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**PREPARING TEACHERS OF STUDENTS WITH AUTISM SPECTRUM DISORDER:
EVIDENCE-BASED PRACTICES AND TEACHER SELF-EFFICACY**

Dissertation submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

by

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ABSTRACT

PREPARING TEACHERS OF STUDENTS WITH AUTISM SPECTRUM DISORDER: EVIDENCE-BASED PRACTICES AND TEACHER SELF-EFFICACY

By Jane E. Strong

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

Virginia Commonwealth University, 2014

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There is a need for intensified, rapid, and special emphasis on training of teachers for students on the autism spectrum (NRC, 2001). The current movement in the field emphasizing the use of evidence-based practices in designing instructional methods should be emphasized during teacher preparation and professional development activities to increase teacher effectiveness. Further, it has been established that a teacher's sense of self-efficacy (Bandura, 1979; Hoy & Tschannen-Moran, 1998) impacts his/her performance and that of his/her students. The purpose of this study was to discern and describe teachers' perceptions of their self-efficacy following professional development that includes training in the use of evidence-based practices. This was accomplished through analysis of survey data, field based observations and interviews from teachers completing their Post-baccalaureate Graduate Certificate in Autism Spectrum Disorders at a large, urban university in a mid-Atlantic state. To add to the literature base about the influence of ASD-focused professional development, this study examined teacher perceptions of the professional training and the relationships between teachers' knowledge and skill acquisition and self-efficacy.

Chapter 1

Introduction

There are an increasing number of identified students with Autism Spectrum Disorder (ASD), according to data collected by both the Center for Disease Control (CDC, 2012) and the U.S. Department of Education (USED, 2009). Even more recently, the Centers for Disease Control (CDC) increased the incidence level in their March 30, 2012 prevalence of Autism Spectrum Disorder Report to 1 in 88 children in the United States identified as having autism spectrum disorder (CDC, 2012). Surveyed parents of children between ages 3 and 17 in the United States in 2009 reported a similarly high rate of incidence of autism spectrum disorder (i.e., 1 in 91: Kogan, 2009). Students with all types and severity of ASD are increasingly being educated in the general education setting (CDC, 2007). According to the 29th Annual Report to Congress on Implementation of IDEA Parts B and C, the fall 2009 incidence level of students, aged 3- 21, labeled with autism in public schools equaled 804,438. This represents an increase of approximately 770,351 students in special education labeled with autism since the 1997 Child Count (USED, 2009; USED, 2007).

ASD is a complex spectrum of disorder that is identified through behavioral features and is characterized by varied severity of symptoms (www.ideapartnershp.org, retrieved 12/11/12). It comprises a group known as pervasive developmental disabilities (autistic disorder, pervasive development disorder not otherwise specified, Retts disorder, childhood disintegrative disorder,

Asperger's disorder) described by social impairments, communication impairments and restricted, repetitive, and stereotyped patterns of behavior (Diagnostic and Statistical Manual of Mental Disorders, DSM IV TR, 1994). Kanner (1943) was the first to describe autism in the United States, using eleven case studies to highlight the individual differences as well as the fundamental disorder of the children being "unable to relate themselves in the ordinary way" (pg. 242). There are numerous professional definitions of autism, including the most common contained in the DSM-IV-TR (APA, 2000). Other sources, such as the Autism Society of America, United States Department of Education (as defined in the Individuals with Disabilities Education Improvement Act of 2004 [IDEA]), the Centers for Disease Control, and the Autism National Committee, all reference a spectrum or range of disabilities, and the presence of delays in communication, social skills, and engagement in repetitive and stereotyped movements (<http://www.autcom.org/about.html>, retrieved 5/29/12; ASA, 2012; CDC, 2012; IDEA, 2004). Students with ASD exhibit a range of characteristics that require a range of service and placement options (VDOE, 2011).

The range and heterogeneity of needs across the autism spectrum creates complex challenges for educators and other caregivers. Educators and researchers must advance knowledge in order to provide the tools and evidence-based strategies that are needed to effectively educate students with autism spectrum disorder. There are many variables that influence how the disorder affects children, including the age of onset, the way it coexists with other developmental and mental disorder, and through the necessary level of treatment (CDC, 2012; National Research Council, 2001). Students with ASD may be educated full time in general education classes, a combination of special classes and general education classes, or exclusively in special education classes with an adapted curriculum (Barnhill, et al. 2011; NRC,

2001; VDOE, 2009). Schools must staff and implement programs with both general and special educators who have knowledge and skills to meet the needs of these students. In 2001, The National Research Council (NRC) recommended increased coursework through personnel development and professional development that includes the skills of individualized supports for families, systematic instruction, and functional behavior assessments. At the same time that the number of students with ASD and their needs for appropriate educational services are increasing, there is a general shortage of licensed special educators, and a particular shortage of general and special educators who are prepared to teach students with autism spectrum disorder (Simpson, 2004).

Nationally, there is a lack of ASD-focused teacher preparation for pre-service teacher candidates and professional development for veteran teachers that address the curricular needs identified by numerous authors (Barnhill et al., 2010; NRC, 2001; Scheuremann, Weber, Boutot, & Goodwin, 2003; Simpson, 2004). An increased number of high quality and intensive training opportunities should be a priority nationwide (Barnhill et al., 2010). All teachers, both special and general educators, need training in learning theory and in addressing behavioral challenges to meet the needs of students with ASD in the classroom (Scheuremann et al, 2003; Steuernagel, 2005). There is also a critical need to provide adequate training internationally for all teachers who encounter students with ASD (Leblanc, Richardson, & Burns, 2009).

The recruitment and retention of special educators has been documented as a national dilemma present for the past 18 years (Billingsley, 2004; Brownell, Ross, Colon, & McCallum, 2003; Brownell & Smith, 1992; CEC, 1998; Carlson, Brauen, Klein, Goe, 2004; Schroll, & Willig, 2002; McLeskey, Tyler & Flippin, 2004; NRC, 2001). The field of special education has experienced high numbers of teachers who leave due to the demands of the job (Billingsley,

2004). The Council of Exceptional Children's (CEC) Subcommittee on Recruitment and Retention found that role overload, lack of autonomy, negative school culture and role conflicts all contributed to special educator attrition and low retention of teachers (CEC, 1998). Again in 2003, the Center on Personnel Studies and Special Education (COPSSE) reported the problem of a shortage of certain special education personnel to serve students with disabilities, especially in the areas of emotional/behavioral disorder, multicategorical disability, severe/profound disability, learning disability, and mild/moderate disability (Brownell et al., 2003; McClesky, Tyler & Flippin, 2003). The Study of Personnel Needs in Special Education (SPeNSE) study revealed that the extent and quality of pre-service training for special educators impacts the self-perceived success of early career teachers (Billingsley, Carlson & Klein, 2004; Carlson, Schroll & Klein, 2002). Induction, or the orientation of new teachers in an assignment, has been studied as a necessary step to prepare new teachers. Billingsley et al. surveyed teachers regarding their perceptions about induction programs and their intent to stay in the field, finding that those who described their induction support as helpful said that they could get through to even the most difficult students (2004). This study shows that self-perception about getting through to students, which also can be characterized as teacher efficacy, is an important need for the retention of teachers.

Statement of the Problem

There is a need for effective preparation of teachers to educate students with autism spectrum disorder using evidence-based methods. According to Doehring and Winterling (2011) public schools are the place where most children with ASD receive specialized instruction. Further, the authors describe that evidence-based practices would have limited impact in school programs unless there is a cycle of continuous professional development that includes training,

oversight, and standards of practice that are closely monitored. Personnel development as well as professional development training programs must emphasize evidence-based practices that can help to close the research to practice gap (Volkmar, et. al, 2011). A survey of Virginia teachers with a variety of qualifications and experience in the classroom with students with ASD concluded that professional development initiatives must address teacher knowledge of research and theory regarding best practices (Hendricks, 2011). While the incidence of ASD continues to increase, parents and educators share concerns regarding how to effectively educate these students (Mueller & Carranza, 2011). Parental concerns include the need for teachers trained to implement specific teaching methodologies such as applied behavior analysis with high intensity, as well as the availability of qualified teachers. These concerns about the nature and extent of instructional methods as well as related concerns about the lack of efficacy data for educational practices has led to increased litigation (Scheuermann, et al., 2003; Yell, Katsiyannis, Drasgow, & Herbst, 2003). In an analysis of due process hearings from 2005-2006, Mueller and Carranza (2011) found twenty percent of the cases were about autism, with fifty-one percent of those about placement, IEP, and program appropriateness. Unfortunately, there are scarce data on the prevailing party by disability and by issue across the literature, however, Mueller and Carranza reported in their 2005-2006 analysis school districts prevailed only just over half the time (2011). These findings suggest school personnel need more training in IEP planning, instruction and implementation. Families and advocates agree that there is a lack of effective training for all teachers who teach students with ASD. A review of the increases in due process hearings and case law under the Individuals with Disabilities Education Act (IDEA) over the last two decades have shown that parents demand results and outcomes for their children, and highlights a lack of systematic and intensive instruction in the public school setting (Mandlawitz, 2002; Mueller &

Carranza, 2011; Yell, Katsiyannis, Drasgow, & Herbst; 2003). Court precedents have determined that parents and courts cannot dictate to professionals which methodologies to utilize, cases have been decided over the available documentation of educational benefit (Mandlawitz, 2002).

The National Research Council (2001) found that personnel preparation programs use diverse approaches and curricula; however, there is little research regarding the effectiveness of these methods, and schools subsequently hire teachers for students with ASD who are not well prepared in evidence-based best practices. Later, the National Autism Center (2008) recommended the review and extension of research on evidence-based practices. Canadian researchers found that there is an on-going need to train teachers and enhance knowledge of ASD and evidence-based practices in order to meet the numbers of students with ASD and to reduce teacher stress around lack of resources (Leblanc et al, 2009). In a recent survey, Barnhill, Polloway and Sumutka (2011) found that 43 states have institutions of higher education that offer personnel preparation in educating students with ASD. Additionally, the researchers found inconsistencies among states regarding the existence of identified professional competencies and licensure specific to ASD. For instance, Muller (2005) found only five states required teachers of ASD to be specifically licensed in autism and later Barnhill et.al, (2011) confirmed again that ASD licensure or expert credential has rarely been required to teach in public schools. There has been a general move nationally toward noncategorical licensure to teach students with disabilities (Barnhill et. al, 2011; Simpson, 2004). For example, Virginia has five special education teaching licenses with two that are categorized by level of need (e.g.; special education adapted curriculum, special education general curriculum,) and three by age or specific disability (e.g.: early childhood special education, deaf and hard of hearing and visual impairments).

No single national guideline for the content of personnel preparation programs is recognized creating a disparity of program quality across the United States (Morrier, et al., 2011; Barnhill et al., 2010). While CEC published standards for special educators, both by advanced specialty such as ASD and advanced content knowledge, providing a foundation that is useful for higher education as well as local professional development, this author could not find research suggesting they are widely implemented as a guideline (<http://www.cec.sped.org/Content/NavigationMenu/ProfessionalDevelopment/ProfessionalStandards/TeacherPrepStandards/default.htm>, retrieved 10/15/12). A search of the national Personnel Improvement Center website yielded a list of 47 university programs for professional development in the area of autism (<http://personnelcenter.org/get.cfm>, retrieved 9/5/12). The 2007 Special Education Teacher Certification and Licensure State Policy database found on the National Comprehensive Center for Teacher Quality (TQ Center) web site (<http://www2.tqsource.org/mb2dev/reports/Reporttq.aspx?id=1542&map=0> retrieved 9/5/2012) revealed seven states with autism specific criteria for licensure. Clearly these numbers and state examples reflect a lack of overall national depth and consistency of personnel preparation for licensure programs in the area of autism and raise concern for trends in professional development of licensed teachers.

Rationale for Study of Problem

There is substantial literature regarding the need for effective personnel in special education as captured by Billingsley (2004) and Brownell et. al (2003); however, only emerging literature reveals the need for improved teacher training for serving students with autism spectrum disorder (Barnhill et al., 2011; Morrier, Hess, & Heflin, 2011; NRC, 2001; Scheuermann et al., 2003). The link between effective instructional practices and educational

achievement is established in the field of education at large, but there is a gap between what is known about instructional methods, what is implemented in schools, and student achievement for students with ASD (Volkmar, Reichow & Doerhing, 2011). Potential special education personnel may become effective through their pre-service personnel development at a university or through effective professional development implemented within the place of employment. In order to improve teacher effectiveness, both teacher preparation and professional development programs should be scrutinized for their content, processes, and outcomes, to identify changes that could contribute to the implementation of effective, research-based practices in schools.

A review of professional development models illustrates a need for innovation, organization, structure and purposefully driven activity (Guskey, 2009; McLeskey, 2011). The expert centered model, or the “sit and get,” has been shown to be marginally effective (Choy, Chen & Bugarin, 2006). A newer, more effective model known as a learner- centered model involves the collaboration of an expert, or researcher, with a teacher in a consultation or coaching relationship (McLeskey, 2011). Hirsch contends that

good teaching occurs when educators are involved in a cycle in which they analyze data, determine student and adult learning goals based on that analysis, design joint lessons that use evidence-based strategies, have access to coaches for support in improving their classroom instruction, and then assess how their learning and teamwork affects student achievement (pg. 10, 2009).

Consistent with this concept is McLeskey’s theme of personal growth and collaboration that is a hallmark of the learner centered model (2011). Joyce and Showers (2002) show that teachers’ innovative practice is increased when a peer coaching model is added into the learner-centered professional development (LCPD). This type of professional development is necessary for all

special educators, but is of increased importance for special educators who come to classrooms with emergency (i.e., emergency or temporary) credentials and are under-qualified and developing skills while teaching (McLeskey, 2011).

In an age of high accountability for student achievement of every student, the field of education must identify and follow a set of standards. Toward that end, the new Model Core Teaching Standards from the Interstate Teacher Assessment and Support Consortium, (InTASC) Council of Chief State School Officers (CSSO, 2011) describes effective teaching. Key in the description is the notion of personalized learning for diverse learners, including students with disabilities, as well as Standard Nine which sets forth the expectation that professional learning requires teachers to use evidence to continually evaluate his/her practice. On-going self-reflection and collaboration contribute to adapting practice to meet the needs of each student (InTASC, 2011). The largest international special education professional organization, Council of Exceptional Children (CEC), developed their sixth edition of the publication “What Every Special Educator Must Know” which emphasized that teachers of students with ASD should be required to demonstrate certain knowledge, skills and dispositions (2009). Not only does CEC suggest that beginning teachers of students with ASD should possess knowledge and skills across ten standards, there is an expanded, or “advanced professional content standards and knowledge and skill sets” that clearly sets the expectations of continued teacher learning (2009).

While recommended practice and professional standards currently address the curriculum content and the need for further educating teachers of students with autism spectrum disorder (CEC, 2009; Odom et al., 2010), there is a lack of research about the effectiveness of professional development in supporting teachers’ growth and confidence about their instructional practice. According to the National Professional Development Center for Autism Spectrum

Disorder (NPDC-ASD), certain evidence-based practices must be included in teacher training (Odom, Collet-Klingenberg, Rogers, & Hatton, 2010) in order for there to be positive student outcomes. For example, one of the twenty-four recommended evidence-based practices from the NPDC-ASD is structured teaching because the strategy has empirical evidence that shows it is effective at increasing student skills (Mesibov & Shea, 2011). One of the best predictors of long-term positive outcomes for people with ASD found by Hume and Reynolds is the amount of time spent engaged in their learning in the classroom (2010). The structured teaching strategy is one of the methods that is deemed evidence-based and should be included in professional development initiatives. The level of teachers' preparedness on these knowledge, skills, and dispositions can affect how teachers perceive their competence and effectiveness in promoting student learning, also known as their self-efficacy (Tschannen-Moran & Hoy, 2007).

Statement of Purpose

There is a need for intensified, rapid, and special emphasis on training of teachers for students on the autism spectrum (NRC, 2001). The current movement in the field emphasizing the use of evidence-based practices in designing instructional methods should be emphasized during teacher preparation and professional development activities to increase teacher effectiveness. Further, it has been established that a teacher's sense of self-efficacy (Bandura, 1979; Hoy & Tschannen-Moran, 1998) impacts his/her performance and that of his/her students. The purpose of this study was to discern and describe teachers' perceptions of their self-efficacy following professional development that includes training in the use of evidence-based practices. This was accomplished through analysis of survey data from teachers completing their Post-baccalaureate Graduate Certificate in Autism Spectrum Disorder through a large, urban university in a mid-Atlantic state. To add to the literature base about the influence of ASD-

focused professional development, this study examined teacher perceptions of the professional training and the relationships between teachers' knowledge and skill acquisition and self-efficacy.

