have illuminated some of the concerns of the secondary majors allowing for explanation and further instruction.

Another limitation of this study may have been the use of two separate classes. This delivery method was chosen to access students at different levels of their education. One group of students was in a course that is generally taken up to three semesters before student teaching. In fact, in many instances, it is one of the first courses education majors take. The second group of participants was student teaching and had completed all of their course work required before graduating. Though not part of research question for this study, the researcher examined the differences in means at the third administration of the TATIS between the two groups and no significant difference was noted ($p > .05$). The use of the two groups may have been limiting in that the administration of the TATIS as well as the delivery of the professional development was not provided on the same timeline. The timeline was adjusted for each course dependent upon the professor's demands, conferences occurring in the midst of the study, as well as spring break occurring before the final administration of the TATIS. Inconsistency in TATIS administration allowed participants more or less time between opportunities to answer the survey items which may have created carryover effects or memory losses regarding the material learned.

This study may have been limited by the researcher administering both the TATIS instrument and the professional development. The researcher generally teaches special education courses at the university in which this study took place. To account for researcher bias, the researcher elected a pure quantitative design so as not to allow for bias in interpreting results. A qualitative study may have allowed for researcher bias when coding and interpreting participant response given the researchers knowledge of previous instruction and student performance. A quantitative design did not allow the

researcher to make any judgment on participant responses but to only record results from the TATIS instrument.

Finally, the small participant sample from a single, private university does not allow for generalization. Replication of this study would need to include students from larger, public universities with greater diversity. Additionally, a more evenly distribution of majors might be useful in analyzing data. This study had twice as many “all level” participants than were present in any other group and may have impacted the results.

Future Research

This study opens many opportunities for future research. The primary limitation noted was the modification of the intervention from a six hour presentation to a two hour 30 minute presentation. One possible research option would be to replicate the study as designed and to provide the full six-hour presentation. This may demonstrate significant effects in pre-service teacher attitudes toward including students with autism in the general education classroom. Similarly, one could provide the intervention as a six-hour live presentation to one group and the on-line module to a secondary group for comparison.

This opportunity for future research represents important information. The modules and live presentations were developed at the request of the Texas Education Agency to provide consistent information to teachers across the state of Texas. To further the research using the training material developed by the State of Texas Autism Network, it would be necessary to identify the goals for the training. For example, did the developer intend for the training to increase knowledge of autism, provide strategies for instructing students with autism, or affect attitudes of teachers? Once the goal(s) have

been determined, research of the outcomes would be appropriate and necessary. During times of fiscal constraints, increasing numbers of students diagnosed with autism, and greater rates of inclusion, it is vital to know whether the limited monetary resources are in fact accomplishing their intended purposes.

Additional research should be continued regarding the impact of attitudes on behaviors at the pre-service level. More specifically, the previous literature focused on pre-service teachers as a whole. This study went further to illuminate the differences noted according to a students' chosen major. Additional research should be completed across different institutions which offer secondary and all level certifying teachers additional opportunities for education training. The literature described the need for sufficient training. Leblanc (2009) realized increases in attitude following three hours and 20 minutes of training over a two month period. Kosko and Wilkins (2009) discovered changes to self-efficacy doubling after eight hours of professional development. It seems clear that the time allotted to training as well as the delivery in terms of length of time between sessions is crucial and presents a need for further research.

Finally, future research should be conducted on the relationship between attitudes, resulting behaviors, and self-efficacy. Almog and Shechtman (2007) state that the behaviors adopted by teachers and their decision-making practices are governed by the teacher's level of self-efficacy. Berry (2010) conducted research demonstrating the link between the role of self-efficacy and the developing attitudes of pre-service teachers. Results supported previous studies by Carroll et al. (2003) and Taylor and Sobel (2001) indicating a lack of confidence in their abilities to teach in an inclusive environment.

Each of these concepts needs to be further examined in light of this study's conclusions regarding the chosen major of pre-service teachers.

