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Walden University
2013

Abstract

The Impact of Professional Development Training in Autism and Experience on Teachers' Self-Efficacy

By

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MS, Long Island University West Point, 1999

BS, Nyack College, 1998

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Administration Leadership

Walden University

October 2013

Abstract

Regular education teachers' self-efficacy may be negatively impacted due to a lack of professional development and experience teaching students with Autism Spectrum Disorder (ASD). Research links teacher self-efficacy with increased student academic achievement. The purpose of this study was to examine to what degree training on ASD during and following teacher certification and experience had on overall teacher self-efficacy. This one-shot case study was based upon Bandura's theoretical construct of self-efficacy and secondarily on Tschannen-Moran, Woolfolk Hoy, and Hoy's theory of self-efficacy. The Teachers' Sense of Efficacy Scales (TSES) was used to collect data from regular education teachers with experience teaching students with ASD in 1st through 3rd grades in a Southern California school district. After the data were assessed for accuracy, missing data, and outliers, the analysis was conducted on 36 cases. MANOVAs were conducted to assess differences on overall self-efficacy. Separate ANOVAs were used since the overall self-efficacy and the subscores were highly correlated. Though the sample in this study was small (n = 36) for data analysis, the effect size showed that training experience and grade levels had a moderate to large effect on teacher self-efficacy (.16, .13, .13 respectively). Therefore teacher self-efficacy has a positive impact on student achievement. Implications for positive social change are self-efficacious teachers increase the academic achievement of students with ASD. In this way, such students can become self-sustaining, dynamic members of the work force and community.

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Dedication

This doctoral study is dedicated to my children of whom I am so proud, my daughter Lindsey Ann Miuccio, my son, Matthew Cody Miuccio, and to my partner, Michael Lee Garrow, who provided me with all of the positive reinforcement that I required helping me through to graduation.

Acknowledgments

Without the support of my family and friends, I would not have been able to successfully complete this incredible expedition. First, I would like to thank Michael Lee Garrow. Without his ongoing encouragement and neck rubs, I am not sure that I would have been able to get through the seemingly endless hours of research minutiae in front of my computer. Thank you to my beautiful and patient children, Lindsey and Matthew, who made it possible for me to begin my master's and doctoral academic journey so many years ago. What began as means to support my family quickly became a journey of love to understand autism spectrum disorder and to teach the acceptance of difference not indifference. A special thank you to my personal holistic-practitioner daughter, Lindsey, who made sure that I took care of the health of my body as well as my emotional health through diet and exercise, even when I whined loudly and incessantly.

Thank you to my mom, Alice, my dad, Charlie, my brothers and sisters, Michael, Kathy, Eileen and Greg, and my best friend, Natalie, for if not always understanding me, for always loving me. To all of my wonderful and bright nieces and nephews, education is never a misuse of time or money, rather a portal to endless possibilities and choices.

Thank you to my first mentor, Dr. A. Scott McGowan for all of his support and encouragement through my doctoral study and the arduous National Counseling Certification and the NY and CA Counseling licensure application process.

I would like to thank Dr. Miranda Jennings for agreeing to be the Chairperson of my doctoral study at this late stage of my research paper. Thank you to Dr. Stacy Ness, my second committee member and to my URR, Dr. Robert Hogan. I would like to

mention, Sally Ades and Louanne Golden, my editors who patiently helped me navigate the reiteration process, and to Dr. Jose Villereal, an innovative school administrator who never let me walk past his office without insisting on an update regarding where I was in the doctoral process and to offer priceless input. Finally, to my dearest friend and fellow doctoral candidate, Marilyn Giardino-Zych, who's unfailing support, artistic creativity, and comedic personality belied her true academic genius. Marilyn, may you rest comfortably with the angels in heaven; you are so missed by everyone whose life you touched.

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Section 1: Introduction to the Study

Background of the Problem

The focus of this quantitative, one-shot case research study was to examine the relationship between professional development training on Autism Spectrum Disorder (ASD), teaching experience, and grade level assignment on overall teachers' self-efficacy. This is a problem in the school district since self-efficacy has been described as a flexible personal belief system about what one can or cannot accomplish and the ultimate impact that it can produce throughout one's life (Bandura, 1994). Woolfolk and Hoy (1990) espoused that teacher self-efficacy is one of the few characteristics reliably linked to effective teaching practices and student learning. Ruble, Usher, and McGrew (2011) found that "teachers of students with autism may need access to autism-specific instructional methods that will facilitate the adoption of a teaching philosophy, which in turn promotes a higher sense of self-efficacy" (p. 71). The purpose of this section is to give an overview of the above stated problem and explain why it is worthy of being studied.

Due to increases in autism diagnoses, school districts will require additional special education resources to meet these students' special needs. The increasing number of children with ASD is highlighted in the Centers for Disease Control's (CDC, 2012) data citing that one in 88 children are now being diagnosed with ASD. This information is culled from the Autism and Developmental Disabilities Monitoring (ADDM) Network that scrutinized the evaluation records and ASD screenings of children from birth through age 8 at 14 individual ADDM sites within the United States. The ADDM standard for

meeting the ASD diagnosis strictly adhered to the diagnostic criteria recorded for 299.00 Autistic disorder found in the current version of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association [APA], 2000).The CDC (2012) reported that

> For 2008, the overall estimated prevalence of ASDs among the 14 ADDM sites was 11.3 per 1,000 (one in 88) children aged eight years who were living in these communities during 2008. Overall ASD prevalence estimates varied widely across all sites (range: 4.8–21.2 per 1,000 children aged 8 years). ASD prevalence estimates also varied widely by sex and by racial/ethnic group. Approximately one in 54 boys and one in 252 girls living in the ADDM Network communities were identified as having ASDs. (p. 1)

These new figures were critical since the 2008 CDC report had previously noted a 23% increase in ASD diagnoses since the 2006 calculations, which in turn translated to an alarming 78% increase in ASD since the 2002 data collection (CDC, 2012).

In Karger's (2005) discussion the Individuals with Disabilities Act (IDEA; 2004) which supported the practice of inclusion and the No Child Left Behind (NCLB; 2002) initiative are interrelated and mandate equal academic access for all students. As school districts attempt to adhere to inclusion guidelines, teachers are struggling to meet the academic and social-emotional needs of students with ASD who are placed in mainstream classrooms (Dybvik, 2004; Hamre & Oyler, 2004; Harmon & Dawson, 2008; Hehir, 2003; Zumwalt, 1986). The best practice education research maintains that classroom teachers be equipped to instruct students with a diversity of disabilities (Hehir,

2003) through ongoing special education professional development and teacher mentoring (Vaughn, Schumm, Jallad, Slusher, & Samuell, 1996), and with school administrators who support inclusion (Hess, Morrier, Herlin, & Ivey, 2007). However, obstacles to best practice guidelines include high standard testing quotas, heavy instructional loads, inexperience teaching students with ASD, and reduction of professional development opportunities. In addition, mandatory furlough days, increases in teacher-student classroom ratios, and inconsistent credential requirements for training teachers in ASD interventions can add to teachers' stress levels and lack of self-efficacy.

Woolfolk Hoy and Murphy (2001) found that novice teachers who had low self-efficacy used classroom management systems geared towards controlling students through rule-oriented classrooms dependent upon tangible rewards and/or punishments to motivate students. On the other hand, novice teachers with high self-efficacy reported more confidence in their teacher education programs, teaching abilities and relied upon intrinsic motivators to engage classroom students (p. 425). A teacher's self-efficacy can affect the outcome of the academic and behavioral programming for a student with ASD in a public school classroom. Woolfolk Hoy and Murphy concluded that teaching efficacy, a teacher's belief that he or she can reach even difficult students to help them learn, appears to be one of the few personal characteristics that is correlated with student achievement.

A research study on professional development training on ASD, experience, and teacher self-efficacy may assist administrators with strategic information when addressing an ongoing crisis in public education derived from an increasing number of

students with ASD enrolling in the public school system. School administrators are under pressure to uphold IDEA, including the Free and Appropriate Public School Education (FAPE) guidelines for special needs students with ASD who may have specific academic and behavioral support requirements. California's ongoing financial crises and subsequent extreme budget reductions may compel school districts to slash specialty programs, professional development trainings, and school staff, while student to teacher classroom ratios continue to rise. School administrators may choose to apply the "last in, first out" approach in determining which senior teachers to layoff to make room for novice teachers at a lower salary. In effect, particularly in high-poverty and high-minority schools, seasoned educators are being let go to bring in those with less experience (Sepe & Roza, 2010). As school districts scramble to reorganize with less funding, workloads may increase leaving little time for teacher collaboration or professional development, and special education programs may be reduced resulting in students with academic and behavioral concerns being mainstreamed, each scenario having the potential to produce additional workplace stressors for teachers.

I examined the characteristics of training on ASD during and following teacher certification, teaching experience, the amount of experience teaching students with ASD, specific grade level assignment, student engagement, instructional practices, and classroom management. There is a more detailed discussion of ASD professional development, teaching experience, student engagement, instructional practices, and classroom management on teacher self-efficacy in Section 2.

Statement of the Problem

As a result of increases in students with ASD diagnoses, regular education teachers nationwide in inclusion classrooms may have low self-efficacy due to the lack of training on ASD during and following teacher certification, lack of experience teaching students with ASD, and specific grade level assignment. I determined if there are any significant differences between the independent variables: training on ASD during and following teacher certification, amount of experience teaching students with ASD, and specific grade level assignment on the dependent variables of overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the Teachers' Sense of Efficacy Scale (TSES) survey. There may be many possible factors contributing to this problem: lack of teaching experience, grade level assignments, inexperience teaching students with ASD, school budget reductions, increased student caseloads, novice teachers replacing experienced teachers, lack of teacher collaboration, high-poverty and high-minority schools, and included students who may or may not be academically or behaviorally appropriate for regular education classrooms (Dvbvik, 2004; Smith & Ingersoll, 2004; Snell, Voorhees, & Chen, 2005). This study contributes to the body of knowledge needed to address this problem through a better understanding of the influences and outcomes that training on ASD during and following teacher certification, amount of experience teaching students with ASD, and specific grade level assignment may have on overall teacher self-efficacy. Woolfolk Hoy and Murphy (2001) proposed self-efficacy theory as a predictor that teachers with a high sense of efficacy work harder and persist longer even when students

are difficult to teach in part because these teachers believe in themselves and in their students.

Nature of the Study

A one-shot case study design was selected for this study to test the data collected from the surveys. This study examined the relationships between the amounts of ASD training, years of experience, grade level taught versus the level of teacher self-efficacy. Multivariate analysis of variance (MANOVA) was used to understand the main independent variables and any effect they may have on the multiple dependent variables. The TSES subscale scores described the participants' efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management. I surveyed the self-efficacy beliefs of 221 full-time regular education teachers in first through third grades in a Southern California school district with experience teaching students with ASD. Since survey return rates average 35.7%, the sample of 221 is sufficiently large enough to use as a sample for purposes of data analysis computations (Baruch & Holtom, 2008).

Research Questions and Hypotheses

RQ1: Do ASD training levels during and following teacher certification have an effect on teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management?

RQ2: Do levels of experience teaching students with ASD have an effect on teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management?

RQ3: Do current grade level assignments have an effect on teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management?

$H_0$1: There were no statistically significant differences among ASD training levels during and following teacher certification on overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

H_a1: There will be statistically significant differences among ASD training levels during and following teacher certification on overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

$H_0$2: There will be no statistically significant differences among levels of experience teaching students with ASD on overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

H_a2: There will be statistically significant differences among levels of experience teaching students with ASD on overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

$H_0$3: There will be no statistically significant differences among current grade level assignment on overall teachers' self-efficacy, efficacy in student engagement,

efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

H_a3: There will be statistically significant differences among current grade level assignment on overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

Research questions, independent and dependent variables are displayed in Table 1.

Table 1

Research Questions, Independent and Dependent Variables

Research Questions	Independent Variables	Dependent Variables
RQ1: Do ASD training levels during and following teacher certification have an effect on teachers' self-efficacy, efficacy in student engagement, efficacy in instruction practices, and efficacy in classroom management?	Training during and following teacher certification	Overall teacher self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management
RQ 2: Do years of experience teaching students with ASD have an effect on teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management?	Years of experience teaching students with ASD	Overall teacher self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management
RQ 3: Do current grade level assignments have an effect on teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management?	Current grade level assignments	Overall teacher self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management

Note: A more detailed discussion is found in the Methodology Section

Purpose of the Study

The purpose of this quantitative one-shot case study design was to better understand the influences and outcomes of ASD training, experience teaching students with ASD, and specific grade level assignment has on teacher self-efficacy. The purpose was to test the hypothesis that ASD training and teaching experience enhances teacher self-efficacy. This research study included the following independent variables: training on ASD during and following teacher certification, amount of experience teaching students with ASD, and specific grade level assignment. The dependent variables included overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

Theoretical Framework

This research study on teacher self-efficacy is grounded in the theoretical framework originally posed by Bandura's (1977) social learning theory that focused on the human learning process being informed through personal observations and the repetition of modeled behaviors:

> When people are faced with the tasks of managing difficult environmental demands under taxing circumstances, those who are beset by self-doubts about their efficacy become more and more erratic in their analytic thinking, lower their aspirations and the quality of their performance deteriorates. (p. 73)

Bandura (1977, 1994, 1997, 2006) posited that a sound level of self-efficacy has the potential to positively affect one's sense of personal success and emotional stability.

Strong self-efficacy levels can allow for a less defensive posture of self-doubt and can encourage an eagerness to understand the challenges and skill sets needed to meet the challenge (Bandura, 1977). In addition, stabilizing levels of personal self-efficacy can be difficult due to fluctuating student responses to academic and behavioral support strategies employed by classroom teachers (Bandura, 1994). Bandura embraces a sound support system together with open exchanges of relevant ASD information, which may sustain teacher self-efficacy thereby encouraging the experimentation of innovative ASD interventions.

Bandura (1977) expanded social learning theory to include self-efficacy, and Tschannen-Moran and Woolfolk Hoy (2001) supplemented his definition of self-efficacy as "a teacher's efficacy belief is a judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated" (p. 783).

Tschannen-Moran, Woolfolk Hoy, and Hoy (1998) further elaborated on the construct by comparing several instruments designed to measure teacher self-efficacy. As a result of their research, they offered an "integrated model of teacher efficacy" (p. 227) to redefine teacher self-efficacy as "the teacher's belief in his or her capability to organize and execute a course of action required to successfully accomplish a specific teaching task in a particular context" (p. 233) as a means to redefine teacher self-efficacy. As a result of these findings, the TSES instrument was developed to measure teacher self-efficacy in student engagement, instructional practices and classroom management. Rotter (1966) expanded the theory of self-efficacy by examining the function that internal

and external reinforcement played in coloring personal self-efficacy beliefs. According to Rotter, internal perception is based on whether a person believes internal resilience can control a situation or that outside influences can predicate the outcome. Bandura (1994) identified four schools of thought that have the capability to affect self-efficacy perceptions. First, a strong determination to persevere despite repeated failures builds a healthy sense of character. It will be important for regular education teachers to appreciate the flexibility of ASD academic and behavioral strategies and the necessity for frequent modifications. Second, examining the behaviors of a successful peer increases the likelihood of risk-taking on the part of the observer. Communities of learning can provide valuable opportunities for teachers to mentor and be mentored through collaboration. Since observing another's failure might diminish risk-taking on the part of the classroom teacher, the provision of ongoing mentoring support is crucial to sustain consistent implementation. Third, positive verbal peer prompting tends to bolster one's sense of determination to succeed. Forth, alleviate potential stressors by providing vital and sustainable support to bolster and stabilize self-efficacy beliefs. Strategic autism support by colleagues can be the encouragement needed to augment teacher self-efficacy beliefs. Providing teachers with resources for classroom management (Engler, 2004), opportunities to practice new skills (Zumwalt, 1986), and a school district's promotion of tolerance and emotional support for teachers (Glashan, Mackay, & Grieve, 2004) can also affect levels of self-efficacy.