Review of the Literature

Evidence-based practice is a term found in literature beginning about the same time as other terms such as research-based and scientifically-based were identified in the 2002 No Child Left Behind Act (Cook, Tankersley, Cook & Landrum, 2008). There had been a lack of consensus in the field of special education regarding the uses of evidence-based practices in the past (Jenson, Clark, Kircher & Kristjansson, 2007). Professionals tend to agree that teachers need to use methods that have been confirmed to be effective via research using high quality design that involves rigorous, systematic procedures to obtain reliable, valid knowledge (*ibid*). It is not anticipated that one ideal curriculum or intervention package will meet the educational needs of all students with ASD due to the heterogeneity of needs.

Bransford, et al., (2000) describe the science of learning for both learners and teachers and promote the position that engaging students is pivotal to learning. Teachers must consider and expand on preexisting understandings that their students bring with them; subjects must be taught in depth; and the teaching of metacognitive skills should be integrated into the curriculum. Personnel preparation and professional development programs should be using these concepts of adult learning theory in the design of curriculum (Bransford et al., 2000). Teachers learn the same way students do, when provided with many opportunities for practice, observation, and active participation (Barnhill, et al., 2011).

Self-Efficacy. Teacher self-efficacy is derived from Bandura's (1977) Social Cognitive Theory. Bandura described behavior as stemming from human agency, cognition, expectancy

and motivation. Additionally, Bandura suggested that people will dedicate themselves to activities they feel competent in and avoid those in which they doubt themselves. “Perceived self-efficacy is people’s belief in their capability to perform in ways that give them control over events that affect lives.” (Bandura, 2000, p. 212). In addition, Bandura described four situations of learning that enable the development of positive self-efficacy including (1) active mastery experiences, (2) vicarious experiences involving observing others, (3) verbal persuasion and (4) physiological reactions (1977, 1986). Bandura also emphasized that self-efficacy influences one’s persistence and motivation for tasks (1986).

In the context of education, Tschannen-Moran and Hoy (1998, 2001) described a teacher’s sense of self-efficacy as one’s belief about competence in a given situation. Thus, teachers who believe they teach well are likely to believe their students can learn. There is a documented link between teacher self-efficacy and performance of students (Allinder, 2004; Wheatley, 2005; Tschannen-Moran & Hoy, 1998). When a teacher observes his/her teaching methods produce results for students, s/he persists in working with great effort and optimism that his/her students will show gains in performance (Tschannen-Moran & Johnson, 2011). This concept of motivation is key in helping teachers who work with students with ASD face the many challenges in meeting varied learning needs.

Brownell and Pajares (1999) studied general education teachers’ self-efficacy about teaching students with learning and behavioral needs. When teachers’ pre-service or in-service program addressed the components of curriculum adaptation, teachers felt more successful about managing these students (Brownell & Pajares, 1999). The teachers’ perceptions about their effectiveness also influenced their behaviors, including the use of instructional methods such as adaptations to lesson plans. Brownell and Pajares (1999) demonstrated that teacher’s self-

efficacy or perceptions of their capabilities strongly influenced their use of strategies, and their use of and persistence in the amount of help given to students.

A systematic review of literature around special educators, professional development and teacher-efficacy was conducted in order to explore the need in more detail, to follow any links and uncover gaps. There is an established link between effective professional development and self-efficacy (Brownell & Pajares, 1999, Gebbie, Ceglowski, Taylor & Miels, 2012). Motivated teachers who demonstrate high self-efficacy are more likely to remain in the field (less burnout), implement evidence-based practices, and have greater impact on student performance (Brownell & Pajares, 1999; Ruble, Usher & McGrew, 2011; Tschannen-Moran & Hoy, 2001). Professional development provided in either a workshop or consultation format was effective at increasing perceived self-efficacy (Gebbie et al, 2012; Gotshall & Stefanou, 2011; Jennett, Harris & Mesibov, 2003; Lee, Patterson & Vega, 2011). There remains a gap regarding what is effective professional development for teachers who teach students with ASD that also effectively raises teacher-efficacy and promotes use of evidence-based practices.

Research Questions

The overall purpose of this study was to examine teacher perceptions of their professional training to teach students with autism spectrum disorder and the relationships between teachers' knowledge, skill acquisition, evidence-based practices and self-efficacy.

The specific research questions included:

1. What are the teacher experience and placement characteristics (i.e. years of experience, teaching licensure, teaching assignment) of teachers completing the Post Baccalaureate Certificate in Autism Spectrum Disorder?

2. To what extent do teachers completing the Post Baccalaureate Certificate in Autism Spectrum Disorder:
 - a. Demonstrate the knowledge, skills and dispositions for teaching students with ASD?
 - b. Believe they are knowledgeable and effective in using evidence-based practices to teach students with ASD?
 - c. Believe they are effective in using general instructional strategies?
3. Does the use of evidence-based practices influence teacher sense of self-efficacy?
4. What are teachers' perceptions about their professional training (ASD Certificate) and their skilled use in evidence-based practices for teaching students with Autism Spectrum Disorder?

Methodology

This study examined relationships among special education teachers' knowledge, skills, and dispositions; use of evidence-based practices; and self-efficacy, at the conclusion of a professional development program about teaching students with ASD. Specifically, participants were recruited from the pool of program completers of a Post-Baccalaureate Certificate in ASD at a large, urban university. The non-experimental design involved the use of a web-based survey to gather teachers' perspectives about their development as instructors of students with ASD, their sense of self-efficacy regarding instructional practices, and existing descriptive data about the teachers' backgrounds. Classroom observation data that are routinely collected by program faculty during the final semester of the program, using the Field Based Observation Evaluation rubric, was triangulated with the survey results.

The researcher-developed survey incorporated subscales of existing measures as well as researcher-generated questions. Specifically, the short form (12 items) of the Teacher's Sense of Self-Efficacy Scale (Tschannen-Moran & Hoy, 2001) that include questions probing a teacher's beliefs around three strands: classroom management, instructional strategies, and engagement, and two self-rating scales from the Evidence-Based Practices Inventory (National Professional Development Center on Autism Spectrum Disorder, n.d.) were incorporated in the survey. In addition, teacher perspectives about their preparation and confidence to teach as a result of their professional development program were gathered through open-ended survey questions. Existing program data was used to document the content of the curriculum, participants' backgrounds, and teachers' observed use of key evidence-based practices in their classrooms.

Targeted interviews implemented with a subset of participants based upon their survey responses added qualitative information to answer the research questions. This qualitative component enabled this researcher to explore the teacher's perceptions about their professional development training and help identify what factors enable them to feel confident in their ability to teach students with autism spectrum disorder. A grounded theory approach was utilized in order to understand the story of teachers who teach students with ASD and how their use of evidence-based practice influences their self- efficacy.

Summary

This study was designed to add to the literature base about the effectiveness of professional development in preparing educators to teach students with ASD. With the rising number of students with ASD as well as the continued shortage of special educators who are prepared to teach them, there are serious concerns about whether these students will have opportunities for educational achievement. Fortunately, there is a strong body of knowledge

about evidence-based practices and instructional methods that are effective with students with ASD. When teachers learn about and implement these methods through effective professional development models, they should see a positive impact on student learning and view their efforts as worthwhile and efficacious. This investigation into the relationship between teacher development, use of evidence-based practices, and self-efficacy provided insight that can inform future directions for personnel development for educating students with autism.

Definition of Terms

Self-efficacy. Self-efficacy refers to a person's beliefs about his or her capabilities to affect particular outcomes. Self-efficacy beliefs may influence a person's feelings about success prior to engaging in a difficult or arduous task (Bandura, 2000).

Teacher self-efficacy. A teacher's 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 (Bandura, 1977; Tschannen-Moran & Hoy, 2001).

Professional development. Professional development means a comprehensive, sustained, and intensive approach to improving teachers' and principals' effectiveness in raising student achievement. It includes coherent, evidence-based learning strategies and provides job-embedded coaching or other forms of assistance to support the transfer of new knowledge and skills to the classroom (National Staff Development Council, 2009).

Evidence-based practices. Evidence-based practices are instructional practices that have been thoroughly researched and found to meet standards and published in educational literature (Cook et al., 2008). Single-subject as well as randomized group design research that uses experimental control can identify evidence-based practices (Horner et al., 2005).

Chapter 2

Introduction to the Review of the Literature

The purpose of this chapter is to provide an overview of the literature that provides a foundation for the proposed study and to present a systematic review of the literature on professional development and teacher self-efficacy for teachers who serve students with disabilities. Additionally, the literature on evidence-based practices for teachers of students with autism spectrum disorder (ASD) is explored with an emphasis on teacher training. First, brief overviews of professional instructional standards in ASD, evidence-based practices and professional development models are presented. Next, there is discussion about teacher self-efficacy as it relates to special education. The procedures for conducting the systematic literature review are described, followed by a presentation of the review including a summary table. Finally, the future directions for research of the existing literature are discussed.

Overview of Related Areas

This section comprises the overview and introduction of relevant areas of research for the proposed study. These areas include instructional standards in educating students with ASD, evidence-based practices, and professional development models, teacher self-efficacy, and finally, professional development and teacher self-efficacy as conceptual framework.

Instructional standards. Teacher professional development programs must include competencies needed for effective instruction of diverse learners and additional attention to

evidence-based instructional practices to meet the needs of teachers and their students with ASD. A committee of national experts was convened by the National Academy of Sciences to review research on education for students with autism in 2001. The U.S. Department of Education, Office of Special Education Programs funded the National Center on Autism Spectrum Disorder in 2007 and the National Autism Center was formed in 2008. According to these leading experts and several independent researchers, personnel preparation programs in higher education remain inadequate in the area of training teachers to use effective programming for students with ASD (Loiacano & Allen, 2010; NRC, 2001; Scheuermann et al., 2003). While there are teacher preparation and professional development models that are supported in the literature, there is no common or standard curriculum for personnel preparation in the area of ASD that is empirically proven, and therefore, no consistency across preparation programs or professional development content for education or treatment entities.

The lack of consistency or standards in the field of teaching students with ASD has led some states to take on the challenge of developing guidelines. In 2001, the New York State Education Department published their *Autism Program Quality Indicators*, a six domain rubric for use in developing and evaluating education programs. In 2004, New Jersey published their version called the *New Jersey Autism Program Quality Indicators*. Further investigation reveals that state education agencies in Georgia, Colorado, and Virginia all recognized this need as well and published guidelines. The Virginia Department of Education's *Guidelines for Educating Students with Autism Spectrum Disorders* (2010) specifically informs the reader that the document is "not a standard of practice for the education of individuals with ASD in Virginia" but that the document is intended to guide the practitioner and families.

The largest professional organization for those who practice in special education, the Council for Exceptional Children, (CEC), also endorses the use of evidence-based practices. According to the article on the subject published on the CEC website (CEC, n.d.) researchers who were interviewed stated that evidence-based practices are hard to find and that they need to be in a “quick to grasp” format so that teachers can readily learn and use them with fidelity (www.cec.sped.org/AM/Template.cfm?Section=Home&CONTENTID=6515&TEMPLATE=/C/M/ContentDisplay.cfm&CAT=none).

As previously noted, the National Professional Development Center on Autism Spectrum Disorders (NPDC-ASD) was first funded by the US Department of Education, Office of Special Education Programs in 2007. The Center is charged with promoting evidence-based practices and outcomes for children with ASD. Their work produced a list of twenty-four evidence-based practices that align with the criteria for inclusion as evidence-based from the NPDC (Stansberry-Brusnahan & Collet Klingenberg, 2010). The NPDC underwent a broader investigation and literature review in 2014 and published a revised list of twenty-seven practices (Wong et al, 2014). Additionally, all of the state developed publications on the topic of educating students with ASD have used the National Research Council’s report, *Educating Children with Autism* as a foundation for guidance on effective strategies in teaching (2001).

It is widely accepted today that early identification and intervention is critical for young children with autism (NEA, 2006; NRC, 2001; Simpson & Myles, 2008; VDOE, 2010). Recently, researchers affirmed again that early intervention benefits children with autism (Itzhak & Zachor, 2011). This study sought to clarify which child and parental characteristics impacted learning outcomes and notably discovered the factors that positively predicted better

outcomes. These are a) earlier initiation of intervention, b) the child's severity (less) of symptoms exhibited, c) the mother's (younger) age, and d) parental advanced education.

Educational programs must be designed for each individual, be systematic and intensive, and use evidence-based interventions (NRC, 2001; Simpson & Myles, 2008; VDOE, 2010).

While there is wide support for the implementation of early intervention, there continues to be some controversy over appropriate and effective methodology (Hume, Bellini, & Pratt, 2005; Stansberry-Brusnahan, L.L. & Collet-Klingenberg, L.L., 2010). Issues with implementation fidelity and the appropriate selection of strategies can cause the intervention methodology to vary across providers leading to questions about effectiveness. The high cost of intensive, one-to-one discrete trial training using in depth applied behavioral analysis approaches is another reason some debate continues over treatment effectiveness (NRC, 2001).

The National Research Council (NRC) identified six specific priority areas for interventions in programs for children with ASD in their 2001 report. These areas include: functional spontaneous communication, social instruction, play skills, cognitive development, proactive approaches to challenging behavior and functional academic skills. Based upon the NRC report Stansberry-Brusnahan and Collet-Klingenberg (2010. p.49) framed the following recommendations for educational programming:

1. Intervention should begin as soon as a child is suspected of having ASD.
2. Intervention should include a child's active engagement in systematically planned, age and developmentally appropriate activity toward objectives for at least 25 hours per week.

3. Intervention should include teaching that is planned and organized around repeated short intervals. The teaching should be individualized daily and be presented in one-to-one as well as small group presentations.
4. Intervention should include the inclusion of a family component, including parent training.
5. Intervention should include mechanisms for ongoing evaluation of program and child's progress.
6. Intervention should include inclusive opportunities.

The work of the NRC and more recently, the NPDC-ASD has resulted in furthering the field of special education for students with ASD. Even with an evidence-based instructional practice meeting the criteria for inclusion in a compilation of evidence-based practices in the field, there is still professional expertise and judgment applied so that the practice is used strategically (Odom, Collet-Klingenberg, Rogers, & Hatton, 2010).

Evidence-based practices. The No Child Left Behind Act (NCLB) of 2001 and the Institute of Education Science's (IES) creation of the What Works Clearinghouse (WWC) were two events that catapulted discussions in the education community about evidence-based practices. The WWC was funded in order to summarize evidence about educational practices or interventions and determine which have efficacy (Odom, et al., 2010a). There have been national initiatives to identify educational practices for students with ASD and to emphasize the use of sound, researched interventions. The National Autism Center published the National Standards Project (2008) which provides guidance to practitioners. Evidence-based practices are not well understood or implemented at the local, public education agency and school level (Cox,

personal communication, 2011). A useful way to think about evidence-based practices is the focus on learner outcomes.

NCLB requires states to educate children using methods that adhere to effective, scientifically proven practices found in the research literature (NCLB, 2001). The terms “research-based” and “evidence-based” are mistaken as synonyms and found more frequently in education literature and practice. The focus of a practice found to be “evidence-based” is the emphasis on the quality of the research outcomes whereas “research-based” does not adhere to the same outcome standard. For example, the term “research-based” only means that some research has been conducted but the credibility of the research is not monitored in the same way the field does for evidence-based practices. According to IDEA (2004 at 20 U.S.C. 1411(e)(2)(c)(xi), scientifically based research, as defined by the ESEA [sec 9101(37)] is inquiry that:

- (a) employs systematic, empirical methods that draw on observation or experiment; (b) involves rigorous data analyses that are adequate to test the stated hypotheses and justify the general conclusions drawn; (c) relies on measurements or observational methods that provide reliable and valid data across evaluators and observers, across multiple measurements and observations, and across studies by the same or different investigators; (d) is evaluated using experimental or quasi-experimental designs in which individuals, entities, programs, or activities are assigned to different conditions and with appropriate controls to evaluate the effects of the condition of interest, with a preference for random assignment experiments, or other designs to the extent that those designs contain within-condition or across-condition controls; (e) ensures that experimental studies are presented in sufficient detail and clarity to

allow for replication or, at a minimum, offer the opportunity to build systematically on their findings; and (f) has been accepted by a peer-reviewed journal or approved by a panel of independent experts through a comparably rigorous, objective, and scientific review.

According to the statutes of IDEA and ESEA, teachers should be using proven instructional methods according to rigorous standards rather than commercial assertions about a method or personal affinity for a method. Instructional practices and methods must be validated (Smith, Robb, West, & Tyler, 2010).