Conclusion

The previous literature indicates value in professional development and its impact on teacher attitudes toward including students with autism and other development disabilities in the general education classroom. This study sought to examine the change in mean scores on an attitude survey of pre-service teachers after participating in professional development. Mean scores on the TATIS remained constant for participants who did not receive the treatment of professional development. Conversely, the mean scores on the TATIS of the pre-service teachers who did receive professional development did demonstrate an increase in positive attitude. All teachers must be trained to instruct students with disabilities. Students with disabilities are continually placed in general education classrooms. General education classrooms include the traditional classroom as well as others including art, music, and physical education. Teachers must obtain the skills necessary to effectively instruct students with disabilities through professional development. Professional development is offered during in-service training however is often unavailable to teachers due to financial constraints. It is during the pre-service training years that teachers have the greatest opportunities to receive the necessary instruction for teaching students with disabilities. This study demonstrated a slight improvement in pre-service teachers' attitudes overall. However; this change could be due to the standard error within the instrument. The results did indicate significance between the groups participating in the research. The decrease in attitude demonstrated by the secondary pre-service teachers was indicative of the necessity for more training

that is typically provided. Leblanc (2009) noted improvement in attitude within this group after two training sessions occurring over a two month period. Secondary pre-service teachers will certainly interact with students with autism and need adequate and appropriate training to effectively instruct students in this population. The elementary pre-service teachers demonstrated the greatest improvement in attitude though theirs did not reach the same level of the special education/interdisciplinary group. The group including all-level PE, music, and art education also demonstrated slight increases in attitudes but they did not reach the level of the elementary participants. These results indicate that additional training is necessary to affect the attitudes of pre-service teachers regarding the inclusion of students with autism spectrum disorders in the general education classroom.

APPENDICES

APPENDIX A

Teacher Attitudes Toward Inclusion Scale (TATIS)

Directions: The purpose of this confidential survey is to obtain an accurate and valid appraisal of your perceptions of the inclusion of students with mild to moderate disabilities in regular classrooms. It also contains questions pertaining to your beliefs about professional roles, attitudes toward collegiality, and perceptions of the efficacy of inclusion (i.e., whether or not you believe that inclusion can succeed). Because there are not “right” or “wrong” answers to these items, please respond candidly.

Definition of Full Inclusion: For the purposes of this survey, full inclusion is defined as the integration of students with mild to moderate disabilities into regular classrooms for 80% or more of the school day. Under federal special education laws, mild to moderate disabilities include Learning Disabilities; Hearing Impairments; Visual Impairments; Physical Handicaps; Attention Deficit Disorders; speech/Language Impairments; and mild/moderate Emotional Disturbance, Mental Retardation, Autism or Traumatic Brain Injury.

Use the following scale for all items:

1=Agree Very Strongly (AVS), 2=Strongly Agree (SA), 3=Agree (A), 4=Neither Agree nor Disagree (NAD), 5=Disagree (D), 6=Strongly Disagree (SD), 7=Disagree Very Strongly (DVS)

	1	2	3	4	5	6	7
	AVS	SA	A	NAD	D	SD	DVS
1. All students with mild to moderate disabilities should be educated in regular classrooms with non-handicapped peers to the fullest extent possible.	1	2	3	4	5	6	7
2. It is seldom necessary to remove students with mild to moderate disabilities from regular classrooms in order to meet their educational needs.	1	2	3	4	5	6	7
3. Most or all separate classrooms that exclusively serve students with mild to moderate disabilities should be eliminated.	1	2	3	4	5	6	7

4. Most or all regular classrooms can be modified to meet the needs of students with mild to moderate disabilities.	1	2	3	4	5	6	7
5. Students with mild to moderate disabilities should not be taught in regular classes with non-disabled students because they will require too much of the teacher's time.	1	2	3	4	5	6	7
6. Inclusion is a more efficient model for educating students with mild to moderate disabilities because it reduces transition time (i.e., the time required to move from one setting to another).	1	2	3	4	5	6	7
7. Students with mild to moderate disabilities should not be taught in regular classes with non-disabled students because they will require too much of the teacher's time.	1	2	3	4	5	6	7
8. I have doubts about the effectiveness of including students with mild/moderate disabilities in regular classrooms because they often lack the academic skills necessary for success.	1	2	3	4	5	6	7
9. I have doubts about the effectiveness of including students with mild/moderate disabilities in regular classrooms because they often lack the social skills necessary for success.	1	2	3	4	5	6	7
10. I find that general education teachers often do not succeed with students with mild to moderate disabilities, even when they try their best.	1	2	3	4	5	6	7
11. I would welcome the opportunity to team teach as a model for meeting the needs of students with mild/moderate disabilities in regular classrooms.	1	2	3	4	5	6	7