Operational Definitions

Autistic Spectrum Disorder (ASD): The criteria required to make a diagnosis of

autism spectrum disorder. Autism Disorder can include several of the following characteristics: a marked impairment in social interactions, diminished eye contact, a flat emotional affect, awkward fine/gross motor skills, inability to make or maintain relationships, lack of joint attention and social reciprocity, communication delays, pragmatic language deficits, echolalia speech patterns, stereotypical motoric movements, inability to initiate or maintain developmentally appropriate play skills, perseverative interests and ruminations, inability to make smooth transitions between activities, a focus on the minutiae, and rule oriented and ritualistic behaviors (APA, 2000).

Asperger's Syndrome Disorder (AS): The diagnostic criteria, or the differential diagnosis, linking Autism Spectrum Disorder and High-Functioning Autism is that Asperger's Syndrome criterion does not include a language or cognitive development delay (APA, 2000). The German physician, Asperger was the first to describe the characteristics of Asperger's disorder in a paper published in 1944. The diagnostic criterion for Asperger's disorder differs from ASD in that there are no delays in communication, cognition, or adaptive behavior. Monitoring students with AS closely is imperative to rule out any delays in pragmatic language, mental health, anxiety, and depression problems.

Self-efficacy: A flexible personal belief system about what one can or cannot accomplish and the ultimate impact that it can produce throughout one's life (Bandura, 1994). Bandura observed that people require a strong sense of personal self-efficacy and an understanding of the role it plays over the lifespan in order to meet the challenges inherent in our social world environment:

> Perceived self-efficacy is concerned with people's beliefs in their capabilities to exercise control over their functioning and over events that affect their lives. Beliefs in personal efficacy affect life choices, level of motivation, quality of functioning, resilience to adversity and vulnerability to stress and depression. (p. 80)

Individualized Education Program (IEP): IDEA (2004) mandated educational institutions to design individualized education programs for students with special needs who may require additional academic and social-emotional supports to be successful in school.

Regular Education Teacher: The IDEA (2004) specifies these criteria for regular education teachers in Part 300 (d) 300.324 (a) 3

> (3) Requirement with respect to regular education teacher. A regular education teacher of a child with a disability, as a member of the IEP team, must, to the extent appropriate, participate in the development of the IEP of the child, including the determination of –
>
> (i) Appropriate positive behavioral interventions and supports and other strategies for the child; and
>
> (ii) Supplementary aids and services, program modifications, and support for school personnel consistent with §300.320 (a) (4).

Least Restrictive Environment (LRE): The IDEA in Section 300.114(a)(2), consistent with section 612(a)(5)(A) of the act, requires that to the maximum extent appropriate, children with disabilities are educated with children who are not disabled,

and that special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only when the nature or severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily (IDEA, 2004).

Free and appropriate public school education (FAPE): The 1975 Individuals with Disabilities Act (IDEA, 2004) mandates those students age 3-21 years with disabilities are entitled to a free public school program that provides for their individual special needs.

No Child Left Behind (NCLB): An act signed into law in 2004 by then President George W. Bush. NCLB highlighted an increase in requirements for public schools to demonstrate yearly measurable results for student academic progress and sound research-based educational programs taught by highly qualified classroom teachers (NCLB, 2002).

Assumptions, Limitations, Scope and Delimitations

I assumed that data collected on teacher self-efficacy are based upon the teachers' personal as well as interpersonal interpretations of the determining factors and truthful admissions to the queries to the demographic information provided and the surveys. Multivariate analysis of variance (MANOVA) was used to understand the main independent variables and any effect they may have on the multiple dependent variables. Green and Salkind (2011) stated that the assumptions underlying One-Way MANOVA are

Assumption 1: the dependent variables are multivariately normally distributed for

each population, with the different populations being defined by the levels of the factor.

Assumption 2: The population variances and covariances among the dependent variables are the same across all levels of the factor.

Assumption 3: The participants are randomly sampled, and the score on a variable for any one participant is independent from the scores on the variable for all other participants. (p. 224)

The limitation of this study was based on the assumption that the cases represent a random sample from the population, and that the scores on the dependent variable are independent of each other. This research study assumed the ensuing TSES statistical data on self-efficacy can be characterized across the regular education teaching population when teaching students with ASD. The dependent variable is the overall teachers' self-efficacy, efficacy in student engagement, efficacy of instructional practices, and efficacy of classroom management and was measured by the TSES survey instrument.

This problem may impact the academic and social achievements of students with ASD in regular education classrooms since teachers who do not have adequate ASD training may have difficulty implementing appropriate academic and behavioral interventions (Dvbvik, 2004; Pierce & Tincani, 2007).

This study was only generalized to a Southern California school district. The sample consisted of 221, first through third grade, regular education teachers in a Southern California school district. However, teachers in the sample who did not have experience-teaching students with ASD did not meet the criteria to participate in the

survey completion. The self-efficacy levels of pre-school and fourth through 12th grade regular education teachers were not considered in this research, and consequently, the results of this research study could not be generalized to the overall teaching population. The sample of 221 was delimited to include first through third grade regular education teachers in a Southern California school district. Wilson VanVoorhis and Morgan (2007) stated a "cell size of 30 for 80% power, if decreased, no lower than 7 per cell" (p. 48) participants are required to produce meaningful statistical data when measuring by MANOVA and that "the researcher will need to aim for about 29 subjects per group. If the treatment is to be compared with a standard, that is, only one group is needed, then the sample size required will be 15" (p. 33).

All statistical data were collected through the demographic questions and the TSES survey emailed to each of the participants. The ensuing data measured overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management when teaching students with ASD only.

Significance of the Study

This research study contributed to Walden University's commitment to positive social change by relating to the effect that enhanced teachers' self-efficacy has on ASD student achievement. An increase in teachers' self-efficacy, coupled with a positive influence on student achievement, may mitigate some of the effects of the escalating enrollment of students with ASD on school districts, teachers, students, and their families. Strong teacher self-efficacy may motivate students with ASD in their school programs. Effective inclusion programs for students with ASD, which may include

effective instructional and classroom management strategies and may well impact school districts by trimming special education expenditures, reducing teacher-student anxiety levels while upholding federal mandates by providing less restrictive classroom opportunities, and by preparing students to become more independent as they enter into the community and the work-force.

Summary

This section was in introduction to the purpose of the study, which was to provide research and findings on the effect that professional development training and experience in ASD may have on teachers' self-efficacy. Section 2 is a literature review, which situates the study in the context of previous research and presents a critical synthesis of empirical literature according to relevant themes or variables. Section 3 is an outline of the design for this study, the particular methodological tradition used, the rationale for that approach, the research setting and sample, and the data collection and analysis methods. Section 4 is a presentation of the the research findings, and Section 5 is the overview, conclusions, and recommendations.

Section 2: Literature Review

Introduction

The purpose of this literature review was to establish the impact of professional development training on ASD during and following teacher certification and experience teaching students with ASD on teachers' self-efficacy. The literature review is concentrated on several subjects including self-efficacy, social-learning theory, and autism spectrum disorder. Scholarly researchers demonstrated a correlation between professional development in autism and improved self-efficacy and the function that they play in the human psyche. According to Tschannen-Moran and Wolfolk Hoy (2007), the perceived availability of multiple levels of academic and social-emotional support play an important role in the development of new teachers' self-efficacy. Tschannen-Moran and Woolfolk used the context of self-efficacy as conceived by Bandura (2006) in his seminal work that described the attributes of perceived self-efficacy. He maintained that the perception of one's ability to complete a task or overcome an obstacle had more to do with an individual's desired objectives, established milestones, and existing social emotional background (Bandura, 2006). Teachers with practical classroom knowledge, referred to as *mastery experiences*, are able to access academic and social experiences and rely less on external supports to bolster personal self-efficacy beliefs. Thus, the implication is that inexperienced teachers require supplemental external supports to establish self-efficacy (Tschannen-Moran & Woolfolk Hoy, 2006).

A study measuring self-concealment and feelings of emotional security suggested that the tendency to conceal personal negative feelings directly impacted the well-being

of an individual's psyche, particularly in relation to "unfulfilled autonomy, competence and relatedness needs" (Uysal, Lin, & Knee, 2009). A teacher who believes that a student's academic success is limited by the student's abilities or home environment can have lowered self-efficacy, and therefore, can obstruct the student's learning potential (Skaalvik & Skaalvik, 2007). Self-concealment and authenticity were identified as containing four distinct components: *awareness* or the ability to understand conflicting belief, *unbiased processing* or maintaining objectivity with regard to personal beliefs, *behavioral authenticity* or acting upon an internal belief system and *relational authenticity* or exhibiting transparent communication in personal affairs and relationships (Kernis & Goldman, 2006).

Key operational definitions were used to identify pertinent ASD and self-efficacy literature: Autistic Spectrum Disorder (ASD), Asperger's Syndrome Disorder (AS), Self-efficacy, Individualized Education Program (IEP), Regular Education Teacher, Least Restrictive Environment (LRE), Free and appropriate public school education (FAPE), and No Child Left Behind (NCLB). Multiple databases were accessed to acquire peer-reviewed research that included: Dissertations and Theses at Walden University, Educational Resource Information Center (ERIC), ProQuest Central, PsycINFO, Education from SAGE, EBSCO Books, Thoreau, ed.gov, and Google Scholar. Additional resources supplemented this study and consisted of textbooks, encyclopedias, ebooks, websites, journals, books, dictionaries, and handbooks. Whenever possible the research articles selected to be included in this study were published between 2006 and the present in an effort to provide accurate information.

Components of Teacher Self-Efficacy

Self-efficacy is described as "people's judgment of their capabilities to organize and execute courses of action required to attain designated types of performance" (Bandura, 1986, p. 391). Gaskill and Woolfolk Hoy (2002) drew upon Bandura's four *mastery* components of personal *self-efficacy* and *self-regulated learning* and suggested that a teacher could boost a student's academic achievements with the mastery principals:

Modeling: Paring capable peers with low-performing students to provide visual and verbal assists,

Mastery Experiences: Establish structured routines with visual supports to frontload students with daily classroom expectations and build-in opportunities for students to practice new material,

Verbal Persuasion: Use positive language to encourage and motivate work completion and give constructive opinions,

Physiological Arousal: Reduces anxiety by clarifying directions, offer multiple testing formats, and finally, teach,

Self-Regulation Strategies: Reduce atypical behaviors and provide comprehensive and diverse academic and social-emotional experiences to allow for multiple student successes.

Today's classroom teachers must be skilled in addressing the academic and social-emotional needs of each student in order to maintain an optimum classroom environment for learning (Jennings & Greenberg, 2009). When the atmosphere in a classroom begins to spiral downward academically and behaviorally, a teacher may find

it difficult to regain control without a definitive support system and can experience a burnout cascade. Bandura's (1985) mastery approaches to improving self-efficacy and self-regulated learning can assist a classroom teacher in support of student academic progress by (a) allowing students to learn from each other through repetition of materials, (b) using daily schedule visuals posted in classroom that allow students to know what is expected, (c) using affirmative language as a positive reinforcement tool, (d) reframing directions for student clarification, (e) alternative means of assessments, (f) allowing students opportunities to regroup and refocus through the use of movement breaks and peer interactions, and (g) by differentiated instruction to engage and motivate all students.

There are concerns of apprehension and uncertainty that can arise when a teacher does not adhere to a tacit and familiar system. Schön (1983) acknowledged that *reflection-in-action* requires researcher-practitioners to identify the problem, research the resolution possibilities, and develop a potential solution (p. 129). Schön also argued that personal responses to these untested subjects can include choosing to ignore the issue or coming to a balanced conclusion on the spot, as a reflection-in-action position. Increased student behaviors and resistance to the academic workload can result when teachers choose to ignore disruptive students' behaviors. Consequently, students may become habituated to their atypical behaviors, thus requiring higher-level behavior strategies to be put in place.

Low levels of teacher self-efficacy can result in a personal belief that one is not able to perform, not in control of the situation, and unable to affect a change. Skaalvik and Skaalvik (2007) emphasized that

> Low mastery expectations may be particularly stressful for teachers because they may be accompanied by expectations of disciplinary problems and lower student performances, followed by possible conflict with parents and school principals. Such expectations may also represent a threat to an individual's identity as a teacher and may elicit defensive mechanisms that heighten emotional exhaustion and depersonalization. (p. 621)

This opinion further supported that low teacher self-efficacy can have a significant impact on professional exhaustion. Perceived external controls can shape a teacher's beliefs about outside environments negatively impacting student education, and it can appear to adversely affect a teacher's sense of self-efficacy. Dellinger, Bobbett, Olivier, and Ellett (2008) argued that the terms *teacher efficacy* and *teacher self-efficacy* are two distinct concepts (p. 753). Dellinger et al. contended that educational literature identifies *teacher efficacy* as

> The unique, and possibly crucial, role played by teachers' beliefs in their ability to perform the wide variety of teaching tasks (particularly those tasks that work!) required in various teaching and learning contexts. Teacher efficacy is focused on successfully affecting student performance, a possible (and worthy) outcome of successful teaching behaviours and student characteristics and behaviours (some of which may be under the control of the individual teacher). (p. 753)

Conversely, *teacher self-efficacy* is defined as "teachers' beliefs in their ability to affect student performance (outcome), given their own actions (internal) and the impact of students' home environments (external)" (Dellinger et al., p. 752).

Siu and Ho (2010) conducted a study comparing 115 teachers who had experience working with students with ASD. All of the participants had experience instructing students with ASD. The first group was committed to using the Applied Behavior Analysis (ABA) in the classroom and the second group utilized the Treatment and Education of Autistic and Communication-related Handicapped Children (TEACCH) program, both well-researched and respected learning programs (Ryan et al., 2001). A third control group was used that had no preference of either ABA or TEACCH methodologies. Independent functioning skills are the focus of both interventions with ABA breaking-down the tasks in doable segments for the student while keeping accurate data to track skill mastery (Boutot & Hume, 2010). Data are then collected in a one-to-one teacher-student design with the targeted tasks simplified, structured, and measured which is known as discrete trial training (DTT). TEACCH is an approach that uses the support of visuals, charts, and schedules to reduce transitions, and to simplify and structure the school day for each student with ASD (Mesibov & Shea, 2010). The results indicated that ABA oriented teachers had significantly elevated scores of *personal teaching efficacy* when the groups were compared. There were no significant differences between the other two groups for *regular teaching efficacy* (p.108). Siu and Ho maintained that

> With reference to the non-significant score on regular teaching efficacy, the results may suggest that there is an overall belief among teachers (regardless of whether they have a treatment orientation or not) that there are external factors

> that put limits to what they can accomplish from their work with children with autism. (p. 110)

The results of the data collected from the teacher participants supported higher levels of perceived teaching efficacy through advanced ABA training that subsequently increased teaching skills when working with students with ASD. In this study teacher self-efficacy, is therefore about a personal belief that they are adequately prepared to manage the academic and behavioral issues students with ASD may exhibit in mainstream classrooms.

Many students with ASD can have average cognition and disruptive behaviors. Teachers without a comprehensive knowledge of ASDs idiosyncratic characteristics can misinterpret a student's atypical behaviors as deliberate (Ashburner, Ziviani, & Rodger, 2010). In order to shape functionally appropriate behavioral interventions in the classroom teachers can benefit from additional staff support and training. Successful student access to mainstream core curriculum may involve a variation of specialized academic and behavioral supports that can be modified to augment positive growth.