The American Psychological Association adopted the definition of evidence-based practice in psychology in 2005 that emphasized the term's meaning to include "integration of the best available research and clinical expertise." (APA, 2005, Mesibov & Shea, 2011). The NPDC-ASD followed a specific process and criteria in order to qualify research studies and treatments or strategies as evidence-based. They found and emphasized a distinction between comprehensive treatment models and focused intervention practices (Odom et al., 2010a). The NPDC-ASD concentrated on the focused intervention practices that are instructional strategies that teachers and practitioners can use to teach children with ASD (Odom, et al., 2010b). The criteria and amount of evidence needed to have an intervention be labeled as an evidence-based practice is set forth as the following:

- a) The research study had to use participants with ASD between ages of 0 and 22,
- b) Show dependent measure outcomes,
- c) Show that the practice was followed by gains in the targeted teaching skills, and
- d) Have adequate experimental control to rule out most threats to internal validity, and

show evidence within:

- a. Two experimental or quasi-experimental group design studies, and
 - i. At least five single case design studies from three independent investigators, or
 - ii. A combination of at least one experimental and one quasi-experimental study and three single case design studies from independent investigators.
(Odom, Collet-Klingenberg, Rogers, & Hatton, 2010, p. 276)

Following the search and selection process done by the NPDC-ASD, the investigators grouped practices into categories. Summary descriptors were used for similar practices and the researchers developed a list of the twenty-four identified evidence-based practices (Odom et al., 2010b).

In today's field of education, practitioners must be knowledgeable about the research literature in order to make appropriate decisions about methods used in teaching. Methods for learners with special needs such as ASD require even greater scrutiny due to the evidence that earlier intensive intervention leads to better outcomes. Therefore, parents and educators must realize there is no time to waste in achieving outcomes. IDEA (2004) requires instructional practices and methods are validated (Smith, Robb, West, & Tyler, 2010). Evidence of efficacy and effectiveness is scrutinized by the What Works Clearinghouse (WWC) as required by the US Department of Education since 2002, yet as of 2009 there were no interventions for autism on the WWC website (Mesibov & Shea, 2010). There is a lack of literature included in the scientifically-based research databases for ASD due to the absence of single subject research (Odom et al., 2010a, Mesibov & Shea, 2011).

Several sets of distinguished researchers have published criteria for determining if a practice can be considered evidence-based (Horner et al., 2005; Odom, Boyd, Hall, & Hume,

2010; Odom, Brantlinger, Gersten, Horner, Thompson & Harris, 2005; Rogers and Vismara, 2008). There is debate regarding what constitutes evidence-based practice. The field standard is that studies must employ empirical rigor and be published in peer-reviewed publications.

The National Autism Center (NAC) published a report to enable the field to distinguish between *established, emerging, unestablished or ineffective/harmful* practices (NAC, 2008). There were eleven studies that qualified practices under the established category, twenty-two under emerging, five under the unestablished category and none listed as ineffective. In order to be categorized as a practice that is established, there had to be measurable effects through rigorous experimental research including several peer reviewed studies (Odom et. al, 2010b; NAC, 2008). While this is helpful information, it leaves the practitioner to seek training on implementation of the practice because articles don't describe enough detail to enable effective implementation (Odom et. al, 2010b).

At the NPDC-ASD, part of their work has been to translate practices from the research literature into checklists and guides for teachers and practitioners called "EBP (Evidence-based Practices) Briefs." The list of evidence-based practices alone does not ensure appropriate implementation during instruction for children. The selection and use of the practices still have to be implemented by professionals who can apply their expertise. The practices should be used strategically to match each specific learner's IEP goals (Odom et. al, 2010b). Recently, fewer than 15% of teachers reported getting training on evidence-based practices from their teacher preparation program and alarmingly, less than 5% of teachers sampled reported using best practices (Morrier et al., 2011; Hess, Morrier, Heflin & Ivey, 2008). There is much work to be done to bridge the research to practice gap using professional development.

Professional development models. There is a documented shortage of well trained professionals to work with students with disabilities and autism (NRC, 2001; Scheuremann et al., 2003; Smith et al., 2010). The NRC Report found that the inadequacies of current teacher preparation programs are due to the lack of in-depth opportunities to learn instructional and management approaches (2001). This deficit cannot be resolved by just adding one course to the existing generic special education pre-service program (Simpson & Myles, 2008). Rather, special education teachers need to be well trained in special education and then be required to receive additional on-going professional training in evidence-based methods in autism. In response to this need, the NRC recommended that state and federal agencies, including the Office of Special Education Programs, should provide funding to reach professionals who work with students with ASD with high quality professional training (NRC, 2001).

In studies of professional development models, the most prominent model in use for years has been the expert centered model, the “sit and get.” This model of delivery has been shown to be only marginally effective (Choy, Chen & Bugarin, 2006). A newer, more effective model involves the integration of an expert, or researcher with a teacher to produce a learner centered model (McLeskey, 2011). Concepts of personal growth and collaboration are hallmarks of the learner centered model. Joyce and Showers (2002) have shown that teachers’ innovative practice is increased when a peer coaching model is added into the learner centered professional development (LCPD). This type of LCPD is necessary for all special educators but of increased importance for special educators who come to classrooms with emergency (temporary) credentials and are learning while teaching (McLeskey, 2011).

Morrier et al., (2011) found that special education teachers are resourceful and seek their own training needs, are self-taught or learn through trial and error. Workshops were found to be

a useful way to train many teachers at once but did not guarantee that teachers actually implemented evidence-based practices in the classroom. They also found that special educators will use the evidence-based practices that they are taught in through workshops that includes a practice component (Morrier et al., 2010). These results suggest that professional development programs and curriculum could be improved by employing a sustained approach and including more evidence-based practices along with opportunities for guided, or hands on practice using the strategies. Personnel preparation and professional development methods must be improved so that students with ASD achieve favorable outcomes.

When the Council of Exceptional Children (CEC), the National Autism Council (NAC), the National Research Council (NRC) and the research community focus and emphasize evidence-based practices, there is credibility for the topic as important to the field. These organizations represent stakeholders including policy makers, researchers, practitioners and families all targeting the aims of educating students with ASD. Considering that Goal #2 of the CEC 2009-2011 Strategic Plan is about the need for implementation of evidence-based practices, scholars and school leaders should incorporate the topic into professional development initiatives. Furthermore, the CEC Board of Directors and Representatives distinguish three important objectives for the organization. These are 1) to develop and implement a valid, reliable system for evaluating the evidence bases; 2) to disseminate information on the evidence bases of practice and inform the research agenda; and 3) to provide guidance on using the evidence bases, incorporating wisdom and values of families and professionals (Retrieved 6/16/11 from

http://www.idschadm.org/17291062416938657/lib/17291062416938657/_files/CEC_Strategic_Plan_2009-2011.pdf). Evidence-based practices should guide every teacher's methods. In order

for teachers to use these practices, teacher preparation curriculum and professional development should focus on the research that qualifies practices as evidence-based.

Teacher self-efficacy. There is substantial scholarly literature on the construct of self-efficacy. The RAND Corporation conducted early work on teacher characteristics and student achievement and found a relationship between the factors of teacher efficacy and reading achievement (Armor et al., 1976). Bandura (1977, 1986, 1997) is credited with the origin of the theory of self-efficacy in his writings about social cognitive theory. Teacher efficacy has been defined and studied by many researchers. According to Ashton & Webb (1986) teacher efficacy is situation-specific and teacher beliefs are “perceptions of their own teaching abilities” (p. 4). Gibson and Dembo (1984) define teacher self-efficacy as “the extent to which teachers believe they can affect student learning” (p. 75). Choices, effort, and perseverance are all influenced by one’s self-efficacy (Bandura, 1986; Brownell & Pajares, 1999).

Efficacy constructs have been studied at the teacher and collective (school faculty group) levels. “Collective efficacy refers to the judgment of teachers in a school that the faculty as a whole can organize and execute the courses of action required to have a positive effect on students (Dimopoulou, 2012, p. 509).” Teachers’ decisions about their practices are affected by their self-efficacy in teaching (Bandura, 1997). Further, teacher faculty groups employ agency, meaning the operation or exertion of power that can influence the collective efficacy. Positive agency and collective efficacy have been seen to motivate teachers to be persistent with instructional challenges (Goddard, Hoy & Hoy, 2004). Collective teacher-efficacy has been shown to be predictive of achievement in math and reading (Goddard, Hoy & Hoy, 2000).

There is prolific research on the topic of teacher efficacy for those who teach in general education, however fewer studies have been conducted to examine efficacy of special educators.

Brownell and Pajares (1999) studied general educators' efficacy around teaching students with disabilities and found that teachers reported higher efficacy in teaching students with learning and behavioral needs when they had participated in professional development that included quality interactions with peers as a support. Their confidence about their success was also influenced when they had participated in pre-service coursework about special education (i.e.: courses on teaching methods and characteristics) however the group who had increased interactions with peers had higher perceptions of success than the group who had only in-service (1999).

Recent literature reveals important findings about professional development models and teacher self-efficacy. A study focused on literacy teacher's self-efficacy beliefs revealed the need for a strong foundation in literacy instruction with coaching in order for teachers to implement new instructional strategies (Tschannen-Moran & Johnson, 2010). When these variables (literacy and coaching) were present, teachers had higher efficacy. There are two studies conducted in the Middle East and Asia, respectively, where differences in teacher efficacy were unexpected. In a study of both general and special educators in Turkey, no difference was found between the self-efficacy beliefs of the teachers who taught students without disabilities and those that taught those with disabilities following school based, workshop style training in disabilities (Kaner, 2010). Conversely, in another workshop style professional development model, experienced teachers of low achieving students (those at risk for early drop out due to low achievement) in Singapore showed high teacher efficacy, however the *more* experienced teachers in the study did not have similar high self-efficacy and did not perceive themselves as having a high ability to help their at risk students (Yeo, Ang, Chong, Huan & Quek, 2008). These studies show some mixed results when teacher self-efficacy was

measured revealing that more research could explore the reasons and further the knowledge base about teacher efficacy and students at risk or with disabilities.

Teacher self-efficacy has been shown to impact teachers' instructional practices such as to increase use of innovative teaching methods (Tschannen-Moran & Woolfolk-Hoy, 2001; Wolters & Daugherty, 2007). Teachers with higher teacher efficacy persist longer with challenging students and lessons, display greater warmth toward students and are responsive and receptive (Ashton & Webb, 1986, Gibson & Dembo, 1984). Conversely, teachers with low self-efficacy typically criticize the student as the problem rather than seeking and persisting to find innovative strategies (Woolfolk, Rosoff & Hoy, 1990). Teachers who encounter repeated failure experience lower teacher self-efficacy resulting in lower motivation in their teaching practices. Positive self-efficacy and proactive teacher behaviors are linked to student achievement (Allinder, 1995; Ashton & Webb, 1986; Rosenholtz, 1989) but there is a need for more evidence of the link between special education teacher self-efficacy and achievement for students with disabilities.

Allinder (1995) studied special educators' instructional practices of using curriculum-based measurement and concluded teachers who were identified as having higher personal efficacy set higher goals for students who showed significantly greater growth in higher math achievement. In another look at a comparison between efficacy of general and special education teachers, the relationship between teacher efficacy and job satisfaction of special educators was studied due to the ongoing phenomenon of shortage of qualified personnel. The outcome confirmed that, just like in general education, teacher self-efficacy does influence job satisfaction (Viel-Ruma, Houchins, Jolivette & Benson, 2010). An important recommendation of these

authors was for strong induction programs and on-going professional development for teachers of students with disabilities.

Systematic Review of Special Educators, Professional Development, and Self-Efficacy

This section provides a systematic review of literature about special educators, professional development and teacher self-efficacy that was performed in order to explore whether these variables had been investigated in combination, to synthesize the results, and uncover any limitations or gaps in the literature that might inform this study.

Search Procedures

A systematic search was conducted using Educational Resources Information Clearing House (ERIC), PsychINFO, and Academic Search Complete databases. The initial search terms included “autis*”, “teacher”, and “self-efficacy.” Variations and broadening of the search terms yielded more results and the final search terms included the following: “efficacy” and “training” and (“disab*” or “autis*”). The titles and abstracts of studies were reviewed for inclusion. To ensure adequate culling of the literature, an ancestry search was conducted in articles identified for inclusion through the database search, as well as a hand search of Teacher Education and Special Education (TESE), The Journal of the Teacher Education Division of the Council for Exceptional Children, January 2011-May 2012. These search results yielded a total of 249 articles to be screened for possible inclusion.

Inclusion and Exclusion Criteria

This literature review builds a case for the need to inform the field of special education personnel development, and specifically, the field of teacher development for those who teach students with autism spectrum disorder (ASD). However, it was necessary to broaden and expand the search to fully understand the literature on the topic of special education teacher self-

efficacy as it relates to professional development. For the purpose of this literature review, teacher professional development refers to training that practicing teachers undergo during their career as opposed to teacher preparation which refers to pre-service training.

Studies have been included in the review if the following criteria were met: the study participants were teachers and perceptions, self-efficacy, and/or training were investigated. Studies of pre-service teacher training were excluded due to the focus of professional development for teachers already in the classroom and the provision of targeted training to address their teaching needs.

Data extraction. Each study was summarized in terms of whether the (a) participants were general or special education teachers, (b) the type of study method, (c) the type of professional development implemented, (d) the evaluation tools used, (e) the outcome measured by the tools, and (f) the results of the investigation. A rating of the results was coded from the studies. Results were summarized as inconclusive, minimally effective or effective. The ratings were based upon the reported results in the study of the extent that the professional development activity raised teacher self-efficacy.

Table 1 (see Appendix 1) summarizes the studies according to (a) participant characteristics, (b) type of study design, (c) type of professional development intervention, (d) measurement tools, (e) outcome measured, and (f) results. The results of the review of literature related to professional development and teacher self-efficacy can be categorized into three types of professional development models with two studies not matching those models. The three categories are 1) post-graduate targeted coursework, 2) workshop or in-service model, and 3) the consultation model. Three articles reflect the use of post-graduate coursework as the professional development model as one factor. Three articles are grouped according to the use of

the in-service model, and three are grouped due to a focus on the use of a consultation or monitoring style of professional development. There are two studies that do not clearly fit the professional development criteria for inclusion; however, they have very valuable information for the field of self-efficacy of teachers of students with ASD so they will be summarized independently for this factor. Specifically, Ruble, Usher and McGrew (2011) surveyed 35 special education teachers of students with ASD and found that teachers who reported more confidence in classroom management (self-efficacy) also reported less burnout ($p < .01$, positive correlation between personal accomplishment, .43, emotional exhaustion, -.44 and depersonalization, -.38 and self-efficacy). This study did not investigate any professional development model so it did not meet the inclusion criteria, but the results are useful for consideration of future professional development in the area of classroom management in order to prevent burnout and increase the likelihood of retention of good teachers. The second study included here also does not investigate a professional development model but it does look at the influence between job satisfaction, teacher self-efficacy and student achievement. Caprara, Barbaranelli, Steca & Malone (2006) discovered through examination of student grades and teacher surveys that teacher self-efficacy beliefs contribute to job satisfaction as well as student achievement. Notably they reported that a teacher's perceived ability to handle challenges related to satisfaction which in turn, influenced student achievement ($t = 8.45$) as measured through items from the Teacher Sense of Self Efficacy Scale (Caprara et al., 2006).

Post-graduate Coursework

According to Brady & Woolfson (2008), no relationship was found between level of post-graduate coursework or training for general and special education teachers and their level of self-efficacy. Their study looked at attributions, including attitudes toward people with

disabilities and concluded teachers with more experience attributed student failures to external factors. The general and special education primary school teachers from Scotland who participated in the study answered a questionnaire with three parts concerning attributions of causality, teacher self-efficacy and attitudes about persons with disabilities. The study did not describe post-graduate coursework in detail, likely because of the many variables of different institutions providing the courses, but each participant provided their training background and information on demographic questions. The implications of this study include teacher attitudes about people with disabilities as a critical component of professional development programs, along with hands on practice in order to increase success of inclusionary practices.

Jennett, Harris and Mesibov (2003) studied teachers of ASD and their commitment to teaching philosophy. Lead teachers of students with autism were surveyed about their demographics, treatment philosophy {applied behavior analysis method (ABA), or Treatment and Education of Autistic and related Communication Handicapped Children (TEACCH)} teaching efficacy and burnout. This study did not focus on professional development but the independent variable is previous training in the treatment philosophy of ABA or TEACCH. Correlations were analyzed for the relationship of philosophy commitment and teaching efficacy with the result that commitment was significant for personal teaching efficacy ($r=.38, p<.05$ for ABA and $r=.47, p<.001$ for TEACCH). Their conclusion was there was no difference in teachers' self-efficacy and commitment to their teaching method between teachers who used the (ABA) and those who used the TEACCH method. Both sets of teachers in this study scored high efficacy, high commitment and low burnout. It can be surmised then that professional development that enables teachers to gain personal teaching self-efficacy and a commitment to

evidence-based methods such as ABA and TEACCH will arm them with skills and confidence to combat stress and burnout.