<p>12. All students benefit from team teaching; that is, the pairing of a general and a special education teacher in the same classroom.</p>	<p>1 2 3 4 5 6 7</p>
<p>13. The responsibility for educating students with mild/moderate disabilities in regular classrooms should be shared between general and special education teachers.</p>	<p>1 2 3 4 5 6 7</p>
<p>14. I would welcome the opportunity to participate in a consultant teacher model (i.e., regular collaborative meetings between special and general education teacher to share ideas, methods, and material) as a means of addressing the needs of students with mild/moderate disabilities in regular classrooms.</p>	<p>1 2 3 4 5 6 7</p>

APPENDIX B

Informed Consent to Participate in a Research Study

To Participant,

This form asks for your consent to participate in an educational research study. This study will evaluate the pre-service teacher's attitude about the inclusion of children with disabilities, specifically autism, in a general education classroom before and after professional development about autism spectrum disorders. During the research, student participants will complete one demographics questionnaire and 4 administrations of an attitude survey to be completed over a 4 week time period. Participants will attend a 3 hour professional development training to be provided during a regularly scheduled class period. Participation in this study will not impact a student's ability to complete required coursework.

Data will be collected by Kris Ward, a Doctoral student at Baylor University as part of a dissertation project. There are no known physical, psychological, and/or sociological risks involved. All data collected will be completely anonymous to insure the privacy of the participants. All data will be disposed of upon completion of the study. The demographic information of participants will remain confidential when cited in the study. Benefits to your participation may include increased knowledge regarding best teaching practices involving students with autism spectrum disorders.

Your signature below constitutes your consent and willingness to participate in this study. There is no penalty for non-participation and your participation may be withdrawn from the study at any time also without penalty or loss of benefits. If you choose to participate in the educational research study, please return this signed consent form. If you have any questions or concerns, please feel free to contact Kris Ward by office phone at 254-295-4946 or by email at kris_ward1@baylor.edu. You may also contact Julie Ivey-Hatz at 254-710-7584 at Baylor University. Inquiries regarding the nature of the researcher, your rights as a subject or any other aspect of your participation can be directed to Baylor's University Committee for Protection of Human Subjects Research through the chairman Dr. Michael E. Sherr, Chair IRB, Baylor University, One Bear Place #97320, Waco, TX 76798-7320 or by phone at 254-710-4483.

I have read and understand this form and am aware of my rights as a participant. I have agreed to participate in the study based on the information provided. A copy of the signed form will be provided to me.

Participant Signature

Name of Participant

APPENDIX C

Demographics Questionnaire

ID: _____

Age: _____

Gender: _____

Major: _____

Classification: _____

To what extent have you had the opportunity to work with students with autism or other disabilities?

None

Minimal

Often

Extensive

To what extent have you had exposure, but not directly involved with people with disabilities?

None

Minimal

Often

Extensive

APPENDIX D

Outline of Professional Development

Autism and General Education

- Spectrum nature of autism
- Subcategories of autism
- Causes
- Statistics
 - Most recent statistics from CDC; 1:88
- Diagnosis vs. eligibility for special education services
- Common early indicators
 - Less babbling
 - Less eye contact during feeding
- Triad of impairment: communication, social, restricted/unusual behaviors
- Unique learning differences
 - Video of elementary aged child with autism demonstrating unique understanding of alphabet