Characteristics of Students with Autism

Ashburner et al. (2010) drew attention to the significant need for students with ASD to learn solid prosocial behavior skills and other strategies to help them regulate any problems with anxiety, depression, aggression, inattentiveness and lack of motivation. Whitaker (2007) found that 61% of parents polled were satisfied with the academic programming for their mainstreamed children with ASD providing that they felt the district had a clear understanding of autism and additional related services, provided a

consistent home-school communication process, and set precedence for social emotional growth opportunities during the school day. Bandura (2006) established that when parent levels of self-efficacy are intact they could provide a nurturing environment for their children and therefore establish a positive trajectory for raised levels of self-efficacy in their children. When Macintosh and Dissanayake (2006) compared the level of social skill delays and problematic behaviors of students with ASD to students with Asperger Syndrome (AS), their findings showcased delays in social skills, self-advocacy, self-regulation ability, hyperactivity, and internalizing for both groups. It was hypothesized that social skill delays were exacerbated by a lack of meaningful shared experiences with neuro-typically developing peers.

Historical Basis of Inclusion

There has been a major push towards including students with special needs since IDEA (2004) and NCLB (2002) regulations were enacted. Teachers are an integral component in the successful inclusion equation of student academic and social-emotional achievements. Pearson (2009) described the factors behind the academic shift to inclusive education as

> A rejection of a medical or deficit model of disability, which locates difficulties within the learner, in favor of a social model, which focuses on the barriers created by society, or an interactive model which considers the interactions between the learner and the environment. (p. 559)

Pearson asked precisely "what is meant by 'a teacher able to provide effective, inclusive education'?" (p.567) and suggested that while bureaucracies were primarily focused on

disability regulations, prudent teachers prioritized integrating classroom management skills and effective differentiated instruction techniques in order to provide an emotionally supportive and academically successful inclusion program for students with special needs.

Teacher Self-Efficacy and Student Achievement

Jennings and Greenberg (2009) proposed that teachers who were conscious of their own social-emotional strengths had a keen sense of personal self-awareness and understood how these traits could affect the behaviors of others. Attention is drawn to the apparent lack of sufficient professional development training for classroom staff in order to decrease stress levels and maintain or increase teacher effectiveness in supporting all areas of academic and social emotional student competence (Jennings & Greenberg, 2009). Osher et al. (2008) recognized that students with social-emotional behavior issues had more success in well-conceived, supportive inclusive school settings and with well-prepared teachers. The Department of Education is committed to placing *highly qualified teachers* in every classroom and the spotlight on standardized test scores keep teachers under additional stress to perform (Lee, Patterson, & Vega, 2011).

Seven years ago IDEA (2004) published new guidelines for K-12 public school special education teachers in general, and referred to teachers who meet those requirements as *highly qualified teachers*. The IDEA State certification prerequisites of *highly qualified teachers* are inventoried here:

- The teacher has obtained full State certification as a special education teacher (including certification obtained through alternative routes to

certification), or passed the State special education teacher licensing examination, and holds a license to teach in the State as a special education teacher, except that when used with respect to any teacher teaching in a public charter school, highly qualified means that the teacher meets the certification or licensing requirements, if any, set forth in the State's public charter school law;

- The teacher has not had special education certification or licensure requirements waived on an emergency, temporary, or provisional basis; and
- The teacher holds at least a bachelor's degree. [34 CFR 300.18(b)(1)] [20 U.S.C. 1401(10)(B)]

Kennedy (2008) realized the term “teacher quality” appeared one-dimensional and that it was essential to look at all of the qualities that teachers bring to their classrooms. She suggested categorizing teacher qualities into three clusters:

1. Personal resources – the unique and holistic qualities of each teacher.
2. Performance – the ability to fulfill the requirements of the job (i.e. differentiated academic instruction, interaction with school constituents, and meaningful - motivating curriculum).
3. Effectiveness – promoting academic achievement, social acuity, and increasing competent student productivity.

The concern that Kennedy posed was that classroom teachers have very diversified work responsibilities and that during teacher assessments each of these ‘qualities’ should be counted when determining teacher quality for a comprehensive evaluation.

The expectation of classroom teachers with high levels of self-efficacy is that they would be amenable to utilizing a variety of supportive techniques to engage and remediate non-motivated, behavior-challenged students (Caprara, Barbaranelli, Steca, & Malone, 2006). Osher, Bear, Sprague, and Doyle (2010) highlighted student discipline approaches as requiring multi-level behavioral techniques including the development of student self-discipline. Osher et al. recognized these discipline approaches as needing to be

> Developmentally appropriate for each student as well as the teacher, student, and school culture; student socioeconomic status; school and classroom composition and structure; pedagogical demands; student and teacher role expectations and capacity to meet the institutionally established expectations for their roles; and school climate. (p. 49)

Teachers as members of school academic communities have become increasingly accountable for the academic and social-emotional success of each student. This responsibility requires a classroom teacher with intact self-efficacy and the skill base to provide academically suitable and emotionally secure learning environments for each student (Caprara et al., 2006). At the primary level students spend the majority of their school day in one-teacher classrooms; therefore, it is imperative that elementary teachers maintain sufficient levels of self-efficacy in order to positively affect student

achievement. An increasing number of students are placed in mainstream classroom settings requiring regular education teachers to address and ensure that all IEP goals are presented and met. Therefore, teachers must be able to differentiate academic material to meet the need of each student. Lee-Tarver (2006) reported that teacher certification programs must be updated and expanded to include multiple learning opportunities to practice disseminating and differentiating classroom materials to meet the need of each student's deficits.

Teacher attrition can be an administrative challenge for school districts to tackle. If self-efficacy is negatively affected teachers may choose to pursue other career paths. Plash and Piotrowski (2006) maintained that one-third of all teachers will choose to pursue other occupations, with novice special education teachers twice as likely to leave the profession (Smith & Ingersoll, 2004). Henry, Bastian, and Fortner (2011) focused on teacher effectiveness and attrition and concluded that new teachers remain on the job and become more effective with experience and can benefit from initial ongoing teacher mentor relationships, professional development opportunities, and lowered teacher to student classroom ratios. Friedman and Kass (2002) stated that contemporary instruments measuring teacher self-efficacy needed to define a broader scope of teacher effectiveness by assessing teaching skills, school climate, and the flexibility to work with students, parents, and administrators.

As a result of an empirical study that included a self-reported questionnaire completed by 555 teacher participants, Friedman and Kass (2002) were able to present a distinctive approach to the notion of teacher self-efficacy:

> Teacher self-efficacy is the teacher's perception of his or her ability to (a) perform required professional tasks and to regulate relations involved in the process of teaching and educating student (class efficacy), and (b) perform organizational tasks, become part of the organization and its political and social processes (organizational efficacy) (p. 684).

Teachers spend much of their day in a classroom facing an academically diversified student population. Colleague and administrative collaboration must be readily accessible to encouragingly support teachers and students. As a consequence of the Friedman and Kass study an innovative version of a teacher self-efficacy instrument, the Classroom and School Context (CSC), was developed (Friedman & Kass, 2002).

School Districts and Autism

Woolfolk and Hoy (1990) expanded the research to include identifying the social-emotional and global support systems school districts would need to provide to bolster teachers' perceived efficacy. This further developed Bandura's (1997) assertion that the self-efficacy of novice teachers was adaptable and played a significant role in the development of teacher self-efficacy over the educational career span. Nieto (2005) reported that low teacher perceived efficacy could adversely affect teacher and student performances; therefore, administrators must ensure that a viable teacher support system is in place despite austere budget constraints. When ascertaining potential limitations, Pierce and Tincani (2007) reasoned that school staff might not be prepared or recognize the course of action well enough to initiate and maintain the prescribed interventions through competence. Evidence suggested that there is a direct correlation between

behavior-disordered students and teacher exhaustion (Hastings & Bham, 2003). Teachers must be confident in the educational methods and interventions proposed by their school district administration. Behavior supports developed for a student with ASD require consistent staff implementation and an ability to accurately perform the system in order for the intervention to be viable. When school districts pledge to provide technical, academic, environmental, and the social-emotional resources needed to sustain teachers' level of self-efficacy, the end result may be to intensify and increase teacher confidence and success (Lee, Patterson, & Vega, 2011). A school-wide climate with a collective of high levels of self-efficacy can increase both student academic performance and teacher self-efficacy (Skaalvik & Skaalvik, 2007). This research appeared to link positive school climate and increased self-efficacy with teacher training and supportive teacher mentoring. The (Skaalvik & Skaalvik, 2007) study established parental conflict and subject differentiation as major contributors to teacher stress levels.

Bullying is a major concern for school districts, teachers, and students and their families. It has been argued that teachers should be taught and able to provide effective classroom management strategies and to fully incorporate anti-bullying curricula to circumvent bullying behaviors and to promote a healthy school climate (Crothers & Kolbert, 2008).

Crothers and Kolbert (2004) also drew attention to the two most frequent responses from teachers regarding student behavior issues: (a) "their classroom management strategies are typically effective in resolving student behavioral concerns;" (b) "or they feel overwhelmed and impotent to address behavioral difficulties that

threaten to disrupt the learning process and subsequent academic achievement of students" (p. 25-26). In dealing with school violence, Sela-Shayovitz (2009) posited that school administrators and teachers are routinely privy to school violence involving students who they may not be prepared to safely manage. Sela-Shayovitz searched for variations in teacher levels of self-efficacy after the presentation of a school-wide violence prevention program. The results of their study described teachers who participated in the school violence prevention training reporting a significant increase in self-efficacy over the non-participating teachers. Their research outcome reported no movement in teacher levels of self-efficacy with regard to personal teaching efficacy (PTE) or teachers' efficacy in the school organization (TESO). The Sela-Shayovitz study concluded with the importance of teacher training in addressing school violence and with elevating levels of teacher self-efficacy, thus reducing teacher stressors and decreasing episodes of violent and destructive student behaviors.

Professional Development

Advocates for the inclusion of students with ASD in regular education classrooms have identified several academic and social scaffolding systems that can be effective in sustaining mainstream classrooms. Hehir (2003) supported the inclusion of special needs students and admitted that regular education teachers would require the assistance of sound academic programs, mentoring by special educators, and ongoing professional development opportunities. Ochs, Kremer-Sadilk, Solomon, and Sirota (2001) made a case for in-service training in order to prepare teachers in mainstream classrooms regarding the particular characteristics and eccentricities that can be apparent in persons

with ASD. Teachers who come prepared with multiple levels of instructional and behavioral techniques may have the ability to quickly shift gears to meet the educational and social-emotional needs of each student as needed.

Teachers who are able to organize a highly structured academic environment employing multi-disciplinary learning approaches, incorporating visual support systems and sensory integration strategies, may be able to alleviate some atypical student behaviors. Harrower and Dunlap (2001) contend that inclusive classrooms structured to support students with ASD through predictable routines and sensory reduction environments can proactively decrease and even prevent disruptive behaviors from occurring. Zumwalt's (1986) research pointed out the importance of providing ongoing autism-themed professional development workshops and opportunities for teachers to practice new skills in order to boost their comfort level in applying new classroom strategies. Teachers well versed in current ASD academic and behavioral supports may be able to cultivate strong teacher-student working relationships in the classroom. Desimone (2009) addressed the importance of ongoing professional development when looking to improve the quality and efficiency of classroom teachers, student progress and educational reform, "Professional development is a key to reforms in teaching and learning, making it essential that we use best practice to measure its effects" (Desimone, 2009, p. 192). Professional development can occur on multiple levels and in many learning formats (i.e. classroom settings, "in-service days," "hallway discussions," "online venues," collaborations in schools and communities, etc.). Sharing new skills with educators by quickly disseminating new knowledge pertinent to the scope of

increasing teaching proficiency is critical for teachers as well as students. Debate has continued pertaining to the overall effectiveness of professional development opportunities and the instruments used to measure and validate their usefulness to teachers (Desimone, 2009). Cheney (2009) reminded educators of the significance of employing research-based positive behavior support (PBS) interventions that can be corroborated for effectiveness through data collection, and that while implementing contemporary practices, not to abandon those that have been effective in the past. He reported that as a result of the IDEA of 1997 and 2004, the National Technical Assistance Center for Positive Behavioral Interventions and Support (PBS) at the University of Oregon was initiated. Correct use of the PBS system can help identify the "essential features for schools to implement that are related to decreasing problem behaviors, increasing positive social skills, enhancing school climate, and improving student academic achievement" (Cheney, 2009, p. 178). Osher et al. (2009) presented on the positive effect of a stable nurturing "school climate and student connectedness" resulting in elevated student academic and social-emotional achievements and argued that when struggling schools commit to building strong school environments, they are able to demonstrate the same affirmative student results (p. 5).

Pugach, Blanton, and Correa's (2011) characterized teacher collaboration as the functional "integration of regular and special education at the pre-service level" (p. 183). They offered a concern that without teacher education programs designed to unite gaps between regular and special education, today's teachers may not be able to meet the unique programmatic requirements for each student. A function of a

collaborative teaching model is to effect change by encouraging regular and special educators to exchange consequential teaching practices, bridging any disparities between certifications, and allowing instructional teacher modeling in the classroom as a means to facilitate successful inclusion practices (Oyler, 2011). Kozleski (2011) reasoned that the level of teacher appreciation among researchers be raised as they isolated the foundations of superior teacher education. She envisioned educational inquirers using a *third space* treatment, which would offer a safe platform for a dichotomy of opinions on collaborative teacher education curriculum. A third space forum would challenge fact finders to look through a lens of collaborative teaching possibilities while including the "local, regional, national, and international social, political, and economic contexts" that may affect the outcome of any proposed educational revisions (Kozleski, p. 251).

Ideally, through third space treatment, stakeholders will have achieved an understanding of

- The way teachers come to know their practice;
- The way that problems are resolved through policy, research, and/or practice;
- The nature of the kinds of teacher education problems worth solving (e.g., alternative vs. university-based programs); and
- The ways in which representations of reality are expressed through the specialized, professionalized language that we use. (Kozleski, 2011, p. 251)

Pugach and Blanton (2011) concluded that teacher education has been in an "upheaval" since the level of academic and social-emotional supports for students has intensified. Therefore, the researchers insist that collaborative teaching models be "anchored in theories of beginning teacher effectiveness and learning" to benefit school districts as an influx of students with special needs are enrolled in regular education classrooms (p. 182).

According to Brownell et al. (2009), the skill sets special education teachers require are multifaceted: "classroom management, decoding practices, and providing explicit, engaging instruction" are proficiencies key in raising student achievement levels (p. 391). Also highlighted, *classroom management skills* are critical for novice teachers in maintaining a safe and cohesive learning environment. The ability of well-informed teachers to be able to "engage students with disabilities who may wrestle with decoding and mathematics, [and provide] student academic incentives, socialization opportunities, and classroom organization" are fundamental to the education process (Brownell et al., p. 391).

In 2004-2005 the United States federal government funded approximately $1.5 billion in teacher professional development costs (Birman et al., 2007). However, the current provision of teacher professional development opportunities by school districts can be limited due to the expense and staff-student curriculum time constraints.

Summary

Upon reviewing the research on ASD inclusive special education, student achievement, school district climate, and programmatic needs, it appears that professional

development training on ASD, teaching experience, student management, instructional practices, and classroom management may be useful strategies to improve teacher self-efficacy and may, therefore, boost student academic achievement. Enhanced teachers' self-efficacy may alleviate some teacher attrition and teacher burnout issues.

Section 3: Research Method

Introduction

The purpose of this research study was to better understand the influences and outcomes of professional development on ASD, the amount of experience teaching students with ASD, and the specific grade level assignment have on teachers' self-efficacy. The methodology section for this research includes the measures for selecting participants, the data collection tools, and the procedures for analyzing the collected data.