The third study that had coursework as an independent variable was conducted by Swackhamer, Koellner, Basile and Kimbrough in 2009. Increased coursework was associated with the outcome of increased self-efficacy to reach diverse students (who had learning differences and disabilities) and higher level teaching methods for eighty-eight general and special education teachers of science ($d=.54$). Swackhamer et al., (2009) state that...“professional development or further education that impacts a teacher’s understanding of their craft can affect the teacher’s perceived ability level and therefore self-efficacy”(p. 64). For two of three studies in this category of post graduate coursework, it can be concluded that post-graduate coursework has a positive effect on teacher self-efficacy for working with students with disabilities.

In-service Professional Development

There are three studies in which the effects of a professional development model of in-service training on teacher self-efficacy were investigated. First, Brownell and Pajares (1999) discovered that in-service on diverse learner characteristics had a large impact on self-efficacy and collegiality. Their findings are important because it substantiates that general education teacher’s self-efficacy does influence perceived success with students with disabilities in the general education classroom. The highest variables on teacher’s perceived success with students with disabilities were self-efficacy ($B=.392$), perceived collegiality with special educators ($B=.321$) and perceived quality of in-service ($B=.360$). This highlights that an in-service model designed along with opportunities for collegiality with fellow general and special educators can increase perceptions of self-efficacy and successful inclusion of students with disabilities.

A professional learning community (PLC), which is a type of group learning model involving continuous, shared study of a training topic over time, was associated with high performing special education programs, and of improved teacher self-efficacy in Indiana where studied (Edmonds & Spradlin, 2010). The qualitative study found dominant themes of ownership of students with disabilities' needs and performance along with high teacher self-efficacy were indicative of high performing district data. The authors found that relevant and effective staff development and willingness of school leaders to engage in PLC were noted where there was high self-efficacy.

An increased use of an online learning community (OLC) along with workshop style training on how to use the OLC was found to impact teacher self-efficacy for teaching students with behavioral challenges by Gebbie, Ceglowski, Taylor & Miels (2011). The authors discussed that challenging behaviors of preschool children with disabilities are a prominent factor in teacher stress and burnout, as well as the number one identified training need among special educators. The use of the OLC was investigated through teacher interviews before and after their training and implementation of the OLC. Using the OLC to celebrate successes with challenging students was shown to be effective for not only the teacher who posts but also for the teachers who read the strategy. Teacher efficacy is not only increased through experience but through observation of others' success as was shown in one of the case studies (Gebbie et al., 2011). The three studies discussed above utilizing a version of in-service (i.e., workshop to provide information) along with follow up (i.e., PLC, online community, collegiality among teams of general and special education teachers) showed increased teacher self-efficacy with students with disabilities.

Consultation Professional Development Model

Two of the identified studies used a consultation style professional development model in order to increase teacher skills and perceptions of efficacy (Gotschall & Stefanou, 2011; Lee, Patterson & Vega, 2011). Consultation in the first study by Gotschall & Stefanou refers to teachers receiving information and support from an expert as well as from the problem solving team consultation frequently found in the Response to Intervention (RtI) model of intervention. The consultation design produced positive relationships between consultation and teacher self-efficacy.

Lee, Patterson & Vega (2011) investigated teachers' perceived levels of support from district leaders and personal teacher efficacy. The authors surveyed intern teachers (teachers in their first year of supervised teaching while they pursue post-graduate credentials) in California. Personal and general teacher self-efficacy was correlated with confidence, knowledge, skills and control over issues. The highest relationships found were personal teacher efficacy and knowledge and skills on the competencies from the Council of Exceptional Children ($r=.61$, $p<0.01$) and perceived support ($r=.62$, $p<0.01$). Teachers' perceptions of (lack of) support from the district, heavy caseload and lack of curriculum were negatively associated (46.1% of described challenges affecting teaching effectiveness) with levels of self efficacy.

Teacher Self-Efficacy

Two studies included in the analysis did not describe a specific professional development model, yet they are discussed here for their interesting contribution to the literature on the topic of self-efficacy. Ruble, Usher & McGrew (2011) recently studied teachers of students with ASD. They reported that stress and burn out was associated with self-efficacy but that the number of years of teaching was not associated with self-efficacy. The authors investigated correlations between sources of self-efficacy for teachers of students with ASD including

mastery experience, social persuasions, and physiological and affective states. The findings overall support the need for greater emphasis on teacher working conditions and support for teachers. Additionally, the lack of association between years of teaching and self-efficacy the authors assert prompts questions on the effectiveness of teacher training (Ruble et al., 2011).

In 2006, Caprara, Barbaranelli, Steca and Malone studied teachers in Italy and reported that teacher effectiveness as measured by student grades was associated with teacher satisfaction and self-efficacy. Teacher's perceived self-efficacy influenced their job satisfaction significantly ($t=9.55$) and perceived self-efficacy predicted student achievement ($t=3.12$). According to Caprera et al., "Teachers with high levels of self-efficacy beliefs are more likely to be able to create the conditions and to promote the interpersonal networks that nourish and sustain their work satisfaction" (2006, p. 485). These findings support the development of professional initiatives to enable teachers to feel connected in the school and to have positive interpersonal networks. Therefore, continued research about teacher efficacy and the relationship to satisfaction, retention and student outcomes is warranted.

Summary and Limitations of Existing Literature

This section summarizes the findings of this literature review and identifies gaps in the existing research on professional development in special education and self-efficacy.

Limitations

The existing studies of teachers who teach students with ASD are inadequate to generalize and future studies with larger samples would be beneficial to the field. Questions remain regarding professional development for teachers of students with ASD, especially on the topic of the use of evidence-based practices and whether the use of these influences teacher behaviors and beliefs. Continuing research into what assists a teacher in developing high self

efficacy would lead to using appropriate curriculum and standards in pre-service as well as professional development models that prevent burn out and promote quality outcomes for students.

Summary of Existing Literature

This review substantiated that there is an established link between effective professional development and self-efficacy (Brownell & Pajares, 1999, Gebbie, Ceglowski, Taylor & Miels, 2012). Motivated teachers who demonstrate high self-efficacy are more likely to remain in the field (less burnout), implement evidence-based practices, and have greater impact on student performance (Brownell & Pajares, 1999; Ruble, Usher & McGrew, 2011; Tschannen-Moran & Hoy, 2001). Professional development provided in either a workshop or consultation format was effective at increasing perceived self-efficacy (Gebbie et al, 2012; Gotshall & Stefanou, 2011; Jennett, Harris & Mesibov, 2003; Lee, Patterson & Vega, 2011). School leaders will benefit from a data-based guide about professional development and teacher self-efficacy that can help in overcoming the challenge of planning effective professional development initiatives for teachers who teach students with ASD that also can raise teacher self-efficacy as well as promote use of evidence-based practices.

There is a strong literature base regarding evidence-based practices in special education and an emerging amount of study on evidence-based practice in autism spectrum disorder. Scholars agree that personnel preparation programs should be strengthened to meet the growing need of students on the autism spectrum by an emphasis on evidence-based practices and the selection of appropriate practices based on the knowledge of the individual student (Brownell & Pajares, 1999; Ruble, Usher & McGrew, 2011). There is a significant emphasis in education on teacher self-efficacy and the link between this construct and student achievement (Allinder,

1994; Ashton & Webb, 1986; Bandura, 1977). Although limited, there is a small amount of information regarding teacher self-efficacy and students with autism spectrum disorder. This outcome informs the field regarding teachers of autism and their preparation. The literature review reveals a gap in research and knowledge about the effect a teacher of students with autism spectrum disorder's self-efficacy may have on use of instructional practices, including evidence-based practices, and student outcomes.

Chapter 3

Methodology

Introduction

This study was designed to explore beliefs of teachers of students with Autism Spectrum Disorder (ASD) about whether they can impact their student's learning along with their awareness and skilled use of evidence-based practice in autism. The study's research design, the participants, the selection of instruments, data collection methods, as well as data analysis is explained in this chapter. In the research design subsection, the specifics of the study type are described in detail. The participant sample subsection describes the process for participation in the study. In the instrumentation subsection, the rationale for the selection of each instrument will be discussed. The next subsection outlines the selected methodology for data collection at each point in the proposed study. Finally, the data analysis subsection includes descriptions of the statistical and data analysis used to address each of the study's research questions.

The specific research questions include:

1. What are the experience and placement characteristics (i.e. years of experience, teaching licensure, teaching assignment) of teachers completing the Post Baccalaureate Certificate in Autism Spectrum Disorder?

2. To what extent do teachers completing the Post Baccalaureate Certificate in Autism Spectrum Disorder:
 - a. Demonstrate the knowledge, skills and dispositions for teaching students with ASD?
 - b. Believe they are knowledgeable and effective in using evidence-based practices to teach students with ASD?
 - c. Believe they are effective in using general instructional strategies?
3. Does a teacher's use of evidence-based practices influence teacher sense of self-efficacy?
4. What are teachers' perceptions about their professional training (ASD Certificate) and their skilled use in evidence-based practices for teaching students with Autism Spectrum Disorder?

Study Design

A sequential explanatory mixed method design (Creswell & Plano Clark et al., 2003) incorporated survey data and individualized interviews to study teacher self-efficacy, the use of and perceptions of evidence-based practices, and evaluation of preparation from a post-baccalaureate program. The design involved two phases: the first to collect self-ratings within a survey, which led to the second phase of sampling of willing participants for structured interviews. Additionally, the results of the teachers' field-based observations that occur during the fourth and final course of the certificate program were analyzed for a relationship to self-ratings of teacher self-efficacy. The relationship between teacher self-efficacy in instructional strategies and perceived confidence in use of evidence-based practices was investigated using the survey subscales, and the interview responses. This first step helped to begin to explore

individual teacher’s journeys between teacher self-efficacy in instructional strategies and the awareness and skilled usage of evidence-based practices. The survey results were considered along with the observed use of evidence-based practices with students with autism spectrum disorder found through the Field Based Experience Observation Rubric (FBEOR). The second, qualitative phase allowed for extending the inquiry by exploring participants’ views in depth. Due to the small sample of teachers in the post-baccalaureate certificate program for the 2011-2012 and 2012-2013 as well as spring 2014 academic years the data results were not expected to meet adequate power recommendations for inferential statistics initially considered in the research design. The qualitative component of this mixed method approach provided substantive meaning that will inform the field of teacher education about preparation for teaching students with ASD and the use of evidence-based practices. (Creswell, 2007; Ivankova et al., 2006). The expected outcome was to gain a greater understanding about teacher perceptions of self-efficacy, their use of evidence-based practices and their professional development training needs in ASD. Table 2 depicts the analysis of research questions by data source.

Table 2

Analysis of Research Questions

Research Question	Data Source	Analysis
1. What are the teacher experience and placement characteristics (i.e. years of experience, teaching licensure, teaching assignment) of teachers completing the Post Baccalaureate Certificate in Autism Spectrum Disorder?	Survey questions Interview questions	Descriptive statistics: frequencies, age, experience, characteristics of teachers and students they teach, teaching assignment
2. To what extent do teachers completing	Survey	Descriptive statistics:

the Post Baccalaureate Certificate in Autism Spectrum Disorder:		mean scores, frequencies/percent, open ended narrative of survey questions and interviews, observation scores
a. Demonstrate the knowledge, skills and dispositions for teaching students with ASD?	FBEOR*	
b. Believe they are knowledgeable and effective in using evidence-based practices to teach students with ASD?	TSES* EBPI*	
c. Believe they are effective in using general instructional strategies?	TSES	
3. Does a teacher's use of evidence-based practices influence teacher sense of self efficacy?	Interviews Survey TSES FBEOR	Coding of interviews Constant comparison
4. What are teachers' perceptions about their professional training (ASD Certificate) and their skilled use in evidence-based practices for teaching students with autism spectrum disorder?	Interview questions Open-ended survey questions	Qualitative analysis; Coding interview answers

Note. ASD = Autism Spectrum Disorder; FBOR = Field Based Experience Observation Rubric; EBP = Evidence-Based Practices; TSES = Teacher Sense of Efficacy Scale

Sample

The Post-baccalaureate Certificate in Autism Spectrum Disorder is offered at a large, urban university in a mid-Atlantic state to practitioners who work with persons with autism spectrum disorder across the lifespan. The majority of practitioners matriculate from three school divisions local to the University that created cohorts of teachers and related service providers who could benefit from this curriculum based on current teaching assignments. The sample included practitioners with a range of experience and training from multiple sources. For

instance, many participants were special education teachers and some of them were related service providers who had received previous training within their disciplines, coursework and professional development. Participants for this study were identified by using the directory information that is available under the Federal Education Right to Privacy Act (FERPA) of program completers from spring and fall semesters of 2012, 2013 and spring 2014 as well as through contact with cohort leaders and the director of the Post-Baccalaureate program. Initial recruiting for participants was done through an introductory email contact by this researcher.

Based upon the results of the internet survey (e.g. qualitative responses, teacher placement, experience level), participants were identified as potential interview participants to contact for participation in guided interviews. The survey included a question that invited the participant to indicate a willingness to participate in the second part of the study. The study design was adapted based upon the participant characteristics and small sample size yielded from the survey response rate. The sample size was too small for certain analyses and therefore, the emphasis on the qualitative analysis of the data to answer the research questions was increased. Informed consent was obtained for the interview. This sample of volunteer interviewees is used to answer the specific research questions about practitioners already in the field of teaching students with autism spectrum disorder with intent to inform not only the large, urban University School of Education, but also the field of special education about personnel development needs.

Instrumentation

There were several instruments that were used to answer the research questions in this study. The Teacher's Sense of Self-Efficacy Scale (TSES), the Evidence-based Practices Inventory (EBPI), the Field-based Experience Observation Rubric (FBEOR), as well as semi-structured interview results combined to formulate a dense picture of teacher's beliefs and knowledge of evidence-based practices for teaching students with ASD. The survey was

constructed by the researcher from portions of the first two instruments, the TSES and the EBPI in combination with participant demographics and open ended questions (see Appendix C). The TSES instrument was utilized in order to discern broader self-efficacy ratings from participants. While the original TSES instrument is not designed specifically for teachers of students with ASD, it provides general teacher perceptions of efficacy through questions about instructional strategies. The EBPI allowed for further details of teacher perceptions of their skilled use of evidence-based practices for teaching students specifically with ASD. The FBEOR (see Appendix E) and the interview results (see Appendix D for Interview Guide) were used to ascertain more information regarding participants' skills, perceptions, as well as amount of previous training from their professional development activities. The FBEOR instrument produced clinical data generated from teachers involved in a specific professional development program, which is a graduate certificate program in a large, urban university based upon Virginia competencies and evidence-based practices.

Survey. The eight item Efficacy in Instructional Practices sub-scale of the Teacher's Sense of Self-Efficacy Scale, Long Form (TSES) by Tschannen-Moran & Hoy (2001) was adopted as a measure of teacher self-efficacy. The TSES uses a 9 point Likert scale that ranges from (1) nothing, (3) very little, (5) some influence, (7) quite a bit, to (9) a great deal and (10) not applicable. The TSES has been used in multiple studies in both a long and short form (e.g. Bruce, Esmonde, Ross, Dookie & Beatty, 2010; Yeo, Ang, Chong, Huan & Quek, 2008; Skaalvik & Skaalvik, 2007). The psychometric properties for the measure as reported by the authors show strong construct validity based on response process. Each of the TSES three subscales and total scale were examined for internal consistency using Cronbach's alpha. Cronbach's alpha for the instructional practices subscale on the long form is .91 and .94 for the

overall three subscale TSES (Tschannen-Moran & Hoy, 2001). The first author of the TSES was contacted to gain permission to use the Efficacy in Instructional Practices subscale through email correspondence. Dr. Megan Tschannen-Moran provided her permission on April 9, 2012.

The TSES was combined with two components of the EBPI developed by the National Professional Development Center on Autism Spectrum Disorder. This instrument also uses a Likert response scale. The EBPI instrument asks four questions of participants but only two was used for this survey to serve as measures of perceived knowledge acquisition and skills acquisition. The two items selected are a) how familiar are you with this practice? and b) how skilled do you feel you are at implementing this practice? This instrument has a three point scale for the respondent to use for each of twenty-four evidence-based practices, totaling 48 overall items.

a. How familiar are you with this practice?

(1) Not familiar, (2) Somewhat familiar, (3) Very familiar

b. How skilled do you feel you are implementing this practice?