Welcoming Classroom Culture

- Positive and accepting attitude
- Family involvement
 - Communicate regularly with family
- Gather information and a team
 - Research autism
 - Meet with support staff
- Prepare student/peers
 - Prepare peers with information about autism
 - Prepare student with pictures of school, visit to classroom, visual schedule
- Curricular connections
 - Promote generalization of skills across curriculum
- Sensory consideration
 - Consider lighting, noise, odors
- Reinforcement/motivation
 - Learn value of reinforcement and ways to successfully implement
 - Motivate using student interests
- Expect success

Importance of Communication

- Characteristic of communication
 - Activity requiring participants to tell a story without using words

- Communication results in a behavior
- Using/modeling language
- What can educators do?
 - Demonstration of joint attention: point to board and announce homework is on the board. Demonstrate that lack of joint attention may cause student with autism to misunderstand the announcement.

Plan Instructional Strategies

- Visual strategies
 - Provide each participant with visual schedule of session
 - Demonstrate ways to manipulate visual schedule
- Universal Design for Instruction
 - Demonstrate ways to differentiate
- Structure in the classroom
 - Photographs of organization systems
 - Photographs of classroom arrangement
 - Photographs of student's work space
- Social skills
- Peer modeling

REFERENCES

- Agbenyega, J. (2007). Examining teachers' concerns and attitudes to inclusive education in Ghana. *International Journal of Whole Schooling*, 3, 41-56.
- Alghazo, E. M., Dodeen, H., & Algaryouti, I. A. (2003). Attitudes of pre-service teachers towards personas with disabilities: Predictions for the success of inclusion. *College Student Journal*, 37, 515-522.
- Almog, O., & Shechtman, Z. (2007). Teachers' democratic and efficacy beliefs and styles of coping with behavioral problems of pupils with special needs. *European Journal of Special Needs Education*, 22, 115-129.
- American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders. (4th ed.). Washington, DC: Author.
- Armor, D., Conroy-Wsequera, P., Cox, M., King, N., McDonnell, L., Pascal, A., Pauly, E., & Zellman, G. (1976). *Analysis of the school preferred reading programs in selected Los Angeles minority schools* (Report No. R-2007-LAUDS). Santa Monica, CA: Rand Corporation.
- Avramidis, E., Bayliss, P., & Burden, R. (2000). A survey into mainstream teachers' attitudes towards the inclusion of children with special educational needs in the ordinary school in one local education authority. *Educational Psychology*, 20, 191-212.
- Avramidis, E., & Norwich, B. (2002). Teachers' attitudes towards integration/inclusion: a review of the literature. *European Journal of Special Needs Education*, 17, 129-147.
- Bakeman, R. (2005). Recommended effect size statistics for repeated measures designs. *Behavior Research Methods*, 37, 379-384.
- Bandura, A. (1977a). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191-215.
- Bandura, A. (Ed.) (1977b). *Social Learning Theory*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Baron-Cohen, S. (2008). *Autism and Asperger Syndrome: The Facts*. NY: Oxford University Press.