Research Design and Approach

A quantitative one-shot case study design methodology was chosen that would focus on the viewpoints and individual demographics of the participants (Creswell, 2003). An established, reliable, and valid survey is preferred for its ease of participant distribution and collection via district email and for the inferential statistical elements. The ensuing data analysis provided numeric descriptions (Creswell, 2003) of teacher self-efficacy and teaching experiences through the TSES survey and the demographic queries. Creswell states

> In a quantitative research study the researcher uses theory deductively…with the objective of testing or verifying a theory rather than developing it, the researcher advances a theory, collects data to test it, and reflects on the confirmation or disconfirmation of the theory by the results. (p. 125)

A quantitative and comparative survey design was chosen to determine the relationship between the independent variables of professional development training on ASD during and following teacher certification as well as experience teaching students with ASD and the dependent variables of overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES. The TSES participant data was analyzed using the IBM SPSS 21.0 for MAC software. Composite scores were calculated for each of the self-efficacy scores. The scores included: (a) the overall teachers' self-efficacy levels, (b) efficacy in student engagement, (c) efficacy in instructional practices, (d) and efficacy in classroom management. Descriptive statistics in the form of frequencies, means, standard deviations and maximum/minimum measurements were used to analyze the participants' responses to the research questions on levels of teachers' self-efficacy. MANOVA, an inferential statistics tool, was utilized to analyze the hypotheses.

Setting and Sample

The sample of 221 participants chosen to take part in this study is the total amount of full-time regular education teachers in first through third grade within the 16 elementary schools in a Southern California school district. Primary grade teachers were chosen to participate since many young students are newly diagnosed with ASD and

early academic and social-emotional interventions are critical for student success. In order to participate, teachers must have had experience-teaching students with ASD in their regular education classroom. Response rates in organizational research studies using surveys for data collection can "average 35.7% with a standard deviation of 18.8%" (Baruch & Holtom, 2008, p. 1150). This research study's 25% response rate falls within this range. Baruch and Holtom's reported more electronic data collection instruments were completed and returned than research instruments sent via the mail system (p. 1139). The sample of *N*=221 is sufficiently large enough to use as a sample for purposes of data analysis since when measuring differences by the MANOVA method, Wilson VanVoorhis, and Morgan (2007) recommended a cell size of 30 for 80% power but no lower than seven per cell. The participants were asked to complete five demographic questions (see Appendix D) and the long form of the Teachers' Sense of Efficacy Scale (TSES; see Appendix E) containing 24 Likert scaled items. Subsequent to IRB approval to conduct data collection, a Letter of Consent (see Appendix C) was distributed via the school district's email system to the participants.

Instrumentation and Materials

The survey contained five demographic questions (see Appendix D) and was followed by 24 Likert-scaled items in the long form of the TSES (Tschannen-Moran & Woolfolk Hoy, 2001; Appendix E). Ordinal data are collected through Likert-type surveys that are designed to find relationships among the research variables. Each survey response is reported numerically. The research included descriptive statistics on the reported levels of regular education teachers' self-efficacy when teaching students with

ASD. The subtotal scores were treated as interval data. The participants were asked to complete the TSES survey online and return the submission via Survey Monkey to the researcher. The approximate time to complete the demographic questions and the TSES online survey was 15-20 minutes. The long form of the TSES is a Likert-type questionnaire designed to measure overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). Tschannen-Moran and Woolfolk Hoy (2001) stated that the benefits of using the TSES are that:

> It is superior to previous measures of teacher efficacy in that it has a unified and a stable factor structure and assesses a broad range of capabilities that teacher's consider important to good teaching, without being so specific as to render it useless for comparison of teachers' across context level and subjects. (pp. 801-802)

Tschannen-Moran and Woolfolk Hoy (2001) recognized three moderately correlated factors: self-efficacy in student engagement, self-efficacy in instructional practices, and self-efficacy in classroom management. A construct validity utilizing Factor Analysis was completed for the three correlated factors on the TSES long form with the following results: Efficacy in student engagement had an eigenvalue of 10.38 with a cumulative frequency of 43.25, efficacy in instructional practices had an eigenvalue of 2.03 with a cumulative frequency of 51.72, and efficacy in classroom management had an eigenvalue of 1.62 with a cumulative frequency of 58.47 (p. 800).

Participants who had elevated scores on each factor also had higher levels of teacher self-efficacy. A few items from each subscale are listed below:

Efficacy in Student Engagement:

- How much can you do to get through to the most difficult students?
- How much can you do to get students to believe they can do well in schoolwork?

Efficacy in Instructional Practices:

- How much can you do to adjust your lessons to the proper level for individual students?
- How well can you implement alternative strategies in your classroom?

Efficacy in Classroom Management:

- How much can you do to control disruptive behavior in the classroom?
- How well can you keep a few problem students from ruining an entire lesson?

The Tschannen-Moran and Woolfolk Hoy long form TSES reliability scores are presented in Table 2.

Table 2

TSES Long Form Reliability Scores

	Mean	SD	Alpha
TSES	7.1	.94	.94
Engagement	7.3	1.1	.87
Instruction	7.3	1.1	.91
Management	6.7	1.1	.90

Note. From "Teacher efficacy: Capturing an elusive construct," by Tschannen-Moran and Woolfolk Hoy (2001), Teaching and Teacher Education, 17, p. 800. Reprinted with permission (see Appendix G).

There is acceptable reliability for the TSES long form (alpha) with ranges between .87 and .94. The Tschannen-Moran and Woolfolk Hoy (2001) study found that the TSES measurement had positive correlation with the Rand Items measurement, the Gibson and Dembo teacher efficacy measurement, and the regular teacher efficacy (GTE).

Total scores on the 24-item long form of the OSTES (TSES) were

> Positively correlated to both the Rand items ($r = 0.18$ and 0.53, $P < 0.01$) as well as to both the personal teaching efficacy (PTE) factor of the Gibson and Dembo measure ($r = .64$, $p < 0.01$) and the regular teacher efficacy (GTE) factor ($r = .016$, $p = 0.01$) (Tschannen-Moran & Woolfolk Hoy, 2001, p. 801).

Each of these measurements was developed using Rotter's (1966) theoretical perspective that teachers' self-efficacy beliefs have the most significant impact on teaching effectiveness (p. 787). Woolfolk Hoy, one of the developers of the TSES survey, granted permission in writing to utilize this instrument in January 2010.

The demographic questions at the commencement of the survey inquired: how many years the participants have been teaching, what is the current grade level teaching assignment (1st grade, 2nd grade, 3rd grade), how many years experience teaching students with ASD, the amount of professional development training on ASD during teacher certification, and the amount of professional development training on ASD following the teacher certification, to be followed by the 24 questions on the TSES.

Data Collection and Analysis

A letter of intent was sent to the district Superintendent for permission to conduct this research study (see Appendix A). The school district granted permission in May 2011 via email (see Appendix B) for this study to take place, and each elementary school principal was notified by the school district administrative office of the impending study. Participating teachers from each of the sixteen campuses in 1st through 3rd grades who had teaching experience with students with ASD were asked via inter-district email for informed consent (see Appendix C). The informed consent letter (see Appendix C) is an invitation for teachers in grades one through three who have some experience teaching students with ASD to take part in this research study. It is explained in the consent letter that opening the survey link is the equivalent to an agreement to participate in the research. The consenting participants were then expected to complete the demographic questionnaire (see Appendix D) and the (TSES) survey (see Appendix E) via Survey Monkey and to return the completed survey via Survey Monkey to the researcher. Friendly email reminders were sent by the researcher at one week and again at 10 days after the initial survey were sent to the regular education teachers in first through third

grade with the message to please complete the survey so that the research study could be completed. The survey participation closed two weeks after the initial email request (Appendix F). The data was computed and analyzed after it was received. Completion of the survey and demographic questionnaire was voluntary, and measures were followed to preserve the anonymity of each participant. The raw data will be available in the research study appendices, tables, and by request from the researcher.

Research Questions

RQ1: Do ASD training levels during and following teacher certification have an effect on teachers' self-efficacy, efficacy in student engagement, efficacy in instruction practices, and efficacy in classroom management?

RQ2: Do levels of experience teaching students with ASD have an effect on teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management?

RQ3: Do current grade level assignments have an effect on teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management?

H_{01}: There will be no statistically significant differences among ASD training levels during and following teacher certification on overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

H_1: There will be statistically significant differences among ASD training levels during and following teacher certification on overall teachers' self-efficacy,

efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

H_{02}: There will be no statistically significant differences among levels of experience teaching students with ASD on overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

H_2: There will be statistically significant differences among levels of experience teaching students with ASD on overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

H_{03}: There will be no statistically significant differences among current grade level assignments on overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

H_3: There will be statistically significant differences among current grade level assignments on overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

Descriptive statistics in the form of frequencies, means, standard deviations and maximum/minimum measurements were used to analyze the participants' responses to the research questions on levels of teachers' self-efficacy. Inferential statistics in the form of MANOVA were utilized to analyze the hypotheses.

The Role of the Researcher

The participants polled were regular education teachers in first through third grade in a Southern California school district where I have been employed for 6.5 years as an autism behavioral specialist. Since I am conducting research where I am employed, the term *backyard research*, coined by Glesne (2011), describes the various conflicts of interest that must be avoided. The majority of the research participants were unknown to me since they work at elementary schools that were not on my caseload or are regular education teachers who had not requested my services as the autism behavior specialist in their classrooms. I have never been in a supervisory position over my teacher participants.

This research project was designed to protect consenting research participants from unnecessary burden during the school semester with a one-two week window to complete the self-efficacy survey. I analyzed the collected data using the SPSS (IBM, 2011) data analysis software program. All participant identifiers and research data were obtained and stored using electronic media in confidential files on my personal password secured computer. There was no Protected Health Information (PHI) collected from the participants in this study. All of the research data collected from this doctoral research study will be permanently deleted after being stored for the minimum 5-year requirement.

Summary

Section 3 presented the methodology that was used in this study. The purpose of this research study was to better understand the influences and outcomes of professional development on ASD during and following teacher certification, the amount of

experience teaching students with ASD, and the specific grade level assignment has on teachers' self-efficacy to help provide solutions to an ongoing crises in public education derived from an increase in the number of students with ASD. I conducted a one-shot case study using the data collected from demographic questions and the long form of the TSES.

Section 4: Results

Introduction

The purpose of the quantitative comparative study was to understand the influence of ASD training during and following teacher certification, levels of experience, and grade level assignment on teacher self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management. Two hundred and twenty-one full-time regular education teachers with 1st through 3rd grade level teaching assignments in one Southern California school district were polled via the district's email system. Accompanying the data collection tools was the informed consent document (see Appendix C) that contained informative disclosures pertinent to the research study so that each participant could make an informed decision whether or not to participate. Participants were asked to complete five demographic questions (see Appendix D) and the TSES (see Appendix E) survey and submit it via the embedded Survey Monkey link. Consenting participants needed to have had experience-teaching students with ASD in order to access and complete the survey. This section is a description of the results of the data analyses that pertain to each of the three research questions and hypotheses proposed in this research study.

Descriptive Statistics

Fifty-six individuals responded to the survey. The data were transferred into SPSS 21.0, and data were screened to be certain inclusion criteria were met. To participate in the study, individuals needed to have taught any student with ASD. Thirteen cases were removed for not meeting inclusion criteria. Data were also assessed for accuracy, missing

data, and outliers. Seven participants were removed for not responding to the majority of the questions. Descriptive statistics were conducted to determine that responses were within the appropriate response parameters; no cases were removed. The presence of univariate outliers was tested by the examination of standardized residuals (*z* scores). Data were assessed for outliers by creating *z* scores for the three continuous variables of interest; outliers were defined as values greater than 3.29 standard deviations away from the mean (Tabachnick & Fidell, 2012). No cases were removed as univariate outliers. Because the analyses are MANOVAs, data were also assessed for multivariate outliers using Mahalanobis distances. No outliers were found at $\chi^2(4) = 18.47$, $p = .001$. Data analysis was conducted on 36 cases.

The most common grade level that responded were first grade teachers 13 (36%), followed by second grade teachers 12 (33%), and then third grade teachers 11 (31%). Participants most frequently reported years of teaching students with ASD to be between 5–9 years (13, 37%) followed by 1–4 years (12, 34%). The majority of the participants did not receive ASD training during certification (22, 61%). Most of the participants had no further ASD professional development (18, 50%) following certification or only a low amount of development (1–6 hours; 15, 42%). Hours of training during and following certification were combined, and the majority of the participants had 1–6 hours of training (22, 61%). Frequencies and percentages for teacher characteristics are presented in Table 3.

Table 3

Frequencies and Percentages for Teacher Characteristics

Characteristic	*n*	%
Grade level taught		
First	13	36
Second	12	33
Third	11	31
Years teaching students with ASD		
1 – 4 years	12	34
5 – 9 years	13	37
10 or more years	10	29
Amount of ASD training during certification		
None	22	61
Low (1 – 6 hours)	12	33
Medium (7 – 12 hours)	2	6
Further ASD professional development after certification		
None	18	50
Low (1 – 6 hours)	15	42
Medium (7 – 12 hours)	2	6
High (13 or more hours)	1	3
Total training		
None	9	25
1 – 6 hours	22	61
More than 6 hours	5	14

Note. Percentages may not total 100 due to rounding error.

Cronbach's alpha reliability was conducted on the three subscales of interest (efficacy in student engagement, efficacy in instructional strategies, and efficacy in classroom management) and total efficacy. Reliability ranged from .88 to .96, which represents good to excellent reliability (George and Mallery, 2010). Table 4 displays the reliability of the subscales as well as descriptive statistics (mean and standard deviation).

Table 4

Cronbach's Reliability and Descriptive Statistics for Efficacy Subscales

Subscale	Cronbach's α	Number of items	*M*	*SD*
Efficacy in student engagement	.90	8	6.39	1.17
Efficacy in instructional strategies	.88	8	7.00	0.99
Efficacy in classroom management	.95	8	6.64	1.41
Overall Efficacy	.96	24	20.03	3.28

Prior to assessing the MANOVAs to address the research questions, the assumptions of normality and absence of multicollinearity were assessed. Normality was assessed with four Kolmogorov Smirnov (KS) tests. The results of the test showed non-significance for all scores suggesting normality was met. Absence of multicollinearity was assessed for the MANOVAs with Pearson correlations. The correlations conducted for overall efficacy were greater than .85, ranging from .90 - .93, indicating they should not be used in the MANOVA analyses (Kline, 2005). The correlations conducted among the three subscales were significant with correlation coefficients ranging from .76 to .78, meeting the assumption for absence of multicollinearity. Three MANOVAS will be conducted to assess differences on the subscales of self-efficacy, and three ANOVAs will be conducted to assess differences on overall self-efficacy. Separate ANOVAs were

conducted because the correlation between overall self-efficacy and the sub-scores at .85 was too highly correlated with the other three efficacy variables.

Research Question 1

RQ1: Do ASD training levels during and following teacher certification have an effect on teachers' self-efficacy, efficacy in student engagement, efficacy in instruction practices, and efficacy in classroom management?

$H_0$1: There will be no statistically significant differences among ASD training levels during and following teacher certification on overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

H_a1: There will be statistically significant differences among ASD training levels during and following teacher certification on overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

To assess RQ1, one MANOVA and one ANOVA were conducted to assess if the three efficacy variables (efficacy in student engagement, efficacy in instructional strategies, and efficacy in classroom management) were significantly different by the total hours of training (none, 1–6 hours, and 7 or more). Prior to analysis, the assumption of equality of covariance matrices was assessed with a Box's M test. The results of the Box's M test were not significant, $p = .848$, suggesting the assumption was met. The assumption of equality of variance was assessed with three Levene's tests. The results of the tests were not significant, meeting the assumption.