(1) Novice, (2) Practitioner, (3) Expert

The EBPI was developed by the expert researchers of the National Professional Development Center on Autism Spectrum Disorder for their use in providing technical assistance to school divisions involved with the Center. The NPDC-ASD is a multi-university center that operates through three sites: The Frank Porter Graham Child Development Institute at the University of North Carolina at Chapel Hill, the M.I.N.D. Institute at University of California at Davis Medical School, and the Waisman Center at the University of Wisconsin at Madison. Principal investigators from all university partners participated in the development of the instrument; as experts in the field of autism, this lends supportive evidence for validity based on

test content. Further, in their use of the inventory as a pre- and post-test measure, results indicated that technical assistance program participants increased their use of evidence-based practices suggesting sensitivity of the measure to changes in behavior (Cox, A. personal communication, August 15, 2011).

Finally, the survey design included four researcher developed, open-ended questions that garnered specific participant opinions on the topics of perceptions about self-efficacy, evidence-based practices and their training through the Post-baccalaureate Certificate in ASD.

Field Based Experience Observation. Teachers completing the Post-baccalaureate Certificate in Autism Spectrum Disorder at the large, urban University in a mid-Atlantic state are evaluated at the conclusion of a Field Based Experience course where they are expected to demonstrate knowledge and skill implementation of core and universal areas of autism programming. The Field-based Experience Observation Rubric (FBEOR) contains items developed by program faculty that are derived from the evidence-based practice literature as well as from the Council of Exceptional Children standards outlined for teaching students with Autism Spectrum Disorder (CEC, 2011), and the Virginia Competencies from the Virginia Autism Council. Teachers in the Field-based Experience course select two goals for improvement during the semester in collaboration with the instructor. The goals are derived through teacher self-reflection of skill levels and narrowing of learning objectives. The teachers are then observed and evaluated on their demonstration of the selected Core Areas for Autism Programming as well as all five of the Universal Areas for Autism Programming which provides an overall mastery level of knowledge and skill implementation learned in the class and from the evidence-based practice literature. Existing teacher performance scores from the observation rubric collected during the program were used to answer whether or not actual evidence-based

practice skill acquisition relates to teacher perceptions about their skills and their self-rated sense of self-efficacy.

Targeted Interviews. As a follow up to the survey outcome, this study included interviews with six volunteer program graduates to examine experiences and perceptions about their graduate training in autism spectrum disorder. A semi-structured interview guide (see Appendix D) was used in order to structure the interview and allow for organized note taking (Creswell, 2007). In addition to gaining knowledge about teacher perceptions of their training, the interview was used to understand teacher knowledge acquisition about evidence-based practices and the influence of the use of evidence-based practices on their sense of self-efficacy.

Procedure

The proposed study consisted of two phases - one following the other in a sequential explanatory mixed method design using a quantitative data focus through descriptive survey results to inform the extension of the study of a qualitative interview method. The explanatory design is one of four main types of mixed method research designs (Creswell, 2007). This design is chosen when the researcher wants to follow up the quantitative results with more explanatory and qualitative information and to guide the sampling for selecting an interview group (Creswell & Plano Clark, 2007). The study approach as conceptualized in figure 1 shows the phases of the study in order to arrive at the desired result.

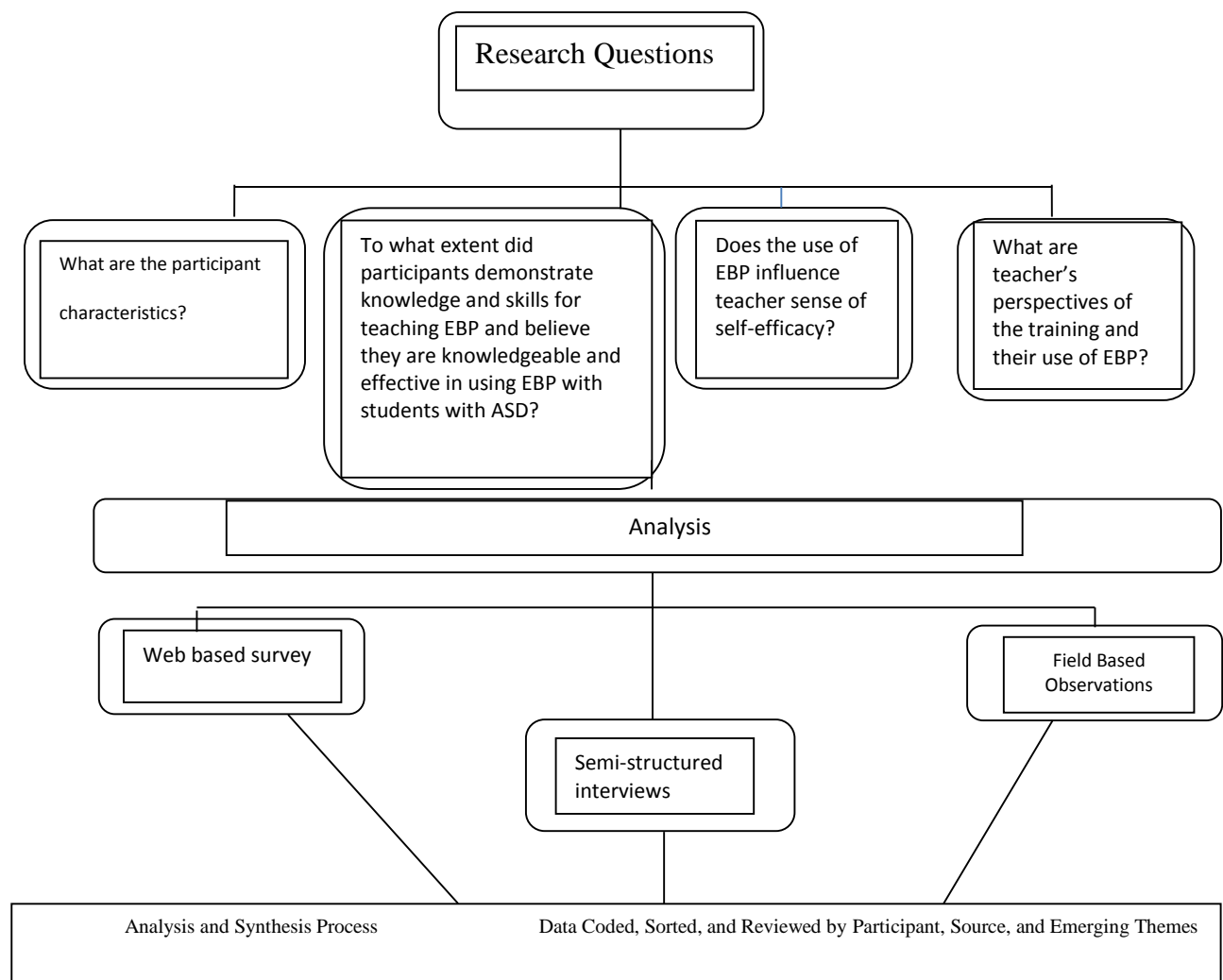


Figure 1. Study Approach

The survey implementation yielded a result of 13 usable surveys out of 15 completed from a pool of 33 participants which represented a 39% response rate. Consequently, the study design was altered to increase the focus on the qualitative information gained from the surveys resulting in a grounded theory approach to the survey data.

Phase I: Survey. The survey for this study comprised of components of two other instruments merged into one, was implemented as a web-based survey by the researcher using

REDCap survey software. Recruitment of participants was done according to the approved project description by the Institutional Review Board.

Phase II: Interviews. Participants for the second phase of the study were identified using the phase one data. Participants who responded to the survey question invitation to be interviewed were contacted so that a greater understanding for the research questions could be generated. One to one in person interviews were utilized as first choice, with telephone interview format offered as second choice if necessary for convenience of the participants. Participation was voluntary, results kept confidential and informed consent for participation was obtained through the digital recording of the interview. The researcher transcribed the digital recordings for analysis.

Data Analysis

The research questions were explored using data analysis of both phases of the study: the quantitative and qualitative component. In recognition of the limitations of the quantitative methods and the limited sample size and the expected potential contribution to the field of teacher education for ASD, the data analysis was tailored toward the more in-depth meaning attributable to the qualitative outcomes. The Analysis of Research Questions, Table 2 (see page 42) provides the data source(s) and the analysis that was employed in order to answer each research question.

In order to discern the experience and licensure characteristics of the study participants to answer question one, the survey includes several questions regarding years of teaching experience, type of teaching experience, teacher licensure and teaching assignment.

In research question two, participant performance from the Field-based Experience Observation Rubric was analyzed to ascertain to what extent the teachers demonstrated the

knowledge, skills and dispositions for teaching students with ASD. Participant responses for the survey subscale that contains the items from the Evidence-Based Practice Inventory were used to seek understanding about their beliefs about their own knowledge for using evidence-based practices in teaching students with ASD. The data for the third part of question two was found in the participant responses to the instructional practice subscale of the Teacher Self-Efficacy Scale to determine teacher beliefs around their effectiveness in using instructional strategies with their students with ASD. Descriptive statistics were used to seek trends among respondents. Mean, frequencies and percentages by survey subscale were also analyzed.

In order to answer research question three, the data from the survey subscales and the Field Based Observation Rubric were examined in a constant comparison approach (Mills et al, 2008). This allowed each interview to inform the next interview in a semi-emergent strategy and to examine the teacher's sense of self-efficacy in instructional strategies and confidence in skilled use of evidence-based practices. Follow up interview questions were completed with the participants to explore their understanding of their skilled use of evidence-based practices. The qualitative methods for the analysis of this question involved careful coding of the interview transcripts, the follow up interview transcripts as well as the open ended questions from the survey.

Finally, the fourth research question was answered through analysis of the qualitative data gathered during interviews. Interviews were audio taped and pertinent observations were collected via field notes. The descriptive and reflective field notes, documented by the researcher during and following each observation, provided further data to assist with organization of the interview results. Journaling by the researcher, to record feelings and thoughts about the experience, followed each interaction. The data was analyzed using accepted

procedures to include: 1) data review (member checking to confirm inferences made by the researcher); 2) data reduction; 3) data display; and 4) data transformation. The big ideas from the interview transcripts and field notes were identified through coding of the transcripts using open coding of themes (Creswell, 2007). The data were organized through coding to the phrase level after the first search for regularities and patterns in the data (Bogdan & Biklin, 2007). A priori coding of categories was developed to enable organization during the discourse as a critical step in the process. Initial coding categories included perspectives held by participants, strategies, and methods but final coding categories were defined while reading the actual data multiple times to organize and determine units. The categories that became the themes for discussion emerged through frequency and relevance in the interview data analysis (Bogdan & Biklin, 2007). The qualitative data gathered in this process were described and used to assist in identifying the training needs, the described use of evidence-based practice, elements of self-efficacy and the recommendations for the Post-Baccalaureate program from teachers of students with ASD.

Limitations

This study is informative for special education teacher professional development in general and specifically to graduate programs in special education for future refinement of their Post-baccalaureate Certificate in Autism Spectrum Disorder. However, the study is not designed to provide generalizable results and other inferential statistics are not feasible given the sample size. The benefit to the field is derived from the gained knowledge of teacher perceptions about their training and preparation, including their knowledge about evidence-based practices for teaching students with ASD and teacher sense of self- efficacy.

Summary

An in-depth understanding about teacher professional development and training needs for teaching ASD was a goal of the study. The triangulation of multiple sources of data was undertaken to ascertain whether teachers believe they acquired the skills and knowledge and dispositions necessary, demonstrate skilled implementation of evidence-based practice in their field based evaluation and report self-efficacy for teaching students with ASD. The incidence level of autism spectrum disorder is continually increasing (CDC, 2014), so these study results are important for the field to fill a gap in knowledge about effective training for practitioners who teach students with ASD, and how training influences their sense of teacher self-efficacy and competence.

Chapter 4

Findings

The purpose of this study was to investigate and describe teachers' perceptions of their self-efficacy following professional development that includes training in the use of evidence-based practices. Through analysis of survey data from teachers completing their Post-Baccalaureate Graduate Certificate in Autism Spectrum Disorder at a large, urban university in a mid-Atlantic state, the resulting information adds to the literature base about the influence of ASD-focused professional development. This study examined teacher perceptions of the professional training about teaching students with ASD and the relationships between teachers' knowledge about and skill acquisition of evidence-based practice and self-efficacy.

This chapter presents the results of the mixed methods study that incorporated a web based survey and in person face-to-face interviews to address the following research questions:

1. What are the experience and placement characteristics (i.e. years of experience, teaching licensure, teaching assignment) of teachers completing the Post Baccalaureate Certificate in Autism Spectrum Disorder?
2. To what extent do teachers completing the Post Baccalaureate Certificate in Autism Spectrum Disorder:
 - a. Demonstrate the knowledge, skills and dispositions for teaching students with ASD?

- b. Believe they are knowledgeable and effective in using evidence-based practices to teach students with ASD?
 - c. Believe they are effective in using general instructional strategies?
 3. Does a teacher's use of evidence-based practices influence teacher sense of self-efficacy?
 4. What are teachers' perceptions about their professional training (ASD Certificate) and their skilled use in evidence-based practices for teaching students with autism spectrum disorder?

The results of the quantitative survey data identified the perceptions of self-efficacy and the perceptions of familiarity and skilled use of evidence-based practices for teachers of students with autism spectrum disorder, while results of qualitative interviews provided a more comprehensive understanding of school professionals' perceptions about their training and level of preparation for the demands of teaching.

Study Participants

This section addresses the first research question. What are the teacher experience and placement characteristics of teachers completing the Post Baccalaureate Certificate in Autism Spectrum Disorder? The Teacher of Autism Spectrum Disorder: Sense of Self Efficacy and Knowledge of Evidence-based Practices survey results were based upon responses provided by education professionals who had completed the Post Baccalaureate Certificate in Autism Spectrum Disorder at a large, urban university. Table 3 depicts the characteristics of the study participants.

Table 3

Participants

Participant	License type	Years Teaching ASD	Total Years in Education	Type	Size School Division
K	PP	11-16	11-16	Public	Large
C	PGP	1-3	4-10	Public	Large
J	CP	1-3	4-10	Public	Large
S	CP	4-10	4-10	Public	Large
M	PGP	17+	17+	Public	Large
A	PGP	4-10	11-16	Public	Large
1	CP	1-3	4-10	Public	Large
2	CP	1-3	4-10	Public	Small
3	CP	4-10	4-10	Public	Large
4	PGP	1-3	4-10	Public	Large
5	PGP	17+	11-16	Public	missing
6	CP	11-16	11-16	Public	Large
7	PGP	1-3	11-16	Public	Medium

Note. License type- PP = pupil personnel, PGP = post graduate professional, CP = collegiate professional, ASD = autism spectrum disorder; Size school division = 4-15 schools– small, 16-33 schools– medium, 34 schools and above – large; Letters = interviewees, Numbers = survey participants

The 13 study participants represent professionals who completed the Post-Baccalaureate Certificate in ASD. Six of the participants (46%) have between 1-3 years' experience teaching students with ASD. Three of them (23%) identified themselves as having between 4-10 years' experience, two participants (15%) have between 11-16 years, and two (15%) have greater than 17 years of experience teaching students with ASD. All (13) of the participants are from public school districts in a mid-Atlantic state and they are mostly (%) from large districts of greater than 34 schools. One participant is from a much smaller district of 4-15 schools, and one is from a school district of medium size with 16-33 schools. This data was requested in case there were enough participants from specific sized districts to draw conclusions regarding survey responses of teacher efficacy or use of evidence-based practices and size of school district. There were an insufficient number of responses to statistically analyze the data according to school district size.

Participants were also asked to identify their teaching assignment by describing the students they serve. Of the eleven (85%) respondents who answered this question, one (7%) participant identified as a teacher for general education students without any current students with ASD. Seven respondents described teaching special education classes with students with autism included in their disability category making this the largest group (54%) within the respondents. Three of the respondents or 23% identified as a specialist within special education. One is a school psychologist, one teaches students who are gifted, and one is an occupational therapist. These professionals all described how their assignment includes working with students with ASD and consulting with the teachers who teach those students. The fact that the final pool of participants included professionals who are not directly teaching students with ASD needs to be noted. The original study design did not account for the high numbers of professionals who complete the Certificate program coming from related service disciplines rather than classroom assignments. This unexpected dynamic of participant characteristics was noted and then seemingly had an impact on their perceptions. The consultative type roles of three of the participants potentially changed the nature of the study results and will again be discussed as a limitation.

Participants were not asked to identify their previous training in ASD and it should be acknowledged that these educators all had undergraduate and graduate degree preparation in either education or a related discipline (school psychology, occupational therapy, gifted education). Prior education and professional development activities around teaching students with ASD is a variable that likely impacted each participant's beliefs.