- Beare, P. (1985). Regular classroom teachers' attitudes toward mainstreaming the emotionally disturbed: Can they be changed? (Report No. EC171390). Minnesota: Handicapped and Gifted Children.
- Beirne-Smith, M., Patton, J. R., & Kim, S. H. (2006). *Mental Retardation An Introduction to Intellectual Disabilities*. (7th ed.). Upper Saddle River, NJ: Pearson Education Inc.
- Bennett, T., DeLuca, D., & Bruns, D. (1997). Putting inclusion into practice: Perspectives of teachers and parents. *Exceptional Children*, 64(1), 115-131.
- Berman, P., & McLaughlin, M. (1977). Federal programs supporting educational change, Volume II: *Factors affecting implementation and continuation* (Report No R-1589/7-HEW). Santa Monica, CA: Rand Corporation.
- Berry, R. A. W. (2010). Preservice and early career teachers' attitudes toward inclusion, instructional accommodations, and fairness: Three profiles. *The Teacher Educator*, 45, 75-95.
- Block, M. E., & Obrusnikova, I. (2007). Inclusion in physical education: A review of the literature from 1995-2005. *Adapted Physical Activity Quarterly*, 24, 103-124.
- Brophy, J. E., & McCaslin, M. (1992). Teacher's reports of how they perceive and cope with problem students. *Elementary School Journal*, 93, 3-67.
- Campbell, J. (2003). 'Goals 2000: A modest proposal for reform.' *Research for Education Reform*, 18, 40-46.
- Carroll, A., Forlin, C., & Jobling, A. (2003). The impact of teacher training in special education on the attitudes of Australian preservice general educators towards people with disabilities. *Teacher Education Quarterly*, 30, 65-79.
- Center, Y., & Ward, J. (1987). Teachers' attitudes towards the integration of disabled children into regular schools. *The Exceptional Child*, 34, 41-56.
- Combs, S., Elliott, S., & Whipple, K. (2010). Elementary physical education teachers' attitudes toward the inclusion of children with special needs: A qualitative investigation. *International Journal of Special Education*, 25, 114-125.
- Cook, B. G. (2002). Inclusive attitudes, strengths, and weaknesses of pre-service general educators enrolled in a curriculum infusion teacher preparation program. *Teacher Education and Special Education*, 25, 262-277.
- Cullen, J., Gregory, J. L., & Noto, L. A. (2010). The teacher attitudes toward inclusion scale (TATIS). Paper or poster session presented at the meeting of Eastern Educational Research Association, Sarasota, FL.

- Cullen, J., & Noto, L. (2007). The assessment of pre-service general education teachers' attitudes toward the inclusion of students with mild to moderate disabilities. *Journal for the Advancement of Educational Research, 3*, 23-33.
- de Boer-Ott, S. R. (2005). General education teachers experience and perceptions regarding inclusive education and the inclusion of students with autism spectrum disorders. *ProQuest Dissertations and Theses*.
- DeSimone, J. R., & Parmar, R. S. (2006). Middle school mathematics teachers' beliefs about inclusion of students with learning disabilities. *Learning Disabilities Research & Practice, 21*, 98-110.
- Detres, M. (2005). 'Hispanic female high school students with special needs: Inclusion or exclusion. (Doctoral dissertation, Walden University, 2005)'. *Dissertation Abstracts International, 66*, 21-69.
- Downing, J. (2004). Related services for students with disabilities: Introduction to the special issue. *Intervention in School and Clinic, 39*, 195-208.
- Eldar, E., Talmor, R., & Wolf-Zukerman, T. (2010). Successes and difficulties in the individual inclusion of children with autism spectrum disorder (ASD) in the eyes of their coordinators. *International Journal of Inclusive Education, 14*, 97-114.
- Ellins, J., & Porter, J. (2005). Departmental differences in attitudes to special educational needs in the secondary school. *British Journal of Special Education, 32*, 188-195.
- Fazio, R. H., & Zanna, M. P. (1978). On the predictive validity of attitudes: the roles of direct experience and confidence. *Journal of Personality, 46*, 228-243.
- Foreman, P., Arthur-Kelly, M., Pascoe, S., & King, B. S. (2004). Evaluating the educational experiences of children with profound and multiple disabilities in inclusive and segregated classroom setting: An Australian perspective. *Research and Practice for Persons with Severe Disabilities, 9*, 183-193.
- Friedman, I. (2003). Self-efficacy and burnout in teaching: The importance of interpersonal-relations efficacy. *Social Psychology of Education, 6*, 191-215.
- Gary, P. L. (1997). The effect of inclusion on non-disabled children; a review of the research. *Contemporary Education, 68*, 4.
- Gibson, S., & Dembo, M. H. (1984). Teacher efficacy: A construct validation. *Journal of Educational Psychology, 76*, 569-582.
- Grusec, J. E. (1992). Social learning theory and developmental psychology: The legacies of Robert Sears and Albert Bandura. *Developmental Psychology, 28*, 776-786.