The result of the MANOVA was not significant, F (6, 64) = 2.04, p = .073, partial η^2 = .16, indicating there were not differences on the efficacy subscales by total hours of training. An effect size of .16 indicates a large difference between groups. Since the MANOVA was not significant, additional analyses were not conducted. Results of the MANOVA are presented in Table 5. Means and standard deviations are presented in Table 6. Figure 1 presents a bar chart of the means for the self-efficacy subscales.

Table 5

MANOVA for Efficacy Variables by Total Hours of Training

		F (2, 33)		
Source	MANOVA F (6, 64)	Student engagement	Instructional strategies	Classroom management
Total hours	2.04	0.73	0.59	1.72

Table 6

Means and Standard Deviations for Efficacy Subscales by Hours of Training

Variable	Hours of training	*M*	*SD*
Student Engagement	None	6.07	1.24
	1 - 6 hours	6.57	1.09
	7 or more hours	6.13	1.45
	Total	6.39	1.17
Instructional Strategies	None	6.79	1.15
	1 - 6 hours	7.00	0.92
	7 or more hours	7.40	1.08
	Total	7.00	0.99
Classroom Management	None	6.00	1.47
	1 - 6 hours	6.73	1.41
	7 or more hours	7.38	1.01
	Total	6.64	1.41

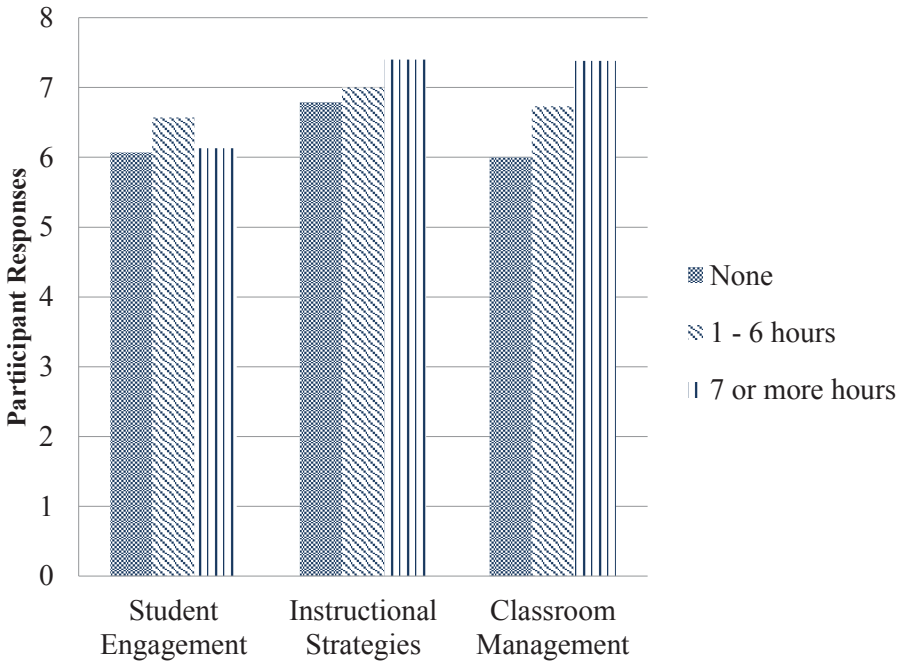

Figure 1. Means for the efficacy subscales by hours of training.

In addition, an ANOVA was conducted using overall efficacy scores as the dependent variable. The assumption of equality of variance was assessed with a Levene's test and was not significant, $p = .875$, meeting the assumption. The ANOVA was not significant, $F\ (2, 33) = 0.82$, $p = .415$, partial $\eta^2 = .05$, suggesting there was no difference in overall efficacy by the total hours of training. An effect size of .05 indicates small differences between the groups. Since neither the MANOVA nor the ANOVA conducted were significant, the null hypothesis cannot be rejected in favor of the alternative hypothesis. Results of the ANOVA are presented in Table 7, and means and standard deviations are presented in Table 8. Figure 2 presents overall self-efficacy.

Table 7

Results of the ANOVA for Overall Efficacy by Total Hours of Training

	None		1 - 6		7 or more			
Source	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F* (2, 33)	*p*
Overall Efficacy	18.86	3.61	20.30	3.19	20.90	3.20	0.82	.451

Table 8

Means and Standard Deviations for Overall Efficacy by Hours of Training

Variable	Hours of training	*M*	*SD*
Overall Self-Efficacy	None	18.86	3.61
	1 - 6 hours	20.30	3.19
	7 or more hours	20.90	3.20
	Total	20.02	3.28

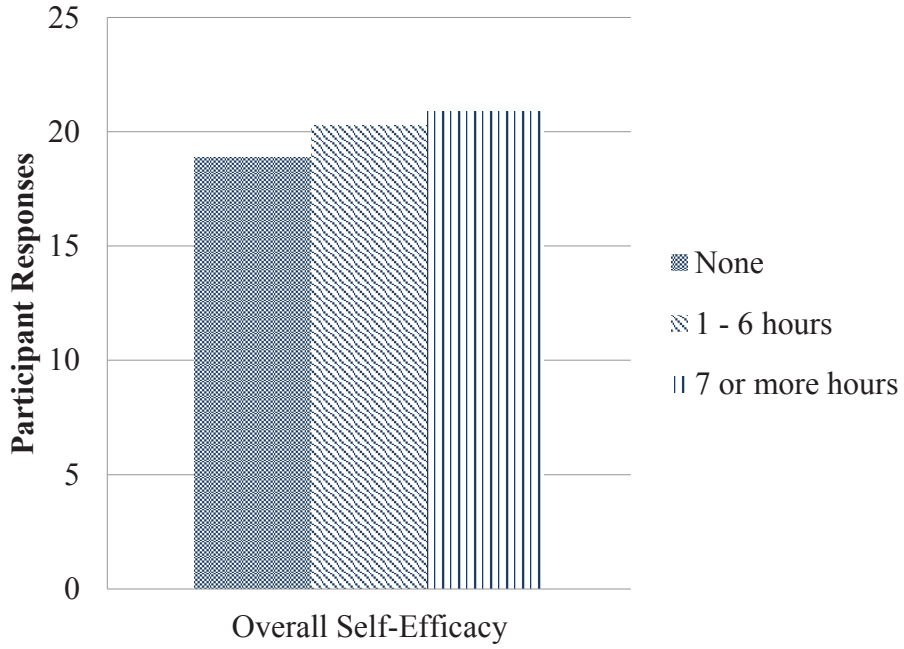

Figure 2. Means for overall self-efficacy by hours of training

Research Question 2

RQ2: Do levels of experience teaching students with ASD have an effect on teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management?

H_{02}: There will be no statistically significant differences among levels of experience teaching students with ASD on overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

H_2: There will be statistically significant differences among levels of experience teaching students with ASD on overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

To assess RQ 2, one MANOVA and one ANOVA were conducted to assess if the three efficacy variables (efficacy in student engagement, efficacy in instructional strategies, and efficacy in classroom management) were significantly different by the years teaching students with ASD (1–4 years, 5–9 years, and 10 or more years). Prior to analysis, the assumption of equality of covariance matrices was assessed with a Box's M test. The results of the Box's M test were not significant, $p = .074$, suggesting the assumption was met. The assumption of equality of variance was assessed with three Levene's tests. The results of the tests were significant for student engagement ($p = .048$) and classroom management ($p = .005$). To compensate for the violation, a more stringent alpha level of .025 will be used to determine significance for the ANOVAs with these variables (Tabachnick & Fidell, 2012).

The result of the MANOVA was not significant, F (6, 62) = 1.57, p = .171, partial η^2 = .13, indicating there were no differences in the three efficacy variables by years teaching students with ASD. An effect size of .13 indicated a moderate to large difference between the groups. Since the MANOVA was not significant, additional analyses were not conducted. Results of the MANOVA are presented in Table 9. Means and standard deviations are presented in Table 10. Figure 3 presents a bar chart of means for the self-efficacy subscales.

Table 9

MANOVA for Efficacy Subscales by Years Teaching Students with ASD

		F (2, 32)		
Source	MANOVA F (6, 62)	Student engagement	Instructional strategies	Classroom management
Years	1.57	0.55	2.68	3.22

Table 10

Means and Standard Deviations for Efficacy Subscales by Years Teaching Students with ASD

Variable	Years teaching students with ASD	*M*	*SD*
Student Engagement	1 - 4 years	6.27	1.48
	5 - 9 years	6.20	0.54
	10 or more years	6.70	1.42
	Total	6.37	1.18
Instructional Strategies	1 - 4 years	6.92	1.21
	5 - 9 years	6.68	0.74
	10 or more years	7.59	0.85
	Total	7.02	1.00
Classroom Management	1 - 4 years	6.32	1.91
	5 - 9 years	6.17	0.83
	10 or more years	7.50	0.95
	Total	6.60	1.41

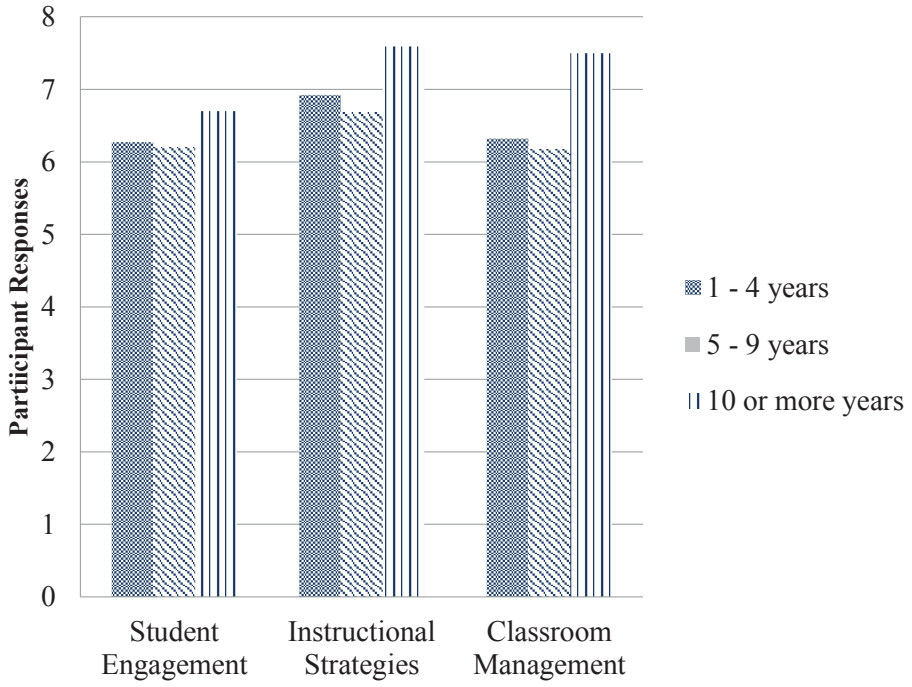

Figure 3. Means for efficacy subscales by years teaching ASD students.

In addition, an ANOVA was conducted using the sum of the three efficacy scores as the dependent variable. The assumption of equality of variance was assessed with a Levene's test and was significant, $p = .019$, violating the assumption. The alpha level of .025 will be used for the ANOVA because of this violation. Results of the ANOVA were not significant, $F(2, 31) = 2.25$, $p = .121$, partial $\eta^2 = .12$, suggesting that there was no difference in overall efficacy by the years teaching students with ASD. An effect size of .12 indicates a medium effect. Since neither the MANOVA nor the ANOVA conducted were significant, the null hypothesis cannot be rejected in favor of the alternative hypothesis. Results of the ANOVA are presented in Table 11. Means and standard deviations are presented in Table 12. Figure 4 presents overall self-efficacy.

Table 11

Results of the ANOVA for Overall Efficacy by Years Teaching Students with ASD

	1 - 4 years		5 - 9 years		10 or more years			
Source	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F* (2, 32)	*p*
Years	19.51	4.46	19.06	1.73	21.79	2.87	2.25	.121

Table 12

Means and Standard Deviations for Overall Efficacy by Years Teaching Students with ASD

Variable	Years teaching students with ASD	*M*	*SD*
Overall Self-Efficacy	1 - 4 years	19.52	4.47
	5 - 9 years	19.06	1.73
	10 or more years	21.79	2.87
	Total	19.99	3.32

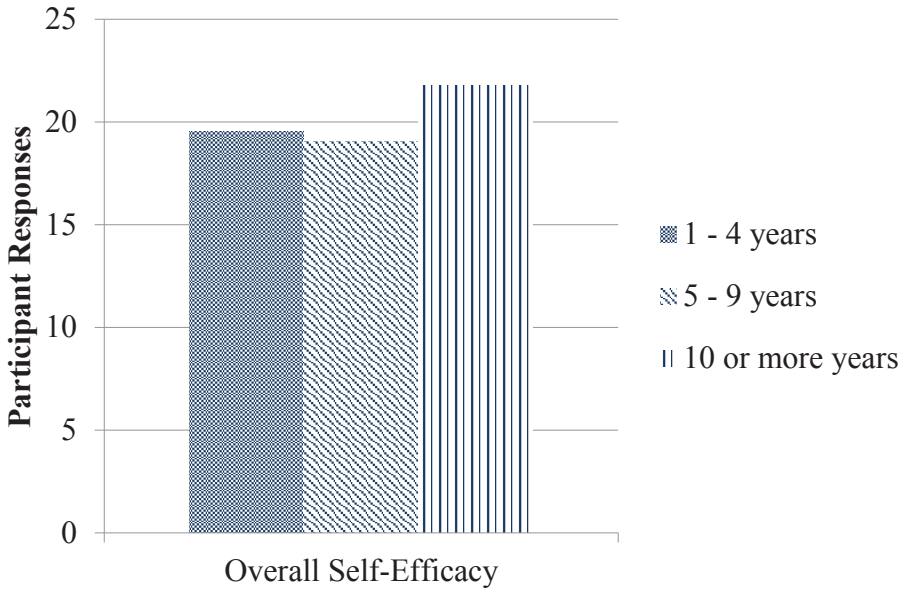

Figure 4. Means for overall self-efficacy by years teaching ASD students

Research Question 3

RQ3: Do current grade level assignments have an effect on teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management?

H_{03}: There will be no statistically significant differences among current grade level assignment on overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

H_3: There will be statistically significant differences among current grade level assignment on overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management as measured by the TSES survey.

To assess RQ 3, one MANOVA and one ANOVA were conducted to assess if the three efficacy variables (efficacy in student engagement, efficacy in instructional strategies, and efficacy in classroom management) were significantly different by the current grade level taught (first, second, and third grade). Prior to analysis, the assumption of equality of covariance matrices was assessed with a Box's M test. In order to meet the assumption of equality of covariance, the results must indicate $p > .001$, because the Box's M test is very sensitive and can suffer from Type 1 error (Pallant, 2010). The results of the Box's M test were not significant, $p = .032$, suggesting the assumption was met. The assumption of equality of variance was assessed with three Levene's tests. The results of the tests were significant for instructional strategies ($p =$

.011). To compensate for the violation, a more stringent alpha level of .025 will be used instead of .05 to determine significance for the ANOVAs using this variable (Tabachnick & Fidell, 2012).

The result of the MANOVA was not significant, F (6, 64) = 1.59, p = .165, partial η^2 = .13, indicating that there were no differences in the three efficacy variables by current grade level taught. An effect size of .13 indicates a medium difference between the groups. Since the MANOVA was not significant, additional analyses were not conducted. Results of the MANOVA are presented in Table 13. Means and standard deviations are presented in Table 14. Figure 5 presents a bar chart of the means of the self-efficacy subscales.