Beliefs, Knowledge, and Effectiveness

The following discussion is about the findings relative to the second research question. To what extent do teachers completing the Post Baccalaureate Certificate in Autism Spectrum Disorder: (a) demonstrate the knowledge, skills and dispositions for teaching students with ASD? (b) believe they are knowledgeable and effective in using evidence-based practices to teach students with ASD? (c) believe they are effective in using general instructional strategies?

Survey results. The participants rated their opinions about teacher self-efficacy and instructional practices during part one of the online survey regarding their perception of the kinds of things that create difficulties for them during instruction. In order to further describe the data on the survey, descriptive statistics were run that identified the mean and standard deviation of each item of part one Teacher Beliefs and part two, Evidence-Based Practices. For the self-efficacy section of the survey entitled Teacher Beliefs, there were eight questions that respondents answered using a 1-9 Likert Scale. The respondents were consistent in rating themselves, on average, as *Quite a Bit* using the numeral 7 on the scale across all eight question to depict their perception of the ease of using instructional strategies with their students. Only 1 respondent gave a lower rating of *very little* on one question pertaining to responding to questions from students. From these results, it can be surmised that the teachers and professionals completing the Post-Baccalaureate Certificate for ASD have high self-efficacy regarding instructional strategies. Table 4 depicts the descriptive statistics of survey responses for survey part one, Teacher Beliefs.

Table 4

Means and Standard Deviations for the Teacher of Autism Spectrum Disorder: Teacher Beliefs and Self-Efficacy

Survey Item	<i>n</i>	<i>M</i>	<i>SD</i>
Part 1: Teacher Beliefs			
1. How well can you respond to difficult questions from your students?	13	7.23	2.166
2. How much can you gauge student comprehension of what you have taught?	13	7.77	.927
3. To what extent can you craft good questions for your students?	13	7.77	.927
4. How much can you do to adjust your lessons to the proper level for individual students?	13	7.92	1.256
5. How much can you use a variety of assessment strategies?	13	7.62	1.044
6. To what extent can you provide an alternative explanation or example when students are confused?	13	7.62	.962
7. How well can you implement alternative strategies in your classroom?	13	7.69	1.109
8. How well can you provide appropriate challenges for very capable students?	13	7.62	1.193

Note. Scale: Likert scale to indicate perceptions of difficulty with instructional strategies. 1 = *nothing*, 3 = *very little*, 5 = *some influence*, 7 = *quite a bit*, 9 = *a great deal*

Familiarity and Skilled Use of Evidence-Based Practices

Part two of the survey required the respondent to indicate their level of familiarity (*not familiar, somewhat familiar, or very familiar*) with twenty-four items known as evidence-based practices for teaching students with ASD. Respondents indicated that they are the least familiar with functional behavior assessment as an evidence-based practice ($n = 13$, $m = 2.0$, $SD = .577$). The highest rated evidence-based practice among participants was prompting, for which all 13 participants rated as *very familiar* ($m = 3.0$, $SD = 0$). Table 5 represents the descriptive statistics

results for means and standard deviations on part two of the survey that covers teacher perceptions of familiarity and skilled use of twenty-four items of evidence-based practices.

Table 5

Means and Standard Deviations for Survey Part Two: Evidence-Based Practices – Familiarity

Survey Item	<i>n</i>	<i>M</i>	<i>SD</i>
1. Prompting	13	3	.00
2. Reinforcement	13	2.92	.277
3. Task analysis	13	2.92	.277
4. Time delay	13	2.54	.660
5. Computer assisted instruction	13	2.38	.768
6. Discrete Trial Training	13	2.77	.439
7. Naturalistic intervention	13	2.69	.480
8. Parent-implemented intervention	13	2.08	.862
9. Peer-mediated instruction/intervention	13	2.38	.768
10. Picture Exchange Communication System (PECS)	13	2.85	.376
11. Pivotal Response training	13	2.85	.376
12. Functional Behavior Assessment	13	2.00	.577
13. Functional Communication Training	13	2.92	.277
14. Antecedent-based interventions	13	2.31	.751
15. Differential reinforcement of other/ alternative behavior	13	2.69	.480
16. Extinction	13	2.62	.650
17. Response interruption/redirection	13	2.31	.630
18. Self-management	13	2.38	.768
19. Social narratives	13	2.62	.650
20. Social skills training groups	13	2.46	.776
21. Structured work systems	13	2.23	.832

22. Video modeling	13	2.23	.832
23. Visual supports	13	2.54	.660
24. Verbal Output Communication Aid	13	2.92	.277

Next, the survey took the same twenty-four evidence-based practices and requested the participant respond to *how skilled to you feel you are at implementing each of the following practices?* The three options for rating feelings of skillfulness were 1) novice, 2) practitioner and 3) expert. Consistent with the result on the scale measuring their perception of familiarity with evidence-based practices, the lowest mean score across all respondents was found again to be the practice of functional behavioral assessment ($n=13$, $m = 1.62$, $SD = .768$) indicating a relative weakness of skilled performance among these professionals. The highest rated evidence-based practice was functional communication training ($n= 13$, $m = 2.54$, $SD = .519$). Table 6 represents the descriptive statistics results for means and standard deviations on part two of the survey that covers teacher perceptions of skilled usage or implementation of twenty-four items of evidence-based practices.

Table 6

Evidence-Based Practices – Skill at Implementing

Survey Item	<i>n</i>	<i>M</i>	<i>SD</i>
1. Prompting	13	1.92	.862
2. Reinforcement	13	2.46	.519
3. Task analysis	13	2.46	.519
4. Time delay	13	2.38	.506
5. Computer assisted instruction	13	1.92	.862
6. Discrete Trial Training	13	1.69	.751
7. Naturalistic intervention	13	2.00	.816

8. Parent-implemented intervention	13	2.00	.707
9. Peer-mediated instruction/intervention	13	1.77	.725
11. Pivotal Response training	13	2.38	.650
12. Functional Behavior Assessment	13	1.62	.768
13. Functional Communication Training	13	2.54	.519
14. Antecedent-based interventions	13	1.92	.760
15. Differential reinforcement of other/ alternative behavior	13	2.23	.599
16. Extinction	13	2.15	.801
17. Response interruption/redirection	13	1.77	.832
18. Self-management	13	1.85	.801
19. Social narratives	13	2.15	.689
20. Social skills training groups	13	2.00	.913
21. Structured work systems	13	2.00	.913
22. Video modeling	13	1.92	.862
23. Visual supports	13	2.00	.913
24. Verbal Output Communication Aid	13	1.85	.599

These survey results provide a basic picture of survey respondent beliefs about their familiarity and skilled use of evidence-based practices. These data will be synthesized across the study in order to tell the story about teacher self-efficacy and the use of evidence-based practices with students with ASD.

The data for the second question, including the three sub questions, was analyzed from several parts of the study design. All three parts of the survey, including open ended narrative answers were triangulated with the results of each participant's Classroom Observation Evaluation scores and the semi-structured in person interview transcripts. See figure 2, Triangulation of Data.

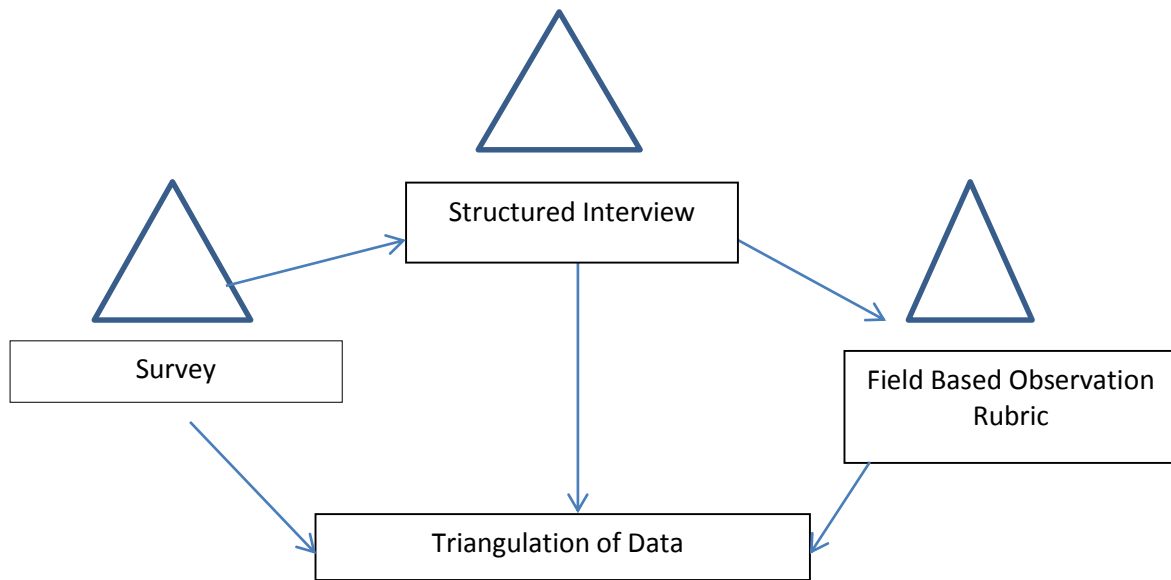


Figure 2. Triangulation of Data

Knowledge, Skills and Abilities

In order to answer the first prong of question two; did participants demonstrate the knowledge, skills and abilities for teaching students with autism spectrum disorder, scores from the field based observation evaluation rubric were analyzed. The Field Based Observation Experience Classroom Observation Evaluation (see appendix E) is a criterion-referenced instrument developed by the director of the Post-Baccalaureate Certificate program.

A comparison between the Classroom Observation Evaluation tool and the twenty-four evidence-based practices of the Evidence-Based Practice Inventory indicates that the curriculum content and expectations for educators in the Post-Baccalaureate Certificate Program is closely aligned with the literature and research regarding effective practices for teaching students with autism spectrum disorder. The link between the research and the course curriculum is important in that it lends credibility to the program. See Table 7.

Table 7

Comparison of the Core or Universal Areas of Classroom Observation Evaluation and Evidence-based Practices Inventory

Core or Universal Area	Evidence-Based Practice *
Personal Independence/Schedules/Aptitude	Self-Management Structured Work Stations Visual Supports
Communication	Functional Communication Training Picture Exchange Communication System Verbal Output Communication Aid (VOCA, speech generated device)
Social Peer Relationships	Social Narrative Peer Mediated Intervention Naturalistic Intervention Social Skills Video Modeling
Functional Behavior Assessment/PBS	Functional Behavior Assessment Reinforcement Pivotal Response Training Antecedent Based Intervention Time Delay Extinction Differential Reinforcement of Other or Alternative Behavior Response Interruption or Redirection Prompting
Structure and Visual Supports	Structured Work Stations Video Modeling Visual Supports
Instructional Strategies/ Instructional Formats	Task Analysis Antecedent Intervention Prompting Computer Assisted Instruction

	Discrete Trial Training
Assessment/ Data Collection	Functional Behavior Assessment Discrete Trial Training
Teaming/ Family Involvement	Parent Peer Modeling

Note. * some EBP are listed more than once as they compare well with a core or universal area from the observation rubric.

As discussed in chapter 3, the Field Based Classroom Observation Evaluation Rubric (FBEOR) is completed following a classroom observation during the fourth and final course of the series where educators engage in a field based experience. During a scheduled observation conducted by the field based instructor, the student is assessed on two target areas from the Core Autism Programming section using a rating scale from 0-3. Educators are also evaluated on all of the Universal Areas for Autism Programming that are expected to be carried out across all activities during the observation. These areas include: 1) Structure and Visual Supports, 2) Instructional Strategies/ Instructional Formats, 3) Instructional Considerations, 4) Assessment/ Data Collection 5) Teaming/ Family Involvement. It should be noted that the educators are not observed or rated on all 24 evidence-based practices.

The Field Based Experience Classroom Observation Evaluation rubrics were available for nine participants that were rated overall to have skillfully implemented target core and universal areas for autism programming (see Table 8). Out of 63 potential scores from target areas observed, there was only one unacceptable, never implemented or implemented incorrectly rating of “0.” It interesting to note, however, that while the instructor rated most of these participants as adequately or skillfully demonstrating strong knowledge and ability in the area of functional behavior assessment, this was the area with the lowest mean score (1.62) for evidence-

based practice on the survey. The interviews revealed that these teachers and professionals found conducting functional behavioral analysis as particularly challenging and the area where more instruction and practice was warranted. Julie, a teacher of high school students with autism expressed

The first time I encountered students with autism, their behaviors caught me off guard because I didn't understand how to deal with them I had one student in particular who had outbursts and just constant outbursts. That was my first experience. I wish I had known more about this and the characteristics as a first year teacher. It is amazing how socially they are inept. You definitely have to be patient. You have to have some kind of creativity, thinking outside the box. I need the hands on information. The analyzing of the behavior has been a challenge and I need more of the sharing of ideas.

Challenging student behavior emerged as a theme of concern for these participants in their teaching assignments. Further, they did suggest that learning the evidence-based practice of functional behavioral assessment and positive behavior support was useful; most of them suggested this is still an area where the Certificate curriculum could be improved. Anna stated

I liked the program, no complaints. I may have liked more supervision like when the instructor came to see me in my classroom. I still want to learn more ABA {applied behavior analysis} strategies. It helps me talk the talk.

Sheila commented that the field-based component what best prepared her for teaching. "Having the instructor observe and give feedback provided such valuable information. The classroom management course also was the best for preparing me to teach because behavior is always a need, to learn to not be alarmed and to understand the function of the behavior, to decipher the behavior."

Table 8 summarizes the participant FBEOR scores. The key for the abbreviated columns is below. There were 9 participants for which this data was available shown in column "P."

Table 8: Participant Field Based Observation Evaluation Scores

P	Personal Independence	Communication	Social/Peer Relationships	FBA/PBS	Visual Supports	Instructional Considerations	Instructional Strategies	Assessment Data Collection	Teaming Family Involvement
1	3	2	X	X	3	1	1	1	3
2	X	3	3	X	1	1	2	2	3
3	X	3	X	2	2	3	3	2	3
4	X	2	3	2	3	X	2	3	2
5	2	X	0	X	1	2	1	3	3
6	X	2	2	X	3	3	3	2	3
7	X	3	X	3	2	1	3	3	3
8	3	X	2	X	3	3	2	2	3
9	3	1	X	X	3	3	1	2	3

0 = Unacceptable, Never Implemented or Incorrectly Implemented, 1= Beginning, Awareness of Implementation, 2 = Acceptable, Implemented Moderately, 3= Target, Implemented Appropriately, X= Implementation Unknown or area not chosen for observation

P = Participant

The Field Based Experience Classroom Observation Evaluation rubric not only allows for instructor input through the numerical rating, but also provides instructor generated recommendations and comments about the observed area. This opportunity for valuable instructor feedback was cited by interview participants as one of the strengths of the Certificate program. In one participant's evaluation the following recommendation in the area of Functional Behavior Assessment and Behavior Intervention Plan was described:

As you continue to develop and implement the BIP, remember, this needs to be a full Positive Behavior Support approach. In other words, it needs to include 1) prevention strategies (how do you prevent the behavior or reduce its frequency), 2) replacement behavior (which in this case is communication – however, for a BIP that directly targets a behavior, you want to ensure your communication target directly replaces the interfering behavior, and 3) consequences – what do you do when the new, desired behavior occurs, and what do you do when the interfering behavior occurs. When developing a BIP – the plan must directly be developed from the results of the FBA – otherwise we have a generic plan and it likely will not work. Based on our conversation, I am unsure whether this occurred.

This illustrates the richness of the learning opportunity for the participant in that, the recommendation was made following not only the observation of the teacher's classroom but also a discussion about what was happening during the observation. Similarly, in another participant's evaluation form, a recommendation was made that was designed to offer continued improvement of the use of the evidence-based practice of structure and visual supports:

Students had individual work space in the speech therapy room; setting is organized and there is a game for the social skills goal. I believe the target student would benefit from the use of more visual supports. Keep in mind that your goal is to teach a target skill and to ensure the student can use it independently. Visual supports can help with this. Additionally, the skills you are attempting to teach the student are challenging (social and communication) and can be learned easier with visual supports. Develop a visual schedule for the target student to help with understanding ... and to promote independence.

The Field Based Experience class therefore, enables educators in the Certificate program to put into practice what has been learned about evidence-based practices and receive feedback during live interaction with participants. According to Cindy, the program helps with feedback, “I learned about motivators to different students. Even more hands on practicum experience and feedback would be helpful.” Similarly, Sheila stated “it was reinforcing, a lot was reinforcing of the techniques I use in my class now. I liked the opportunities to interpret behaviors with the instructor. More visual scenarios to see difficult behavior and to learn to appropriately respond.” Mary suggested that project based learning was a good way to learn and could improve the program. This clinical type model of instruction and feedback is recognized as effective (Lee, Patterson, & Vega, 2011) and the study participants reflected on this course as being the most valuable of the four course series because of the observation.