- Hammond, H., & Ingalls, L. (2003). Teachers' attitudes toward inclusion: survey results from elementary school teachers in three southwestern rural school districts. *Rural Special Education Quarterly*, 22, 24-30.
- Harding, S. (2009). Successful inclusion models for students with disabilities require strong site leadership: Autism and behavioral disorders create many challenges for the learning environment. *International Journal of Learning*, 16(3), 91-103.
- Hastings, R. P., & Graham, S. (1995). Adolescents' perceptions of young people with severe learning difficulties: The effects of integration schemes and frequency of contact. *Educational Psychology*, 15, 149-159.
- Hwang, Y. S., & Evans, D. (2011). Attitudes toward inclusion: Gaps between belief and practice. *International Journal of Special Education*, 26, 136-146.
- Idol, L. (2006). Toward inclusion of special education students in general education. *Remedial and Special Education*, 27, 77-94.
- Individuals with Disabilities Education Act, (1994) 20 U.S.C. §§ 1412, 1414; 34 C.F.R. Part 300; Fifth Circuit Federal Court of Appeals; Office of Special Education Programs.
- Jenkins, A., & Ornelles, C. (2007). Pre-service teachers' confidence in teaching students with disabilities: addressing the INTASC standards. *The Electronic Journal for Inclusive Education*, 2(2), http://www.ed.wright.edu/~prenick/Winter_Spring_08/Winter_Spring_08.html.
- Jenkins, A., & Ornelles, C. (2009). Determining professional development needs of general educators in teaching students with disabilities in Hawai'i. *Professional Development in Education*, 35, 635-654.
- Jennett, H. K., Harris, S. L., & Mesibov, G. B. (2003). Commitment to philosophy, teacher efficacy, and burnout among teachers of children with autism. *Journal of Autism and Developmental Disorders*, 33, 583-593.
- Jones, V. (2007). 'I felt like I did something good' – the impact on mainstream pupils of a peer tutoring programme for children with autism. *British Journal of Special Education*, 34, 3-9.
- Jordan, A., Kircaali-Iftar, G., & Diamond, P. (1993). Who has a problem, the student or the teacher? Differences in teachers' beliefs about their work with at-risk and integrated exceptional students. *International Journal of Disability, Development and Education*, 40, 45-62.
- Jull, S. (2006). Auto-graph: considering the utility of student behavior self-monitoring for inclusive schools. *Journal of Research in Special Educational Needs*, 6(1), 17-30.

- Kanner, L. (1943). "Autistic disturbances of affective contact". *Acta Paedopsychiatrica [Acta Paedopsychiatr]*, 35, 100-136.
- Kilanowski-Press, L., Foote, C., & Rinaldo, V., (2010). Inclusion classrooms and teachers: A survey of current practices. *International Journal of Special Education*, 25, 43-56.
- Kim, Y. S., Bennett, L., Yun-Joo, K., Fombonne, E., Laska, E., Lim, E., Cheon, K., Kim, S., Kim, Y., Lee, H., Song, D., & Grinker, R. R. (2011). Prevalence of autism spectrum disorders in a total population sample. *American Journal of Psychiatry*, 168, 904-912.
- Kirk, R. E. (1995). *Experimental Design: Procedures for the Behavioral Sciences*. (3rd ed.). Brooks/Cole Publishing Co.
- Kogan, M., Blumberg, S., Schieve, L., Boyle, C., Perrin, J., Ghandour, R., Perrin, M., Ghandour, R. M., Singh, G. K., Strickland, B. B., Trevathan, E., & van Dyck, P. C. (2009). Prevalence of parent-reported diagnosis of autism spectrum disorder among children in the US, 2007. *Pediatrics*, 124, 1395-1403.
- Kosko, K. W., & Wilkins, J. L. M. (2009). General educators' in-service training and their self-perceived ability to adapt instruction for students with IEPs. *The Professional Educator*, 33, 1-10.
- Leblanc, L., Richardson, W., & Burns, K. A. (2009). Autism spectrum disorder and the inclusive classroom. Effective training to enhance knowledge of ASD and evidence-based practices. *Teacher Education and Special Education*, 32(2), 166-179.
- Lifshitz, H., Glaubman, R., & Issawi, R. (2004). Attitudes towards inclusion: The case of Israeli and Palestinian regular and special education teachers. *European Journal of Special Needs Education*, 19, 171-190.
- Lin, H., Gorrell, J., & Taylor, J. (2002). Influence of culture and education on US and Taiwan preservice teachers' efficacy beliefs. *Journal of Educational Research*, 96, 37-46.
- Lopes, J. A., Monteiro, I., Sil, V., Rutherford, R. B., & Quinn, M. M. (2004). Teachers' perceptions about teaching problem students in regular classrooms. *Education and Treatment of Children*, 27, 394-419.
- Loreman, T., & Earle, C. (2007). The development of attitudes, sentiments, and concerns about inclusive education in a content-infused Canadian teacher preparation program. *Exceptionality Education Canada*, 17, 85-106.