Table 13

MANOVA for Efficacy Subscales by Current Grade Level Taught

		F (2, 33)		
Source	MANOVA F (6, 64)	Student engagement	Instructional strategies	Classroom management
Grade level	1.59	2.75	2.11	0.39

Table 14

Means and Standard Deviations for Efficacy Subscales by Current Grade Level Taught

Variable	Grade taught	*M*	*SD*
Student Engagement	First	6.22	0.78
	Second	5.98	0.99
	Third	7.02	1.51
	Total	6.39	1.17
Instructional Strategies	First	6.84	0.83
	Second	6.73	0.64
	Third	7.49	1.33
	Total	7.00	0.99
Classroom Management	First	6.43	1.36
	Second	6.58	1.17
	Third	6.94	1.75
	Total	6.64	1.41

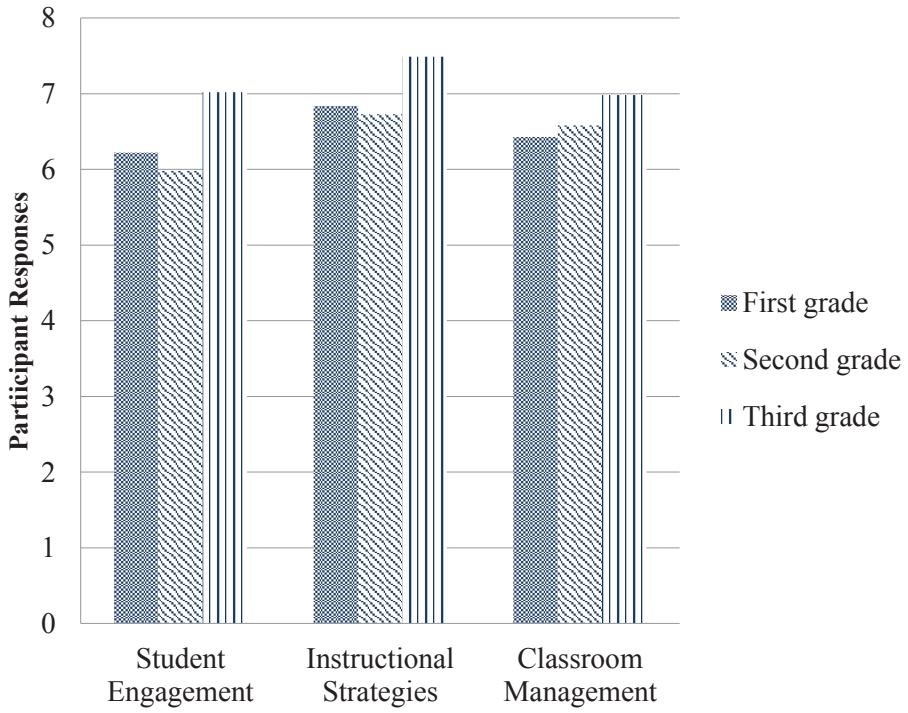

Figure 5. Efficacy subscales by grade taught

In addition, an ANOVA was conducted using the total efficacy scores as the dependent variable. The assumption of equality of variance was assessed with a Levene's test and was not significant, $p = .064$, meeting the assumption. Results of the ANOVA were not significant, $F(2, 33) = 1.57$, $p = .223$, partial $\eta^2 = .09$, suggesting that there was no difference in the total efficacy by current grade level taught. An effect size of .09 indicates medium differences between the groups. Since neither the MANOVA nor the ANOVA were significant, the null hypothesis cannot be rejected in favor of the alternative hypothesis. Results of the ANOVA are presented in Table 15. Means and standard deviations are presented in Table 16. Figure 6 presents overall self-efficacy by grade taught.

Table 15

Results for ANOVA for Overall Efficacy by Current Grade Level Taught

	First grade		Second grade		Third grade			
Source	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F* (2, 33)	*p*
Total efficacy	19.49	2.68	19.29	2.29	21.46	4.48	1.57	.223

Table 16

Means and Standard Deviations for Overall Efficacy by Current Grade Level Taught

Variable	Grade taught	*M*	*SD*
Overall Self-Efficacy	First	19.49	2.68
	Second	19.29	2.29
	Third	21.46	4.48
	Total	20.03	3.28

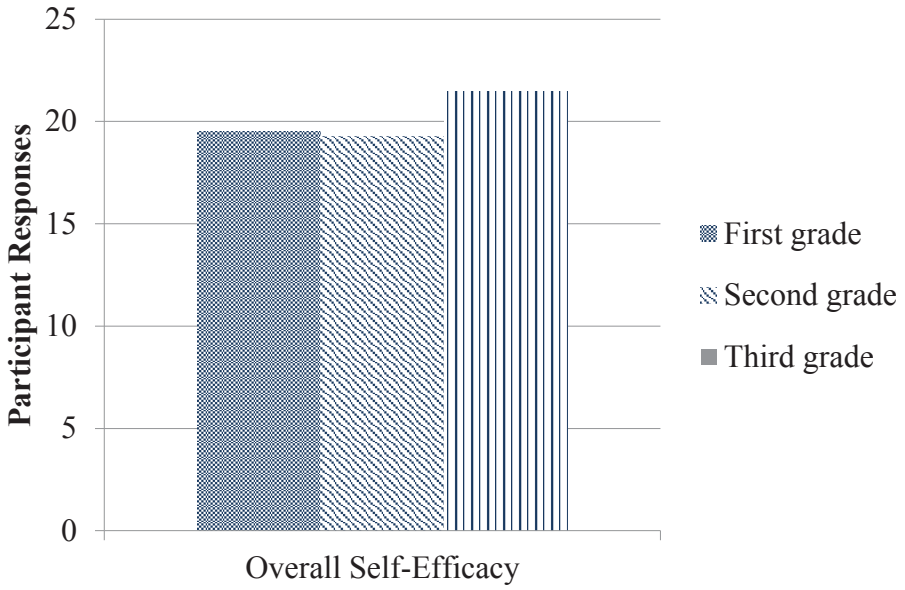

Figure 6. Means for overall self-efficacy by grade taught

Summary

Section 4 was a report of the findings of the quantitative data analysis conducted and the hypothetical assumptions for each of the three research questions in this study to identify the influence of ASD training during and following teacher certification, levels of experience, and grade level assignments on teacher self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management. In RQ1, the MANOVA analysis was not significant, at F (6, 64) = 2.04, p = .073, partial η^2 = .16, indicating there were not differences on the efficacy subscales by total hours of training. However, an effect size of .16 indicated a large difference between groups. In RQ2, the result of the MANOVA was not significant, F (6, 62) = 1.57, p = .171, partial η^2 = .13, indicating there were no differences in the three efficacy variables by years teaching students with ASD. Yet an effect size of .13 indicated a moderate to large difference between the groups. Finally, in RQ3, the result of the MANOVA was not

significant, F (6, 64) = 1.59, p = .165, partial η^2 = .13, indicating that there were no differences in the three efficacy variables by current grade level taught. Nevertheless, an effect size of .13 indicates a medium difference between the groups. The analysis was not statistically significant for each of the research questions. However, since the sample size was low at (n = 36), the p value is potentially over-inflated, therefore, the effect size was examined. The large effect sizes indicate differences.

Section 5: Overview, Conclusions, and Recommendations

Overview

The following section of the quantitative study features a detailed discussion of the statistical findings highlighted in Section 4. It draws conclusions from the findings derived from each of the research questions. I examined the impact of professional development training in ASD and experience on regular education teachers' self-efficacy. This section begins with an overview of why and how the research was completed, a review of the issues, an interpretation and summary of the findings on how professional development in ASD and teacher experience effect self-efficacy. Two hundred and twenty-one, full-time first through third grade regular education teachers, in a Southern California school district, were asked to complete five demographic questions and a survey measuring self-efficacy. To be included in the study, participants needed to have some experience-teaching students with ASD. After screening for accuracy, missing data, outliers, and appropriate response parameters, data analysis was conducted on 36 cases. This section further communicates the implications for social change as it relates to teacher self-efficacy and the achievement of students with ASD. Finally, this section closes with recommendations for further research and action.

Statement of the Problem

CDC (2012) reported that 1 in 88 children are being diagnosed with ASD leaving school districts scrambling to provide appropriate academic accommodations in the least restrictive setting. Researchers have pointed to teachers grappling to meet the academic and social-emotional needs of included students with ASD (Dybvik, 2004; Hamre &

Oyler, 2004; Harman & Dawson, 2008; Hehir, 2003; Zumwalt, 1986). Best practice research asserted that classroom teachers need to be prepared to instruct students with disabilities (Hehir, 2003) through ongoing special education professional development and teacher mentoring (Vaughn, Schumm, Jallad, Slusher, & Samuell, 1996), and with school administrators who support inclusion (Hess, Morrier, Herlin, & Ivey, 2007).

There are however, obstacles to providing best practice inclusion principles such as; high stake testing quotas, heavy instructional loads, inexperience teaching students with ASD, the reduction of professional development opportunities, increased teacher-student ratios, and inconsistent credential requirements for training teachers in ASD interventions, all of which can effect teacher self-efficacy. Woolfolk Hoy and Murphy (2001) concluded that teaching efficacy, a teacher's belief that he or she can reach even difficult students to help them learn, appears to be one of the few personal characteristics that is correlated with student achievement.

This quantitative study was initiated in an attempt to understand the impact of professional development training in ASD during and following teacher certification, teaching experience, and grade level assignment on teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management. This study was grounded in Bandura's (1997) social learning theory that focused on the human learning process being informed through personal observations and the repetition of modeled behaviors. A summary of the research and interpretation of the findings described in Section 4 is presented. Recommendations for future research, recommendations for action, and implications for social change will also be addressed.

Interpretation of Findings

The analyses were grounded in the theoretical framework of Bandura's (1977) social learning theory, the focal point of the human learning process being informed through personal observations and the repetition of modeled behaviors. Bandura (1994) expanded his social learning theory to include self-efficacy, and Tschannen-Moran and Woolfolk Hoy (2001) further characterized self-efficacy as a personal belief system whereby a confident attitude in teaching abilities has a direct effect on positive student achievement.

The results showed that only 39% of the teacher participants received ASD training as part of their teacher certification. Just 50% received ASD professional development training following certification. When the hours of ASD training during and following certification were combined, the majority of participants had only 1–6 hours of ASD professional development training.

The grade level assignments were relatively evenly spaced with the most common grade level taught being first at 36%, followed by second at 33%, and then third at 31%. Participants most frequently reported years of teaching students with ASD to be between 5–9 years (31%) followed by 1–4 years (34%). To expedite data collection and streamline the survey completion process for teacher-participants, this research study utilized an online data collection format. However, I had not anticipated that of the 221 regular education teachers in first through third grade polled in one school district, only 56 would respond to the survey. A convenience and the low-cost factor of on-line surveys can be attractive to researchers. A meta-analysis study comparing the response rates between

web-based and other methods of disseminating surveys, found that web-based surveys had an 11% lower response rate over other methods, at an average of only 6–15% (Lozar et al., 2008).

Thinking forward to any future school-based research studies that I may conduct, I would personally provide participants with paper and pen surveys during staff meetings and collect them in an attempt to increase participant response rates (Vehovar, Lozar Manfreda, & Batagelj, 2001). When the data were screened to make certain the participant volunteers met the criteria of having any experience teaching students with ASD, 13 cases were removed. Another seven were removed for not responding to the majority of the survey questions. Brecko and Carstens (2006) found that there were more incomplete online surveys than surveys conducted via paper and pen. After descriptive statistics were conducted to screen for appropriate response patterns, missing data and univariate outliers, no further cases were removed. Therefore, data analysis was conducted on only 36 cases.

There were no statistically significant differences among ASD training levels during and following teacher certification on overall teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management, as measured by the TSES. This implied that teachers' self-efficacy levels were not affected by ASD training levels during and following teacher certification. However, it is important to note that the majority of the participants reported between 1 – 6 hours of training (61%). With the limited amount of teachers with ASD training in this study, there might not be a calculable distinction across the three efficacy subscales.

Teachers with 7+ hours of training had higher scores in the instructional strategies and classroom management efficacy subscales but had similar scores with the none to 1–6 hour trained teachers in the student engagement subscale. In the student engagement efficacy subscale, teachers with 1–6 hours training had a higher level of efficacy than teachers with 7+ hours of training (Figure 1).

For instance, if teachers have little ASD training, they might not be aware of the ever-advancing strategies to help students with ASD achieve. In this study, the findings stressed those teachers with none to low hours of ASD training were able to maintain self-efficacy about their teaching abilities (Figure 1). Of the three subscales, instructional strategies had the strongest efficacy scores across all teacher training levels (see Figure 1). The overall self-efficacy subscales scores by hours of training showed slight incremental increases in self-efficacy with only a 2.04 mean separating the no training through 7+ hours of training categories (Figure 2).

In research it is important to establish a priori of the sample size necessary for statistical analysis. To calculate the sample size, the researcher needs to take into account the power, population, effect size, and level of significance. With a sample size smaller than the calculated sample size, the researcher increases the likelihood of committing Type I and Type II error (Pallant, 2010). Type I error is associated with rejecting a true null hypothesis, or concluding that there is a significant relationship when there is not. Type II error is associated with the failure to reject a false null hypothesis, or concluding there is not a relationship when there is one. When a sample size is low, the *p* value tends to be too large, increasing the chance of committing statistical errors. With a small

sample (n = 36), the p value is potentially over-inflated, causing the researcher to examine the effect size, although the analysis is not statistically significant.

According to Green and Salkind (2011), conventional measures for small, medium, and large partial η^2 values are .01, .06, and .14, respectively. The effect size for the MANOVA that was conducted to assess RQ1, partial η^2 = .16, was considered a large effect size. This indicates that although there were not significant differences on the self-efficacy subscales, the training levels did account for a large amount of the variance in self-efficacy.

For RQ 2 and 3, partial η^2 was equal to .13, indicating a moderate to large effect size in those analyses, again indicating that a moderate to large amount of the variance in self-efficacy was attributable to years of experience teaching ASD students and the grade level taught. The ANOVA that was conducted to assess research question two had an effect size of .12, also indicated a moderate to large effect. A moderate to large amount of variance in overall self-efficacy can be attributed to years teaching students with ASD.

Although significance was not found in these analyses, it is possible that due to the small sample size, Type II error was committed, and the p values were too large. Large effect sizes offer support for this deduction as a large amount of variance attributable to the treatment should indicate differences. The effect size for the MANOVA conducted to assess RQ 1, partial η^2 = .16, was considered a large effect size. This indicates that although there were not significant differences on the efficacy subscales, the training levels did account for a large amount of the variance in self-efficacy.

The second research question asked if levels of experience teaching students with ASD had any effect on teacher self-efficacy, efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management. In other words, would length of experience teaching students with ASD have any impact on their self-efficacy and the three efficacy subscales scores. The results showed no statistical differences between length of teaching experience and levels of self-efficacy. The implication here might be that the length of teaching experience is not necessarily linked to their levels of self-efficacy or that levels of self-efficacy can fluctuate depending on the emotional state of the participant when completing the TSES survey.

The bar chart of means for efficacy subscales by years of teaching showed teachers with 10 or more years experience scoring consistently higher than teachers with less experience (see Figure 3). All three-teacher experience categories had similar scores on the student engagement subscale. Teachers in the 5–9 years experience level scored lower than new teachers on each of the efficacy subscales of student engagement, instructional strategies, and classroom management (see Figure 3). For RQ2, partial η^2 was equal to .13, indicating a moderate to large effect size in the analysis, again indicating that a moderate to large amount of the variance in self-efficacy was attributable to years of experience teaching ASD students.