These data suggest that for educators in this Post-Baccalaureate Certificate in ASD, the two strongest areas of evidence-based practice implementation were family involvement/

teaming and functional behavioral analysis/ positive behavior support. The weakest domain was the social skills and peer relationships either because educators did not choose to work on that target or they were rated lower, at a foundational, beginning awareness level by the instructor. While the primary role of some participants was as classroom teacher with students with ASD, there were three participants whose role was more consultative. The FBEOR results did not show any discernable difference between scores for direct versus consultant role that could be considered significant given the small number. Overall, the participant with the lowest FBEOR scores was a teacher whose teaching assignment was somewhat more consultative.

Evidence-Based Practices

This section addressed the third subpart of question two. To what extent do teachers completing the Post Baccalaureate Certificate in Autism Spectrum Disorder believe they are knowledgeable and effective in using evidence-based practices to teach students with ASD? In order to educate students with autism spectrum disorder effectively, teachers should be compelled to use those strategies that have been tried and tested to determine the level of effectiveness on groups of students. Seeking knowledge about the research evidence for teaching strategies and then implementing those is seen as the mark of an effective special educator (CEC, 2014). Additionally, researchers have determined that teachers with high teacher self-efficacy are likely to be motivated and persist with their students due to high

confidence and belief in their ability to effect change and bring about learning for their students (Bandura, 1986, Ross, Cousins, & Gadalla, 1996, Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998, Dawson & Scott, 2013). Given these frameworks, the study participants were asked to respond both in writing and orally to probes about their perceptions about evidence-based practices and teaching students with ASD.

This study attempted to answer whether the use of evidence-based practices influences a teacher's self-efficacy. Through the initial interview protocol, themes about their training and what they find challenging about teaching students with ASD were explored. From those ideas came a need for the researcher to both fact check with the participants, but also to extend the line of questioning forward to better understand whether the use of the evidence-based strategies contributed to the participants self-rating high on self-efficacy. See the frequency of completer responses on familiarity as well as skilled usage of evidence-based practices in Tables 9 and 10.

Table 9

Frequency of ASD certificate program completer (N=13) response on familiarity with evidence-based practices

Evidence-Based Practice	Not Familiar	Somewhat Familiar	Very Familiar
Prompting	0	0	13 (100%)
Reinforcement	0	1 (8%)	12 (92%)
Task Delay	0	1 (8%)	12 (92%)

Time Delay	1 (8%)	4 (30%)	8 (62%)
Computer Assisted Instruction	2 (15%)	4 (30%)	7 (54%)
Discrete Trial Training	0	3 (23%)	10 (77%)
Naturalistic intervention	0	4 (03%)	9 (69%)
Parent-implemented Intervention	4 (30%)	4 (30%)	5 (38%)
Peer-mediated Instruction	2 (15%)	4 (30%)	5 (38%)
Picture Exchange Communication Syst.	0	2 (15%)	11 (85%)
Pivotal Response Training	2 (15%)	9 (69%)	1 (8%)
Functional Behavioral Assessment	0	1 (8%)	12 (92%)
Antecedent-based Interventions	2 (15%)	5 (38%)	6 (46%)
Functional Communication	0	4 (30%)	9 (69%)
Differential Reinforcement	1 (8%)	3 (23%)	9 (69%)
Extinction	1 (8%)	7 (54%)	5 (38%)
Response Interruption	2 (15%)	3 (23%)	7 (54%)
Self-management	1 (8%)	3 (23%)	9 (69%)
Social narratives	3 (23%)	4 (33%)	6 (46%)
Social Skills	2 (15%)	3 (23%)	8 (62%)
Structured Work Systems	3 (23%)	4 (33%)	6 (46%)
Video Modeling	1 (8%)	4 (33%)	8 (62%)
Visual Supports	0	1 (8%)	12 (92%)
Verbal output	5 (38%)	4 (33%)	4 (33%)

Communication Aid

Table 10

Frequency of ASD certificate program completer (N=13) response on skilled usage of evidence-based practices

Evidence-Based Practice	Novice	Practitioner	Expert
Item	N (%)	N (%)	N (%)
Prompting	0	7 (54%)	6 (46%)
Reinforcement	0	7 (54%)	6 (46%)
Task Delay	0	8 (62%)	5 (38%)
Time Delay	5 (38%)	4 (30%)	4 (30%)
Computer Assisted Instruction	6 (46%)	5 (38%)	2 (15%)
Discrete Trial Training	4 (30%)	5 (38%)	4 (30%)
Naturalistic intervention	3 (30%)	7 (54%)	3 (23%)
Parent-implemented Intervention	5 (38%)	6 (46%)	2 (15%)
Peer-mediated Instruction	5 (38%)	2 (15%)	6 (46%)
Picture Exchange Communication Syst.	1 (8%)	6 (46%)	6 (46%)
Pivotal Response Training	7 (54%)	4 (30%)	2 (15%)
Functional Behavioral Assessment	0	6 (46%)	7 (54%)
Antecedent-based Interventions	4 (30%)	6 (46%)	3 (23%)
Functional Communication	1 (8%)	8 (62%)	4 (30%)
Differential Reinforcement	3(23%)	5 (38%)	5 (38%)
Extinction	6(46%)	4 (30%)	3 (23%)
Response Interruption	5(38%)	5 (38%)	3 (23%)

Self-management	2 (15%)	7 (54%)	4 (30%)
Social narratives	5 (38%)	3 (23%)	5 (38%)
Social Skills	5 (38%)	3 (23%)	5 (38%)
Structured Work Systems	5 (38%)	4 (30%)	4 (30%)
Video Modeling	5 (38%)	3 (23%)	5 (38%)
Visual Supports	1 (8%)	1 (8%)	11 (85%)
Verbal output	6 (46%)	3 (23%)	4 (30%)
Communication Aid			

Interviews

The semi-structured in person interviews were conducted using the interview guide of questions and suggested probes. The interviews were audio-recorded and transcribed by the researcher. Axial nodes and codes were used to analyze the transcripts and allowed for the emergence of trends and theory using grounded theory principles (Charmaz, 2006). Table 11 characterizes the relevant nodes and coding statistics found during data analysis.

Table 11

Axial Nodes and Coding Statistics

Node	Definition	Number of Sources
Challenges	Challenges teaching students with ASD	13
Effective	A strategy found effective	12
Advice	Based on experience, what advice	10
Prepared	What aspect of training prepared you	16
Unprepared	How would training better address preparation	8
Strategies	Strategies contribute to my confidence	9

During a process of fact checking and requested follow up conversations with interview participants, a trend emerged that suggests the Post-Baccalaureate Program achieved with these professionals the goal of increasing knowledge and skills around evidence-based practices.

When asked whether the knowledge they gained about evidence-based practices increased their persistence or confidence with teaching students with autism spectrum disorder, all those that responded were highly positive. The comments were similar for the five respondents to the additional questioning, each responding that they did, in fact, believe they can persist and be effective with their students. According to one teacher, “Yes, the use of evidence-based practices gives me the confidence to proceed with these strategies, even when results might be slow.” Additionally, other participants said similar comments when probed about whether evidence-based practice helps their confidence and teaching:

I immediately go back to the evidence based practices whenever there is a challenging situation. I have confidence that the practices will work because I have seen them WORK.

Those practices have given me strategies to work through various situations with my students.

In conclusion for the research question three, does *the use of evidence-based practices influence teacher sense of self-efficacy*, the data suggests that for these study participants, the increased knowledge and skillful use of evidence-based practices does impact their sense of belief in their own ability to persist with and affect learning within their students.

Autism Spectrum Disorder Certificate

Through participation in the Post-Baccalaureate Certificate in Autism Spectrum Disorder at one large, urban University in a mid-Atlantic state, education professionals are exposed to and gain skills in selecting and using evidence-based practices from the literature. The last research question of the study seeks to find out how participants perceive their professional training through the ASD Certificate and the effect the training had on their ability to skillfully use the evidence-based practices (EBP).

To gain a full understanding of the study participants' opinions about their training, the triangulation of data across the survey, observation and interview was completed. These data suggest that in order to feel and be effective in teaching students with ASD, preparation must include more field-based or hands on opportunities to implement evidence-based practices. Themes emerged during the triangulation stage.

Key Findings

In order to further understand these data and themes, the key findings are described for each participant using pseudonyms to protect participant confidentiality. With the exception of one item rated as a 7, or *quite a bit* (the probe asked about assessment), Anna rated a 9 or a *great deal* on all items of the teacher belief or self-efficacy part one of the survey. In comparison, Anna only scored at the beginning awareness level or a "1" on the Classroom Observation Evaluation rubric for the area of assessment/data collection. She received three

areas of beginning awareness of implementation or “1.” Conversely, she said she was *somewhat* or *very familiar* with EBP, but did self-rate as a novice on 6 items, practitioner on 6 and expert on 12 items. In summary, Anna rated herself skilled but was not observed to be particularly skillful. Her comments on the open ended survey questions reveal some hesitancy, such as the fact that “evidence-based practices work...but you have to have patience and rely on your team of teachers, parents, therapists, administrators and student.” She further stated that “You cannot implement the strategies without support.”

A participant identified as Julie indicated teacher beliefs, or self-efficacy in instruction of between *some influence* on 2 items, to five items of *quite a bit* and only one item as *a great deal* on part one of the survey. Whereas her beliefs fell in a moderate range on self-efficacy of instructional strategies, her rating by her instructor on the rubric was similarly moderate with a “2” on instructional strategies, meaning she had some acceptable, moderate implementation of those targets. Julie was also somewhat consistent with a moderate self-rating on the evidence-based practices of part two of the survey. She rated herself a novice with 2 items, practitioner for 13 items, and only 9 items obtained a self- rating as expert. When asked to identify something that is challenging when working with students with autism spectrum disorder, Julie remarked that dealing with “social and career lessons” is a challenge. As further explanation of this concept, she wrote on the open ended survey question “Especially, if they are severely

deficit in the areas of social skills with peers and understanding career choices after high school.” During the interview with Julie, this area was further probed. She identified that the teacher preparation program should “include more specifics to help parents and teachers on the secondary level.” She explained that there was not enough course content for the areas of transition and career development for students with autism spectrum disorder; “there was no concrete areas or depth in transition.”

Karen, had self-ratings of teacher beliefs ranging from 1 item at *some influence*, 3 items at *quite a bit*, and only 1 item at *a great deal*. Additionally, Kim rated three items as not applicable that had to do with lesson plan implementation in the classroom. On the evidence-based practices, her responses were mostly rated as *somewhat familiar* and only 5 items as *very familiar* and 8 items as *not familiar*. There were 16 items rated at *novice* level and 8 at the *practitioner* level and none as *expert*. These scores could be predicted because this participant is a school psychologist who does not employ the evidence-based practices on a daily basis with a few students. Rather, her survey responses revealed that she consults with teachers and assists with others who implement the strategies. Despite these findings, Karen’s response for the preparedness probe of the survey yielded a strong positive remark “I don’t feel underprepared. I learned a lot and gained a lot of practical experience that I use regularly.”

During the interview and member checking, Karen said that she “goes back to the evidence-

based practices all the time.” While the survey and interview were originally designed to probe for teacher beliefs and use of evidence-based practices, it was also very valuable to learn that a related service provider who does not work with students directly all the time also found the practices helpful and necessary in her work as a psychologist. These professionals often spend a good deal of time working with other teachers and the knowledge gained from the Certificate program seems pertinent and beneficial even in a support role. Additionally, as a psychologist, Karen said the practices have an impact on how she approaches evaluating students or recommending interventions for behavior intervention plans.

For another participant identified as Sheila, her self-ratings on self-efficacy related to instructional strategies fell across the lower level of *some influence* and *quite a bit* with only one item rated as *a great deal*. As a teacher of preschool students with autism spectrum disorder, Sheila’s results are interesting and understandable in light of the ages she teaches. Her highest response of *quite a bit* came from the item “how much can you do to adjust your lessons to the proper level for individual students?” On her rating of how skilled she feels at implementing evidence-based practices, Sheila revealed mostly (18 combined) practitioner and expert ratings. There were only 6 items she rated herself as novice. Interestingly, Sheila also was highly rated with all “2”s and “3”s for the instructor observed rubric targets revealing acceptable and appropriate target implementation in the classroom. On the open response

survey items, Sheila cited use of an evidence-based practice of token boards for reinforcement for a student and stated that her advice to a novice teacher would be “become familiar with evidence-based practices. Determine what strategies will be beneficial or will work best for your student/class.” For this teacher, the challenging behaviors presented by students with autism were her primary focus for participating in the Certificate program. During the interview, she described that she had a great deal of background knowledge and experience before teaching and before taking the Certificate program. Sheila sought out taking the program in order to learn more about students with autism because her early childhood special education preparation did not prepare her enough in her opinion for the challenging behaviors. She highly valued the program contents and in particular, the course regarding creating and modifying accessible materials. When asked what should be increased in the program, she suggested that more visual scenarios and ways for the teacher learners to see appropriate responses for certain challenging behavior is lacking and could improve the program.

Cindy had the least scatter among the self-efficacy around instructional strategies survey items. She rated them all either *quite a bit* at 7 or 8. Additionally, her self-rating of evidence-based practices was that she was familiar with the majority of the items, but evenly rated across novice, practitioner and expert level when it came to her skilled use and implementation. On the Field Based Observation Evaluation Rubric, this participant scored two 3’s, one 2, but three

1's indicating that during the observed lesson, three target domains were rated only at a beginning implementation level. She stated on her open survey response that

It is important to keep up with the latest research because while some evidenced-based practices have withstood the test of time, other things are being introduced which can be effective and others have been thrown aside.

During the interview with Cindy, this message was explored and clarified. She confirmed that she does use a wide variety of strategies with her high school age students but there are some that are not applicable to her setting. She specifically cited the practices of visual modeling and picture exchange communication system as not applicable to her high school teaching assignment. Her students happen to be verbal for the most part so she did go into the program wanting to learn more about non-verbal students and severe behaviors because of increasingly seeing those student needs in her program.

On the scale for self-efficacy of instructional practices, Mary consistently rated a "7" or *quite a bit* with only one score of "8" for how well she can implement alternative strategies.

These results show this participant has high confidence and belief of her ability to educate students on the autism spectrum. Additionally, this participant indicated she was very familiar with 22 of 24 evidence-based practices and indicated she was somewhat familiar with two of the items. On the scale indicating how skilled she felt at implementing evidence-based practice, Mary indicated expert levels for 19 items and practitioner level for 3 items, leaving only 2 items

that she would say she was a novice at implementing. There was consistency across these self-ratings showing her to be a confident teacher. Coinciding with her high self-efficacy and belief in her abilities this participant indicated previous experience with students with ASD prior to taking the Post-Baccalaureate program. What was challenging for Mary was parental expectation that certain strategies were a “cure” for autism. When probed to describe this in more detail, Mary said that working with students with ASD is more challenging due to the demands of meeting the emotional needs of parents who have hopes of their child overcoming the symptoms of autism.

There were seven survey respondents who either did not volunteer, or who were unavailable for a face to face or telephone interview. One of these survey participants, also rated herself with mostly “7” or *quite a bit* response on the self-efficacy subscale. Likewise, this participant self-rated that she is very familiar with the two-thirds (16) of the evidence-based practices and only somewhat familiar on one third (8) of the items. However, when it comes to expertise on the same items, this participant only rated herself as expert on 3 EBP, and as a practitioner for 16 EBP and as a novice on 5. On the open-ended, narrative survey questions, this participant answered very briefly and then did not agree to an interview. This could be explained by the fact that this respondent is a general education teacher who had few experiences with students on the autism spectrum. She was in the earlier years of her teaching

career but did agree with other respondents that the Post –Baccalaureate program would better prepare teachers if there was “more practical application” of the strategies.

Another survey respondent did answer the items on the Likert scales on parts one and two but did not offer narrative responses to the open questions. This teacher appears confident from the responses that show she has belief in her abilities to the degree of *a great deal* on the majority of items about self-efficacy for instructional practice. Similarly, the teacher rated herself very familiar on most items of evidence-based practice, with only 5 item responses under somewhat familiar and 3 as not familiar. In terms of how this teacher rated herself on implementing evidence-based practices a noticeable difference is found. She did not rate herself as an expert on any items, but rated practitioner for all 24 practices. This teacher indicated she is in the middle of her career in special education teaching students with ASD.

Another survey participant who teaches elementary special education students with intellectual disabilities, learning and emotional disabilities and speech and language impairments rated herself at the 8 and 9 levels of *a great deal* on the self-efficacy items of part one. On part two, this teacher rated as very familiar with 15 items, somewhat familiar with 8 items and was only not familiar with one practice of pivotal response training. When asked to rate herself on implementation of these same practices, this respondent rated 7 items at practitioner level and 17 at expert. This participant indicated she does not yet work with

anyone with autism, but uses some of the evidence-based practices with her students and they seem to work well.