- Loreman, T., Forlin, C., & Sharma, U. (2007). An international comparison of pre-service teacher attitudes towards inclusive education. *Disability Studies Quarterly*, 27(4). <http://www.dsqsds.org>.
- McGregor, E., & Campbell, E. (2001). The attitudes of teachers in Scotland to the integration of children with autism into mainstream schools. *Autism*, 5, 189-207.
- McLeskey, J., Rosenberg, M. S., & Westling, D. L. (2010). *Inclusion Effective Practices for all Students*. Upper Saddle River, NJ: Pearson Education Inc.
- Moore, C., Gilbreath, D., & Mauiri, F. (1998). Educating students with disabilities in general education classrooms: A summary of the research. Available online at: <http://interact.uoregon.edu/wrrc/AKInclusion.htm/>.
- National Academy of Sciences - National Research Council, W., & National Academy of Sciences - National Research Council, W. (2001). *Educating children with autism*.
- Norrell, L. (1997). A case for responsible inclusion. *Teaching PreK-8*, 28, 1-7.
- Odom, S., Brown, W., Frey, T., Karasu, N., Smith-Canter, L., & Strain, P. (2003). Evidence-based practices for young children with autism: contributions for single-subject design research. *Focus on Autism & Other Developmental Disabilities*, 18, 166-175.
- Park, M., Chitiyo, M., & Choi, Y. S. (2010). Examining pre-service teachers' attitudes towards children with autism in the USA. *Journal of Research in Special Educational Needs*, 10, 107-114.
- Pianta, R. C. (1992). *Student-Teacher Relationship Scale*. University of Virginia, Charlottesville, VA.
- Reindal, S. M. (2010). What is the purpose? Reflections on inclusion and special education from a capability perspective. *European Journal of Special Needs Education*, 25, 1-12.
- Rice, C. (2007). Prevalence of autism spectrum disorders --- autism and developmental disabilities monitoring network, six sites, United States. *Morbidity and Mortality Weekly Report*. 56(SS01), 1-11.
- Robertson, K., Chamberlain, B., & Kasari, C. (2003). General education teachers' relationships with included students with autism. *Journal of Autism and Developmental Disorders*, 33, 123-130.