The third research question asked if grade levels (first through third) had any effect on teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices and efficacy in classroom management. The means for efficacy subscales by grade taught indicated third grade teachers had higher efficacy levels than first or second

grade teachers (see Figure 5). First grade teachers had higher mean scores for student engagement and instruction strategies subscales and only slightly lower scores than second grade teachers in classroom management (Figure 5). Overall self-efficacy scores for first and second grade teachers were within .2 mean difference, and third grade teachers scored a 2.17 mean difference over second grade teachers, and a 1.97 mean difference over first grade teachers (see Figure 6). Early education grade levels were chosen for this study since many students are not diagnosed with ASD until they are school age (Mandell, Novak, & Zubritsky, 2005). Children with severe language delays and preservative behaviors such as hand flapping, walking on tip toe, fixation on certain topics, and atypical play tend to be diagnosed earlier at 3.1 years through 3.9 years (Mandell et al., 2005, p. 1480). Mandell et al. asserted that Asperger Syndrome (AS) is more difficult to identify since there are no language or cognitive delays. These children can wait an additional 4.7 years for their AS diagnosis. Early diagnosis is imperative so that children can access the appropriate academic and social-emotional interventions to remediate any delays. With ASD training elementary regular education teachers can be at the forefront initiating ASD evaluations for their students and a vital team member in the development of any subsequent IEP.

While acknowledging the similar scores across grade levels, I found that as more students with ASD are mainstreamed without trained teachers or the appropriate academic and behavioral supports in place, behaviors can become habitual and increasingly difficult to extinguish. This could be a factor in the ability of students with ASD to be successfully maintained in a regular education classroom. Elementary

classrooms staffed with highly trained teachers in ASD have the potential to make a positive impact on the lives of students with ASD and their families.

For RQ 3, partial η^2 was equal to .13, indicating a moderate to large effect size in the analysis, again indicating that a moderate to large amount of the variance in self-efficacy was attributable to current grade level taught. Although significance was not found in these analyses, it is possible that due to the small sample size, Type II error was committed, and the *p* values were too large. Large effect sizes offer support for this deduction as a large amount of variance attributable to the treatment should indicate differences.

Implications for Social Change

The information provided in this study has positive implications for social change. Children are being diagnosed with ASD at a rate of 1 in 88 (CDC, 2012). Students with ASD are being enrolled in schools in record numbers, some with the ASD diagnosis, some without. Early academic and social-emotional interventions for students with ASD are critical in the remediation of cognitive and behavioral delays (Itzchak & Zachor, 2011). Although their study suggested other factors such as "environmental, biological and the severity of ASD" (p. 349) impacted response to interventions, they found that children with educated and more experienced mothers had greater cognitive gains. Including parents in district ASD trainings may encourage the family to practice the skills at home and in the community with their child thereby increasing student generalization and proficiency. Practicing skills in natural settings is an optimum vehicle for generalizing raw skills and is vitally important to change behavior. An ASD diagnosis

might go undetected during routine medical care or if a child does not receive regular medical care unless the doctor or parent is aware of ASD symptoms.

The IDEA (2004) and the NCLB (2002) mandated equal academic access for all students (Karger, 2005) in the least restrictive setting. Inclusion can increase verbal communication, enhance social skills, and raise grades (Alquraini & Gut, 2012). Classroom teachers have firsthand knowledge of their students' academic and social-emotional abilities. Confident regular education teachers familiar with the symptoms of ASD will be able to alert staff of the possible need for special interventions or can recommend a psychological-educational assessment for a student in need. Beginning the educational process of special education classification and the development of comprehensive IEP's can contribute to successful student inclusion since the recommended academic and social-emotional supports and necessary accommodations can be promptly added to the student's program. Knowledge of ASD will also help regular education teachers who have students with ASD in their classrooms to fully implement IEPs.

Strong teacher self-efficacy beliefs are linked with positive student achievement, and teachers with relevant training can improve student accomplishments (Woolfolk Hoy, 2001). Teachers with more training and experience with special needs students were more optimistic about inclusion as critical for success (Elhoweris & Alsheikh, 2006) with training as the major factor in positive inclusion experiences (Bradshaw & Mundia, 2006). It was suggested that teacher-credentialing programs should include coursework encompassing specialized training and field opportunities on inclusive curriculum.

Surprisingly, Bradshaw and Mundia's research identified a movement upward in teacher confidence levels after being exposed to just one course on disabilities (2006). One study measured pre-service teachers' attitudes towards inclusion using the Opinions Relative to the Integration of Students with Disabilities (ORI) instrument modified to represent ASD issues (Bailey, Montagano, & Cramer, 2011). Their findings described regular education teachers as in favor of inclusion but not necessarily in regular education classrooms, where there would be a need for additional training, classroom support, accommodations and academic modifications.

Students with ASD who have the opportunity to be fully included in mainstream classrooms with highly trained teachers are exposed to general education curriculum and conventional behaviors. Socially atypical students with ASD can learn from exposure to the academic and social behaviors of typical peers in inclusion classrooms (Usher & Pajares, 2008). In this regard, students with ASD who benefit by mainstream school settings are accumulating skills in preparation for higher education and the workplace. In an educational context, ASD trained regular education teachers' self-efficacy will influence the achievement of included students with ASD, and the result will be a positive shift on social change in our society via the thorough preparation of students with ASD for higher education, the workplace, and independent life at home, and in the community.

Recommendations for Future Research

I would recommend that this research study be repeated with a larger sample size in order to compare any statistical differences between this study and a larger participant pool and any effect on teachers' self-efficacy, efficacy in student engagement, efficacy in instructional practices and efficacy in classroom management. Also, I would recommend that action is taken to further research on the impact of professional development and training in ASD and experience on teacher self-efficacy by expanding the participant pool to include a wider grade level range of regular education teachers.

It would be valuable to include special education teachers who have had ASD training during and possibly following teacher certification in an effort to compare self-efficacy levels. These findings could point to the necessary level of ASD professional development for school districts investigating optimum ASD training modalities for their faculties. School districts, families, and the community at large need to understand the importance of appropriate inclusion programming for students with ASD since students entering the workforce will require the academic and social skill experience essential to gainful employment.

A recommendation to support regular education teachers through opportunities for teacher collaboration, mentoring opportunities, ASD professional development, and professional learning communities with a focus on ASD would help to ensure positive mainstream outcomes for students with ASD.

Ideally, future researchers may consider a study comparing the higher education and workforce experiences of students with ASD who were educated in fully inclusive

classrooms by self-efficacious, ASD trained teachers with students with ASD educated in more restrictive special education classroom settings. Any results that allude to included students having more positive college and employment outcomes may be helpful to school districts in validating the need for professional development in ASD for the increased self-efficacy of their regular education teachers. A potential comparative research study between regular education and special education teachers and overall levels of self-efficacy when teaching students with ASD may further the understanding of the impact of ASD training on self-efficacy.

Future researchers may consider a study comparing self-efficacy levels of teachers who are categorized as Generation Y (Tweet researchers), Generation X (researchers through data base/Google), or Baby Boomers (who may attend conferences/workshops, read trade magazines). Is there an explanation why new teachers scored the same self-efficacy levels as the seasoned teachers in my study?

Consider a proposal to conduct research regarding the value of teachers accessing research in real time via Tweeting or blogging in order to connect with other professionals to acquire contemporary ASD practices (Dunlap & Lowenthal, 2009) and any improvement of teacher self-efficacy levels. Twitter and teacher blogging may enhance real time exchange between staff members looking for ASD research, information, and classroom strategies. Advanced technology training incorporating internet searches, teacher You-Tube videos, and social media resources for faculty could be a viable source for teachers looking for assistance.

A potential research study considering teacher levels of advanced education, ongoing professional development, and the immediate need for up to date ASD research and any effect on the self-efficacy of Generation Xer's or Baby Boomers who are life-long students. Future teacher self-efficacy studies may include qualitative interviews with teachers that allow for more personal/experiential input regarding teacher expectations.

Recommendations for Action

The results of my study showed that a majority of my teacher participants had not received ASD training during their teacher certification (61%) or ASD professional development following certification (50%) or only a low amount of ASD professional development (1 – 6 hours) at (42%). When the hours of ASD training during and following certification were combined the majority of participants had only 1–6 hours of training (61%). Therefore, since most regular education teachers are not exposed to ASD curriculum during their teaching certification and ASD professional development following teacher certification it is recommended that school districts provide the necessary ASD training and administrative support for their staff members. Regular and special education teacher collaborations can be ideal for providing equal student access to general education curriculum and it will fall to the district to ensure that teachers have the time to work together during the school year. Teachers involved must be willing to fully participant in the co-teaching and professional learning communities process of learning for it to be viable. Damore and Murray (2009) research consisted of 74 regular, 28 special education, and 16 uncategorized elementary teacher participants polled on collaborative teaching beliefs in urban inclusion classrooms. Surprisingly, 92% of the teachers believed

that co-teaching was happening on their school campuses, but only 57% of the teachers actually used a collaborative teaching model. I would recommend that the district develop and support ASD professional learning communities on each campus as a means to prepare teachers to effectively mainstream students with ASD.

NCLB (2002) inclusion protocol guidelines do not address the issue of the appropriateness of the mainstream classroom environment or whether it is in the best interest of the student with ASD. Not every student with ASD will thrive in an inclusive setting, and funding cuts have reduced the amount of instructional aides available to assist special needs students in regular education classrooms.

As school administrators and IEP teams are making placement decisions for students with ASD, it will be important to ensure an ample amount of mainstream opportunities have been experienced by the student. This will allow in the development of a child specific academic and social-emotional support placement that will meet the needs of that student in a fully inclusive classroom setting. IEP teams are charged with ensuring that each student's placement is based upon the specific needs of the child.

This research study analysis of the collected data on grade levels taught (grades first through third) indicated a moderate to large effect size, again indicating that a moderate to large amount of the variance in self-efficacy was attributable to the current grade level taught. First grade teachers had higher mean scores for student engagement and instruction strategies subscales and only slightly lower scores than second grade teachers in classroom management and third grade had higher overall efficacy levels than first or second grade levels (see Figure 5). Leach and Duffy (2009) have identified

preventative, supportive, and corrective strategies as critical for regular education teachers to become familiar with when teaching students with ASD. They have explained *preventatives* as academic and environmental structures put in place in preparation for a student's entry; *supports* can include rigorous behavioral management systems with classroom rules and visual schedules. *Corrective* strategies can include a predetermined reward/consequence system to deal with maladaptive behaviors (Leach & Duffy, 2009, p. 32). Teachers will need to introduce these supports early and review them often with students, and they must be used consistently across all school venues for optimal success. Students with ASD have difficulty with transitioning from one activity to another and with frequently changing schedules. They depend on structure and set routines to help them cope with unanticipated change and to modulate their behavior. Humphrey (2008) called for teachers to frontload pupils with information of an impending change, when possible, to alleviate student frustration and maladaptive behaviors. He understood that neuro-typical peers would need an overview of ASD to advance social awareness and positive interactions between classmates. And finally, he recommended modifying curriculum if necessary for student success and the use of pragmatic instructional language explicable to a literal student with ASD.

The results of this research study indicated that the number of years teaching students with ASD is associated with their levels of self-efficacy. Teachers with ten or more years' experience having the highest overall self-efficacy scores, with first through four years experience scoring slightly higher than teachers with five to nine years teaching experience. Therefore, when considering professional development or teacher

mentoring opportunities it is recommended that teachers with more experience-teaching students with ASD be recruited to assist less experienced teachers. Smith and Ingersoll (2004, p. 683) had high regard for the supportive value of new teacher mentoring programs. The school district involved in this research study has a Beginning Teacher Support and Assessment (BTSA) program financially supported by the California Department of Education (CDE) and the Commission on Teacher Credentialing (CCTC). The BTSA program is at the discretion of the new special education teacher to choose to focus on ASD or other disability specialties. Regular education BTSA participants are not required, and therefore, do not receive training in ASD or other special education disabilities. Although there are Added Authorizations in Special Education (AASE) including ASD, they are for credentialed special education teachers, not regular education teachers (CTC, 2012). There is in effect a mandatory four-course CTC authorization in ASD for special education teachers covering characteristics of students with ASD, teaching, learning and behavior strategies for students with ASD, collaborating with other service providers, and fieldwork for candidates with ASD added authorization. Currently, there is no CTC requirement for regular education teachers to obtain an authorization in ASD. Educating special needs students in mainstream classrooms is not only a legal mandate, it is a benefit to all stakeholders by reducing the expenditures of costly special education programs. The district could consider including ASD training to the BTSA program for regular education teachers of students with ASD as a means of improving student achievement in inclusive classrooms.

Kelly (2012) examined professional development from the standpoint of professional learning communities (PLCs) and found that success depended upon teachers developing a sense of *interdependence* through an equitable and dynamic PLC presence (p. 96). Mindful of the challenges schools face, Kelly's blueprint for viable PLCs nevertheless included: "*time, time embedded within the school day, buy in, shared leadership, collaborative learning, and interdependence*" (p. 79). A study by Ancess concluded that ultimately teachers who take advantage of ongoing learning opportunities and confidently implement this knowledge in the classroom boost student achievement (as cited in Roberts & Pruitt, 2009).

Recently, staff development days have focused on preparing legally defensive IEPs, new core curriculum standards, electronic technology, behavior intervention, and the delivery of district mental health services without ASD as a special education topic.

This school year the district is making the mandatory AASE autism certification credential available to special education and resource teachers available on line during the school day with substitute coverage in the classroom. There is no cost to the teachers to participate, and it does not require brick and mortar classrooms held on personal teacher time.

The North Coastal Consortium of Special Education (NCCSE) is a resource library for parents and educators within the 14 north county school districts. There are multiple workshops and activities for those interested in learning more about ASD. Workshops are free to school employees and NCCSE members. Since the majority of workshops are offered during the school calendar year, substitute classroom coverage

must be supplied for teachers to attend. One option to reduce cost to the district designated regular education teachers could attend relevant NCCSE ASD workshops and present the information on their respective campuses during staff meetings, staff developments days or PLCs.

Prior to budget cuts, a robust bi-monthly family evening program of dinner, presentations, and faculty supervised structured activities for students with ASD and school age siblings was in place. The dinner was donated by local eateries to promote social interaction and practice skills. Classroom supplies, books, and videos were donated or borrowed. A lending library of ASD books was available to borrow. The district provided a designated multipurpose room and two classrooms for students/siblings for the meetings. All staff and presenters were volunteers. A volunteer multidisciplinary team of speech pathologists, special education teachers, school psychologists, occupational therapist's, ASD specialists, facilitated all activities. It was an open invitation for district elementary students with ASD and their families. Between 30-40 families would participate. However, with increased staff responsibilities and without district support, the program was eliminated. By recommitting and opening up the program to all district families with ASD, administration will be providing much needed ASD information to families, students, community stakeholders, and interested faculty. Administrators, faculty, parents, and community stakeholders are charged in developing effective inclusion models that meet the scope and breadth of the students with ASD they serve (Allison, 2012).

Conclusion

An alarming increase in the enrollment of students with ASD was the trigger that prompted the California Department of Education (CDE) to initiate a committee of ASD experts to look at policy changes for professionals who provide educational services. The committee acknowledged financial limitations and an inability in school district's to meet the educational need to support students with ASD. As a direct result of the CDE report several recommendations were made regarding the best practice methodologies for educating students with ASD. Four major factors were identified: "a lack of coherent, universally accepted effective educational practices, an overall lack of knowledge and training at all levels, a shortage of personnel trained to provide evidence-based interventions, and inadequate financial resources for preschool children with ASD" (California Department of Education Autism Advisory Committee, 2007, p. 14). The report clearly defined the need for school district's to utilize evidence-based ASD programs, provide support for families, and training for personnel.

Multiple levels of ASD training for educators were recommended. The California Department of Education Autism Advisory Committee (2007) recommended sequential modules in ASD training for educators encompassing:

> the source of, and current research on ASD, diagnostic criteria, maladaptive behaviors of ASD, ASD co-morbidities, and sensory dysfunction, IDEA legislation/regulations, and effective IEP development and implementation, academic and behavior strategies, interventions and assessments, and family support. (pp. 24 – 27)

Armed with the results of this research study the district may be able to look at the level of ASD training that will provide their regular education teachers with the competence needed to support the positive achievement of included students with ASD. Administrator's need to be mindful when considering teacher self-efficacy, teaching experience for students with ASD, and for grade level requirements for professional development opportunities, and for teacher ASD training for the most efficient delivery for maximum results and ease of fit for each campus.

Pajares and Urdan contended "self-efficacy has received ample attention in educational research, where it has been shown to predict students' academic achievement across academic areas and levels" (as cited in Usher & Pajares, 2008, p. 751). All stakeholders are legally and morally charged with the essential mission to staff highly-qualified teachers in every classroom to ensure optimum student achievement in every academic program.

While Gaskill and Hoy's (2002) treatment of Bandura's mastery components of personal self-efficacy and self-regulated learning applied to teachers, these same principals of modeling, master experiences, verbal persuasion, physiological arousal, and self-regulation strategies are critical in the development of student self-efficacy.

Even though the sample was small for data analysis, the effect size still came out large for ASD training and moderate to large for teacher experience and grade levels. Training, experience, and grade levels have a moderate to large effect on teacher self-efficacy (.16, .13, and .13 respectively) and self-efficacy researchers have shown that

teacher self-efficacy has a positive impact on student achievement (Woolfolk & Hoy, 1990; Woolfolk Hoy & Murphy, 2001). While acknowledging the challenges of providing professional development opportunities in ASD in a busy school district, all stakeholders need to appreciate the influence that highly trained self-efficacious teachers have on increasing the academic achievement of students with ASD. As educators, we have the responsibility and privilege of preparing young adults with ASD for higher education and meaningful employment, as self-sustaining dynamic members of our community.

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Appendix A: Letter of Intent

November 12, 2012

Myrna Vallely
Vista Unified School District
1234 Arcadia Avenue
Vista, CA 92084

Dear Myrna:

I am currently a doctoral student at Walden University. I am planning to conduct research on the self-efficacy beliefs of regular education teachers with grades 1st-3rd assignments who have some experience-teaching students with autism spectrum disorder (ASD).

According to the National Center for Disease Control (CDC) an estimated 1 in 88 children in the United States are diagnosed with ASD (CDC, 2012). Teaching children with a complex neurological disorder can be very challenging with each student requiring a multi-modal approach to learning with varied levels of structured behavioral supports in place within the school setting. The increase in ASD academic classifications will have a significant impact on multiple levels of a school district's functioning. Classroom teachers across our nation need to be equipped to meet the needs of each student with ASD. I am employed in the VUSD as a special education autism counselor and work directly with school administrators, support staff, classroom teachers, students with autism, and their families.

I am requesting district approval to survey my colleagues within the Vista Unified School District. The participants will be asked to complete the long form of the Teachers' Sense of Efficacy Scale (TSES) containing 24 multiple-choice items including some demographic information such as ASD training during and following teacher certification, amount of experience teaching students with ASD, and specific grade level assignments. Participants will be required to answer each survey item using a Likert Scale weighted response system based on values from "nothing" to "a great deal". Permission to use the survey was obtained from the TSES author, Anita Woolfolk Hoy, Ph.D.

All of the data collected will be anonymous and participation is voluntary. There will be no consequences should teachers choose not to participate in the study. The survey should take approximately 15-20 minutes to complete and will not interfere with the work responsibilities of the classroom teacher.

A research study on professional development training on ASD, experience, and teacher self-efficacy is crucial because it could provide solutions to an ongoing crisis in public education derived from an increasing number of students with ASD enrolling in the public school system.

It is anticipated that the research will be collected in December 2012 after IRB approval to collect data. The VUSD regular education teachers in first through third grades will be emailed a letter of informed consent with the survey.

I have attached a copy of the informed consent document and the TSES survey.

I am aware that the school district's permission to allow me to conduct this research does not connote an endorsement of the research data. If requested I will provide the district with a summary of the research study results.

Respectfully,

Nancy Biasotti, M.S. NCC NCSC

#760-579-8267

Appendix B: Letter of Cooperation

Permission to conduct research in VUSD
Myrna Vallely

Sent: Thursday, November 15, 2012 3:44PM
To: Nancy Biasotti
Cc: Suzanne Shada; Debbie Riehle

Nancy Biasotti,

You have permission to conduct your research study as
Described in the paperwork given to the District

Myrna Vallely
Assistant Superintendent, Human Resources.

Appendix C: Informed Consent

You are invited to take part in a research study of "The Impact of Professional Development Training in Autism and Experience on Teachers' Self-Efficacy". You were chosen for the study because you are a regular education teacher in grades 1-3 who has had some experience teaching a student with autism spectrum disorder (ASD) in your classroom. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

A researcher named Nancy Biasotti, who is a doctoral student at Walden University, is conducting this study. Ms. Biasotti is currently an autism specialist/special education counselor in the Vista Unified School District therefore teacher/participants are not subordinates.

Background Information:

The purpose of the research study is to discover whether training on ASD during and following teacher certification, experience-teaching students with ASD, and grade level assignment affect teachers' self-efficacy.

Procedures:

If you agree to participate, you will be asked to complete:

- 24 Likert-scaled questions on the Teachers' Sense of Efficacy Scale (TSES)
- 5 demographic questions regarding years of teaching experience, current grade assignment, experience teaching students with ASD, any ASD training during your teacher certification, and any ASD professional training that followed your teaching credential.
- It is estimated that it will take 15-20 minutes to complete the process.

Voluntary Nature of the Study:

Your participation in this study completely voluntary. You have the right to choose not to participate without any consequence.

Risks and Benefits of Being in the Study:

I will take measures to protect the privacy and the security of all of the answers. All of the data will be anonymous and be kept protected by a secure password. The results will be published; however, since participation is anonymous no identifying information will be used in the publication. The results of the study will utilize a group perspective.

Protections have been built into this research study to minimize the risk of psychological harm, legal, social, or economic harm to the participants.

Compensation:

There will be no compensation for participants or stakeholders for being in this research study.

Confidentiality:
The researcher will not use your information for any purposes outside of this research project. Also, the researcher will not have access to any information that could identify you in any reports of the study.

Contacts and Questions:
A summary of the research results will be emailed by the researcher to all of the 221 regular education teachers in grades 1st-3rd originally invited to participate in the research.

A copy of this consent form may be printed out for your records.

If you have any questions now or later, you may contact the researcher via nbiasotti@hotmail.com.

If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. Dr. Endicott is the Walden University IRB representative who can answer your questions concerning this study. Her contact number is 1-800-925-3368, then dial 1210. Walden University's approval number for this study is **12-06-12-0131984** and it expires on **December 5, 2013.**

https://www.surveymonkey.com/s/teacherselfefficacy

Appendix D: Demographic Questions

1. Have you taught <u>any students</u> with ASD?

2. What is your current grade level teaching assignment?

a. 1st grade,

b. 2nd grade,

c. 3rd grade

3. How many years have you been teaching students with ASD?

Which of the following best describes the amount of ASD training <u>received</u> during your teacher certification?

a. None (0 credit hours),

b. Low (1-6 credit hours),

c. Medium (7-12 credit hours,

d. High (13+ credit hours)

5. Which of the following best describes any further ASD professional development <u>received following</u> your certification

a. None (0 credit hours),

b. Low (1-6 credit hours),

c. Medium (7-12 credit hours,

d. High (13+ credit hours)

Appendix E: Teachers' Sense of Efficacy Scale (long form)

Teachers' Sense of Efficacy Scale[1] (long form)

Teacher Beliefs	How much can you do?								
Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.	Nothing		Very Little		Some Influence		Quite A Bit		A Great Deal
1. How much can you do to get through to the most difficult students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2. How much can you do to help your students think critically?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3. How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4. How much can you do to motivate students who show low interest in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5. To what extent can you make your expectations clear about student behavior?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6. How much can you do to get students to believe they can do well in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7. How well can you respond to difficult questions from your students ?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8. How well can you establish routines to keep activities running smoothly?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9. How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
10. How much can you gauge student comprehension of what you have taught?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11. To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
12. How much can you do to foster student creativity?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
13. How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
14. How much can you do to improve the understanding of a student who is failing?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
15. How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
16. How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
17. How much can you do to adjust your lessons to the proper level for individual students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
18. How much can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
19. How well can you keep a few problem students form ruining an entire lesson?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
20. To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
21. How well can you respond to defiant students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
22. How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
23. How well can you implement alternative strategies in your classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
24. How well can you provide appropriate challenges for very capable students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Appendix F: Reminder Email to Complete Survey

Recently you received an email invitation to take part in a research study of the impact of bother professional development training in Autism and experience teaching students with ASD on teachers' self-efficacy.

If you have some experience teaching students with ASD and would like to be a part of this research, please compete the survey.

For your convenience I have provided a link to the consent form and the research survey below.

https://www.surveymonkey.com/s/teacherselfefficacy

Thank you for all that you do for our students who are challenged with ASD.

Nancy Biasotti
Walden University - Ed.D. student
Special Education Autism Counselor

Appendix G: Permission to Use TSES Long Form Reliability Scores Table

Subject :
Re: Permission to reprint your TSES long form reliability scores
Date : Mon, May 21, 2012 05:59 PM CDT
From : Anita Woolfolk Hoy <anitahoy@me.com>
To : Nancy Biasotti <nancy.biasotti@waldenu.edu>

You are welcome to use that table.

Sent from my iPhone

On May 15, 2012, at 10:01 PM, Nancy Biasotti <nancy.biasotti@waldenu.edu> wrote:

> Dear Dr. Woolfolk Hoy,
>
> My EdD doctoral study on teacher self-efficacy and students' with autism spectrum disorder cites several of your self-efficacy research in it. I have already obtained your permission to utilize the TSES long form in my research. However, I would also like to include your table on the TSES long form reliability form. Would you kindly give me permission to reprint your table figures in my doctoral study?
>
> The table was taken from "Teacher efficacy: Capturing an elusive construct," by Tschannen-Moran and Woolfolk Hoy (2001), Teaching and Teacher Education, 17, p. 800.
>
> If you give me permission to use it would I need to get written permission from Dr. Tschannen-Moran also?
>
> This doctoral study is by far the hardest project I have ever taken on! Yikes.
>
> Thank you for your consideration in this matter.
>
> Respectfully,
>
> Nancy Biasotti
>
> 760-579-8267 cell

Appendix H: Permission to Use the TSES

THE OHIO STATE UNIVERSITY
COLLEGE OF EDUCATION AND HUMAN ECOLOGY

ANITA WOOLFOLK HOY, PH.D.

PROFESSOR
PSYCHOLOGICAL STUDIES IN EDUCATION

Dear

You have my permission to use the *Teachers' Sense of Efficacy Scale* in your research. A copy of both the long and short forms of the instrument as well as scoring instructions can be found at:

http://www.coe.ohio-state.edu/ahoy/researchinstruments.htm

Best wishes in your work,

Anita Woolfolk Hoy

Anita Woolfolk Hoy, Ph.D.
Professor

COLLEGE OF EDUCATION
29 WEST WOODRUFF AVENUE
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Appendix I: National Institute of Health

“Protecting Human Research Participants”

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Nancy Biasotti** successfully completed the NIH Web-based training course “Protecting Human Research Participants”.
Date of completion: 10/10/2012
Certification Number: 1025298

Appendix J: Invitation Letter

"The Impact of Professional Development Training in Autism and Experience on Teachers' Self-Efficacy"

Dear VUSD Regular Education Teachers,

My name is Nancy Biasotti. I am an autism specialist/special education counselor in the VUSD. I am conducting a research study as part of the requirements of my Ed.D. in Administration and Teacher Leadership and I would like to invite you to participate. Although the VUSD has granted me permission to commence this study, it does not connote an endorsement of the research data. Your participation in this study is completely voluntary. You have the right to choose not to participate without any consequence.

I am studying the impact of professional development training in autism and experience on teacher self-efficacy. Teaching children with a complex neurological disorder can be very challenging with each student requiring a multi-modal approach to learning with varied levels of structured behavioral supports in place within the school setting. The increase in autism spectrum disorder (ASD) academic classifications will have a significant impact on multiple levels of a school district's functioning. Classroom teachers across our nation need to be equipped to meet the needs of each student with ASD.

If you decide to participate you will be asked to complete five demographic questions and a 24 multiple-choice item survey. It should take approximately 15-20 minutes to complete the survey. Participation is anonymous; no one (not even the researcher) will know what answers you chose.

There will be no compensation for participants for being in this research study.
The researcher will not use the data results for any purposes outside of this research.

If you have any questions now or later, you may contact the researcher via nbiasotti@hotmail.com. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. Dr. Endicott is the Walden University IRB representative who can answer your questions concerning this study. Her contact number is 1-800-925-3368, then dial 1210.

Thank you for your consideration,
Nancy A. Biasotti
Cell #760-579-8267
https://www.surveymonkey.com/s/teacherselfefficacy

Curriculum Vitae

NANCY A. BIASOTTI

Education:

Doctor of Education – Administration Leadership	October 2013
Walden University, Minneapolis, MN	
Master of Science – Counseling and Development	1999
Long Island University – West Point, NY	
Bachelor of Science – Organizational Management	1998
Nyack College, Nyack, NY	

Professional Experience:

School Counselor/SST Coordinator	2013-Present
Special Education Counselor	2012-2013
Autism Behavior Specialist	2007-2012
Education Program Coordinator	2003-2006
Family Service Coordinator/Counselor Therapist	2000-2003
Psychotherapist in Private Practice	1999-2008
Physician/Medical Recruiter	1997-1999

Licenses and Certifications:

California, Pupil Personnel Service Credential (SCS) Lifetime	Certificated
California, Licensed Professional Clinical Counselor (LPCC) #129897	In Process
New York, Standard Pupil Personnel Service (PPS-Counseling)	Certificated
New York, Licensed Mental Health Counselor (LMHC) #001140	Licensed
National Board Certified Counselor (NCC) #65924	Certificated

National Board Certified School Counselor (NCSC) #65924	Certificated
Behavior Intervention Case Manager (BICM)	January 2014
Crisis Prevention Intervention (CPI)	Certificated

Honors and Awards:

Founding President, Pi Lambda Iota – Counseling Honor Society	1999
Member, Chi Sigma Iota – Counseling Honor Society #025000	1999 - Present

Professional Affiliations:

Founding President, Pi Lambda Iota – Counseling Honor Society

Member, Chi Sigma Iota – Counseling Honor Society

Member, Professional Learning Community of Behavior Specialists (NCSSE)

Member, Professional Learning Community of School Counselors (VUSD)

Training:

Non-Violent Crisis Prevention (CPI)	Certificated
UCSD Play Therapy Training Institute (APT)	In Process
North Coastal Consortium for Special Education (NCSSE)	On-Going

Carol Grey – Social Stories

Melisa Genaux – Classroom Behavior Management

Michele Garcia-Winner – Social Thinking

Dorothy Browning Wright – Behavior/Discipline

Applied Behavior Analysis (ABA)

Discrete Trial Training (DTT)

Treatment and Education of Autistic and Communication-related Handicapped Children - TEACCH