- Romi, S., & Leyser, Y. (2006). Exploring inclusion pre-service training needs: a study of variables associated with attitudes and self-efficacy beliefs. *European Journal of Special Needs Education, 21*, 85-105.
- Rose, D. F., & Smith, B. J. (1992). Attitude barriers and strategies for preschool mainstreaming. (Report No. ED350758). Pittsburgh, PA: Allegheny-Singer Research Institute.
- Ross-Hill, R. (2009). Teacher attitude towards inclusion practices and special needs students. *Journal of Research in Special Educational Needs, 9*, 188-198.
- Ryan, T. G. (2009). Inclusive attitudes: a pre-service analysis. *Journal of Research in Special Educational Needs, 9*, 180-187.
- Salend, S., & Duhaney, L. (1999). The impact of inclusion on students with and without disabilities and their educators. *Remedial and Special Education, 20*, 114-126.
- Scruggs, T., & Mastropieri, M. (1996). Teacher perceptions of mainstreaming/inclusion, 1958-1995. A research synthesis. *Exceptional Children, 63*, 59-74.
- Sharma, U., Ed, J., & Desai, I. (2003). A comparison of Australian and Singaporean pre-service teachers' attitudes and concerns about inclusive education. *Teaching and Learning, 24*, 207-217.
- Sharma, U., Forlin, C., & Loreman, T. (2008). Impact of training on pre-service teachers' attitudes and concerns about inclusive education and sentiments about persons with disabilities. *Disability & Society, 23*, 773-785.
- Sharma, U., Forlin, C., Loreman, T., & Earle, C. (2006). Pre-service teachers' attitudes, concerns and sentiments about inclusive education: an international comparison of the novice pre-service teacher. *International Journal of Special Education, 21*, 80-93.
- Silverman, J. C. (2007). Epistemological beliefs and attitudes toward inclusion in pre-service teachers. *Teacher Education and Special Education, 30*, 42-51.
- Sims, H. P. Jr., & Lorenzi, P. (1992) *The New Leadership Paradigm*. Newberry Park, CA: Sage Publications.
- Snowden, D. (2003). Managing for serendipity or why we should lay off "best practices" in KM. *Knowledge Management, 6*, 8.
- Soodak, L. C., & Podell, D. M. (1993). Teacher efficacy and student problem as factors in special education referral. *Journal of Special Education, 27*, 66-81.

- Subban, P., & Sharma, U. (2005). Understanding educator attitudes toward the implementation of inclusive education. *Disability Studies Quarterly*, 25, <http://dsq-sds.org>.
- Sun, C. M. (2007). The impact of inclusion-based education on the likelihood of independence for today's students with special needs. *Journal of Special Education Leadership*, 20, 84-92.
- Sze, S. (2009). A literature review: Pre-service teachers' attitudes toward students with disabilities. *Education*, 130, 53-56.
- Taylor, S. V., & Sobel, D. M. (2001). Addressing the discontinuity of students' and teachers' diversity: a preliminary study of preservice teachers' beliefs and perceived skills. *Teaching and Teacher Education*, 17, 1-17.
- U.S. Department of Education Office of Special Education and Rehabilitative Services. (2006). OSEP IDEA, part B data collection history. Washington, DC: Author.
- Van Der Roest, D, Kleiner, K., & Kleiner, B. (2011). Self-Efficacy: The biology of confidence. *Culture & Religion Review Journal*, 1, 26-35.
- Viel-Ruma, K., Houchins, D., Jolivette, K., & Benson, G. (2010). Efficacy beliefs of special educators: The relationships among collective efficacy, teacher self-efficacy, and job satisfaction. *Teacher Education and Special Education*, 33, 225-233.
- Villa, R., Thousand, J., Meyers, H., & Nevin, A. (1996). Teacher and administrator perceptions of heterogeneous education. *Exceptional Children*, 63, 29-45.
- Waldron, N., McLeskey, J., & Pacchiano, D. (1999). Giving teachers a voice: Teacher's perspectives regarding elementary inclusive school programs (ISPs). *Teacher Education and Special Education*, 22, 141-153.
- Webb, N. (2004). Inclusion of students with disabilities: a survey of teachers attitudes toward inclusion education. (Doctoral dissertation, Walden University, 2004). *Dissertation Abstracts International*, 66, 2143.
- Wing, L. (1997). The autistic spectrum. *Lancet*, 350, 17-61.
- Wing, L., & Gould, J. (1979). Severe impairments of social interaction and associated abnormalities in children: Epidemiology and classification. *Journal of Autism and Developmental Disorders*, 9, 11-29.
- Wolery, M., Anthony, L., Snyder, E. D., Werts, M. G., & Katzenmeyer, J. (1997). Effective instructional practices in inclusive classrooms. *Education and Treatment of Children*, 20, 50-58.

Yianni-Courdurier, C., Darrou, C., Lenoir, P. Verrecchia, B., Assouline, B., Ledesert, B., Michelon, C., Pry, R., Aussilloux, C., & Baghdadli, A. (2008). What clinical characteristics of children with autism influence their inclusion in regular classrooms? *Journal of Intellectual Disability Research*, 52, 855-863.