Another teacher who participated in the survey said she teaches a “multi-level class.”

For the self-efficacy items, this teacher rated from 6-8 on the items indicating a range of scores between *some influence to quite a bit* of influence over instructional strategies and student outcomes. The scatter among survey item responses for this part of the survey suggests a less confident teacher. In contrast, on the evidence-based practice section, she indicated she was very familiar with all twenty-four practices and self-rated at the expert level on all twenty four items except for the one for task analysis that she rated herself at practitioner level. On the open ended survey questions, this respondent shared that training her classroom assistants was the most challenging aspect of her job but she did not feel underprepared for her teaching assignments due to attending classes and workshops.

For a teacher who teaches adapted curriculum for students with autism spectrum disorder and intellectual disabilities, the self-efficacy scale short form for instructional strategies yielded ratings at the 7-9 scores, meaning she self-rates as having *quite a bit to a great deal* of influence over her abilities with instruction. This teacher, who has been teaching students with ASD between 11 and 16 years, is very familiar with the majority of the evidence-based practices and somewhat familiar with 4 items and not familiar with just 2: the parent

implemented intervention and computer assisted instruction. Regarding her self-ratings on implementation of the practices, she is expert at 10 items, a practitioner of 8 and novice at 6 practices. Yet, when asked to describe implementation of a strategy that is effective with a child with ASD, the teacher shared:

I do a lot of vocational training. I use task analysis regularly to break work skills down into small manageable sections. That seems to help the students with learning the skills but also shows me the small parts that are strengths and weaknesses inside of those tasks.

This veteran teacher gave the following response when asked to identify something that is challenging when teaching students with ASD:

The most challenging part of teaching students with ASD for me is that my students are always all so different. It's great to have a wide variety but the beginning of the year is always difficult learning all of the ins and outs of those particular students and their specific needs. There is a lot of trial and error at the beginning of the year to figure out what strategies work best.

On the open ended survey, there is an item asking about feeling underprepared to teach students with ASD and this participant indicated she felt that this was hard to answer because she has already been teaching for ten years prior to being in the Post-Baccalaureate program and that the concepts were not new to her.

A veteran special education teacher of students with LD and high functioning autism responded to the survey and self-rated as fairly confident with instructional strategies by indicating the items as *quite a bit* or 7 of 9. She also rated most evidence-based practices as

somewhat familiar and *very familiar* with only 4 items. When it comes to implementation, this teacher rated herself only at a novice level for 19 practices and practitioner level for 5. These results indicate that perhaps the evidence-based practices were not relevant to her teaching of higher functioning students. This was confirmed on the open-ended survey items where she stated that:

The coursework was fine, but being able to implement the strategies requires continuous practice. My school has very few students with ASD, and those students are generally high functioning, so I have had little opportunity to use the strategies. Even when I was in the program, it was difficult to find the time to work with students at other schools with whom the strategies would have been more useful. And if you don't use it, you lose it!

This teacher does advise that a new teacher should plan for the use of evidence-based practices through the day and to find time to implement them. Further, this teacher recognized visual schedules and cues as the most effective evidence-based practice she had implemented.

Barriers

Participants described both barriers and benefits from their Post-Baccalaureate Certificate preparation for teaching students with ASD. Generally, the main barrier that emerged from the triangulation of the survey, interviews, and observation is that teachers need to witness evidence-based practices actually implemented, and then have opportunities for hands on practice, in order for their learning to occur. There were emphatic comments that exemplified that without this component in the training, the knowledge does not translate to

skill with students. Study participants commented on the interest in more face to face learning time, especially to increase their confidence in the actual use of evidence-based practices. As an example, one participant suggested that for the area of challenging behavior, real life examples and demonstrations of EBP would have increased understanding and promoted mastery beyond learning from reading and hearing about behavioral strategies. In fact, the evidence-based practice of functional behavior assessment was the weakest rated practice on the skilled usage section of the Part Two, EBP section of the survey.

The emergent theme from these participants around lack of confidence in skilled use of functional behavior assessment and positive behavior supports is an interesting phenomenon. It is anticipated that teacher confidence in dealing with behavior challenges is influenced by experience level, training, the complexity of the challenging behavior being exhibited as well as the perceived support from professionals also involved on the team working with the student. The Certificate training these educators participated in contained a significant emphasis on the topic of functional behavior assessment and positive behavior supports (see Course Syllabus, Appendix A). Despite this component in the training, these participants still rated this practice as the lowest that they were familiar with or skillful at implementing. These results support participants' need for additional guided practice to gain confidence in their implementation of specific behavior strategies.

In the interviews, data collection was also identified as an important practice, especially for new teachers. One respondent stated,

especially when trying to minimize unwanted behaviors or trying to figure out what a student is saying to you even, or to communicate, the importance of visual schedules.....throughout the classroom is the importance of data collection.and also having data collection notebooks for each individual student worked for me in terms of being organized and trying to get additional services for students.

Interview data suggested that the certificate program was very effective in increasing professionals' understanding. When asked what surprised her about teaching students with ASD, one teacher responded, "After I went through the program..., I realized how much the EBP were very effective. Prior to that it was a trial and error situation and I didn't have much confidence." When further queried about the most helpful aspects of the program, this respondent replied,

I would say two key things directly from the training that I found very helpful. First when they explained a lot of the characteristics I thought that was helpful. And then two, the hands on where we had to take a specific student and demonstrate the strategies. It helped me to have a lot of confidence.

These results suggest that teacher preparation and professional development programs can address the needs of working educators through several key features in their format. First, the hybrid course format, with the combination of online and face to face classes, could be instituted. Second, the program should incorporate a "hands on" learning component which is consistent with the findings from Morrier et al (2011). For example, one survey respondent

recommended the provision of demonstration classrooms with master teachers working with students with autism and providing opportunities for novice teachers to directly observe the use of evidence-based practices. During a fact checking session with this respondent, this topic was expanded. This teacher realized it may not be ethical or practical to demonstrate techniques for addressing challenging behavior of students with ASD. Additionally, she said it would be hard to “catch” the student demonstrating the target behaviors necessary for the demonstration, therefore, making the planned observations unlikely to always result in learning about evidence-based practices. Therefore, she recommended that videos of demonstrations be used to “autopsy” the implementation of the target, challenging behavior and evidence-based practices.

During interviews there were significant statements that emerged from the questions regarding advice or how to be better prepared are included in Table 12. These exemplar statements were further explored during the interviews. The respondents indicated that the level of feedback gained in the field-based observation was a beneficial aspect to the program.

Table 12

Interviewee Exemplar Statements

Query about what would improve training? What barriers were there?	Exemplar Statements
	I need hands on practice.
	The strategies require some time for trial and error.
	Use them or lose them!
	I needed more work on how to handle challenging behavior.

A practicum approach with peer mentoring.
I learn better by doing.
Learning from peers through discussions.
Being able to implement the strategies as we learn would help with preparedness.
More practical application and putting it into practice.
A hands on and visual scenario approach.

These challenges of incorporating authentic learning for teachers preparing to work with students with ASD are understandable. It may be impossible for the program administrators to find school division classrooms where students inside experience challenging behavior and it is handled appropriately enough to show as exemplary. In particular, one participant revealed that she “still feels in some ways ill prepared to deal with students with really, really severe behavior.” While the Certificate program curriculum includes working with behavior and, specifically, the evidence-based practices of functional behavior assessments and positive behavior supports, survey and interview participants agreed that this area is one of the most challenging for teachers of ASD and more emphasis on behavioral interventions is needed.

Benefits

The data also indicate that there were benefits of the Post-Baccalaureate Certificate program in ASD. The interview data revealed that the participants enjoyed the hybrid online format and the frequent instructor feedback. Multiple participants stated that they enjoyed learning from their peers and the face to face discussions in class were highly valued as a

learning experience. They suggested that more face to face classes would enhance the program. According to all participants, the use of evidence-based practices with their students takes some trial and error and overall time to develop implementation skills. At least two participants suggested that the strategies don't work immediately. For example, Julie said "one size does not fit all." When this comment was explored by the researcher, Julie expanded by stating "for my students they all learn differently, some need more structured routine than others." Another comment made by Cindy was that "I continue to need to work on implementing the strategies." The program in general and the instructor feedback on the online discussion system was good for quick feedback. It could be inferred from the themes in the interviews that the skilled use of EBP takes a lot of practice and is impacted by an educator's setting, prior experience, undergraduate and graduate education discipline, professional development training and particular assigned students.

One participant shared about the Certificate program that "I really think it was very comprehensive and so I don't think I would add too much. As far as changing it.....maybe one more live class or just more time for everybody to get together face to face." Finally, another participant endorsed the program by stating, "I feel better prepared, I learned a lot of information, I also feel better prepared to help teachers who work with students on the spectrum."

Summary

This study design allowed for a sequential explanatory model that incorporated emergent exploration as well as teacher self-efficacy, their knowledge, skills and opinions about using evidence-based practices and a specific professional development certificate program about teaching students with ASD. This design contributed to developing an understanding of the influence of professional training in teacher beliefs and perceptions about ability to persist at teaching students with a challenging disability. In the next chapter, the results of the study will be further discussed in the context of the implications for future research.

Chapter 5

Conclusions and Implications

Increasingly, students with all types and severity of ASD are being educated in the general education setting (CDC, 2007). According to the 29th Annual Report to Congress on Implementation of IDEA Parts B and C, the Fall 2009 number of public school students, aged 3- 21, identified with autism equaled 804,438. This represents an increase of approximately 770,351 students in special education labeled with autism since the 1997 Child Count (USDOE, 2009; USDOE, 2007). Even more recently, the Centers for Disease Control (CDC) identified the increased prevalence of children identified with Autism Spectrum Disorder to 1 in 68 children in the United States (CDC, 2014). Despite recent federal efforts to fund and develop guidelines (NPDC-ASD, 2007), there is still a need for implementation of the national instructional guidelines for students with ASD in conjunction with effectively trained special education personnel from high quality teacher preparation and professional development programs in order to meet the needs of these students.

Research Problem and Methodology

National studies (NRC, 2011) and educational researchers have focused on knowledge of evidence-based practices as a timely topic in education, and concluded that “knowledge of evidence-based practice (EBP) should be expanded and disseminated to avoid squandering resources on ineffective methods” (Mulloy, 2011, p.2). The purpose of this study was to investigate and describe teachers’ perceptions of their self-efficacy and use of evidence-based practices following professional development about teaching students with Autism Spectrum Disorder. Their professional development occurred through a four course certificate program which was aligned with national standards for EBP for teaching students with ASD. Several study measures, survey and field-observation, were also aligned with national standards and consensus about effective instruction for students with ASD. To answer key questions about the influence of their professional development, this study examined the relationships between teachers’ knowledge and skill acquisition, and their perceptions of their professional development through analysis of survey and interview responses and triangulation with field based observations of participants’ EBP use.

The specific research questions in this study were:

1. What are the teacher experience and placement characteristics (i.e. years of experience, teaching licensure, teaching assignment) of teachers completing the Post Baccalaureate Certificate in Autism Spectrum Disorder?
2. To what extent do teachers completing the Post Baccalaureate Certificate in Autism Spectrum Disorder:
 - a. Demonstrate the knowledge, skills and dispositions for teaching students with ASD?
 - b. Believe they are knowledgeable and effective in using evidence-based practices to teach students with ASD?
 - c. Believe they are effective in using general instructional strategies?
3. Does the use of evidence-based practices influence teacher sense of self-efficacy?
4. What are teachers' perceptions about their professional training (ASD Certificate) and their skilled use in evidence-based practices for teaching students with Autism Spectrum Disorder?

In order to explore these questions, this study entailed a sequential explanatory mixed method design (Creswell & Plano Clark et al., 2003) that incorporated survey data and individualized interviews to study teacher self-efficacy, the use of and perceptions of evidence-

based practices, and evaluation of preparation from a post-baccalaureate program. The design involved two phases: the first to collect self-ratings within a survey, which led to the second phase of sampling of willing participants for structured interviews. Additionally, the results of the teachers' field-based observations that occurred during the final course of the certificate program were analyzed for relationships to teacher self- efficacy ratings. The relationship between teacher self-efficacy in instructional strategies and perceived confidence in use of evidence-based practices was investigated using the survey subscales, and the interview responses.

Significance of the Study

The number of children with Autism Spectrum Disorder (ASD) is increasing (CDC, 2014). The broad field of education, as well as the specifics of special education as a sub-field, must improve teacher preparation for the challenges of teaching the rising numbers of students. Effective teaching is achieved through a combination of knowledge and skilled use of evidence-based practices. Additionally, research has documented positive relationships between teachers' persistence in using teaching methods and strategies which they believe are effective and student achievement (Bandura, 1986, Tschannen-Moran & Hoy, 1998, 2001, Allinder, 2004).

While there is substantial literature regarding the need for effective personnel throughout special education (Billingsley, 2004; Brownell et. al, 2003), the literature also

reveals the need for improved teacher education in meeting the needs of students with autism spectrum disorder (Barnhill et al., 2011; Morrier, Hess, & Heflin, 2011; NRC, 2001; Scheuermann et al., 2003). Yet there still exists a gap between what is known about effective instructional methods, what is implemented in schools, and outcomes for students with ASD (Volkmar, Reichow & Doerhing, 2011).

While a number of studies have investigated teacher self-efficacy, evidence-based practices in the field of ASD, and/or teacher development, there had not been a study to consider teacher self-efficacy, perceptions about teacher preparation about ASD, and actual use of evidence-based practices for students with ASD. Thus, this study examined these three important aspects of professional development to understand relationships between these elements and inform future efforts to prepare special educators to effectively teach students with ASD.

Interpretation of Results

The study participants were professionals who completed a Post-Baccalaureate Certificate in ASD. Six of the participants (46%) had between 1-3 years' experience teaching students with ASD. Three of them (23%) identified themselves as having between 4-10 years' experience, two participants (15%) had between 11-16 years, and two (15%) had greater than 17 years of experience teaching students with ASD. All of the participants were from public

school districts in a mid-Atlantic state, and they were mostly from large districts of greater than 34 schools. One participant was from a much smaller district of 4-15 schools and another from a school district of 16-33 schools. Despite the small number of participants for the study, there were respondents across a variety of teaching or related service assignments and school district characteristics, which contributed to the inclusion of a range of viewpoints and educational contexts.

Analysis

As outlined in Chapter 3, a mixed data analysis process was used to analyze the survey data, face-to-face interview data collected in this study, as well as examination of existing field based observation data. Through constant comparison, the survey data informed the interview protocol, and the data collected during the initial interviews informed subsequent interviews. Fact checking with participants also expanded the meaning derived from the data. In addition to the survey and interviews, there was observational data that provided an independent rating of EBP implementation. At each step, the data was compared and integrated in order to see patterns and consider implications for effective professional development. Chapter 4 reported the analysis of the study data at length. Conclusions about teacher self-efficacy, professional development needs and effective use of evidence-based practices suggest additional components for personnel development about education for students with ASD.

Survey results indicated the participants had strong beliefs in their abilities to effectively teach their students with ASD. Following participation in the Post-Baccalaureate Certificate program, the survey respondents overwhelmingly confirmed their familiarity with the evidence-based practices, indicating a substantial and effective emphasis on the use of evidence-based practices within the curriculum. Respondents were less confident in their responses regarding the use of EBP, frequently rating their use at the novice or beginner level. Through analysis of the field based observations and interview responses, a clear pattern emerged, with participants valuing the knowledge gained through the ASD certificate coursework but communicating the need for further support in implementation. Specifically, participants wanted more discussion opportunities to learn from other certificate participants and their field-based instructors about actual practice with students with Autism Spectrum Disorder.

These results suggest that the certificate program curriculum effectively presents knowledge about evidence-based practices that the research literature describes as effective. Consistent with the literature by Brownell and Pajares (1999) Ruble, Usher & McGrew (2011) and Tschannen-Moran & Hoy (2001) an increased emphasis on skilled use of evidence-based practices positively impacts teacher self-efficacy, and ultimately, professionals' effectiveness in promoting the educational success of students with ASD.

Study Limitations

This study aimed to examine the role of professional development in teacher efficacy and practice in teaching students with ASD, however, there were study limitations. First, this study was conceptualized and designed for implementation by one researcher, which in itself can be a limitation. When only one researcher analyzes the data, there is potential researcher bias. How a researcher writes and interprets is based upon his or her own bias, social, cultural, gender, class, and personal politics (Creswell, 2007). In this study, the researcher was not involved in the Post-Baccalaureate Certificate program, and had no bias about the program or its effectiveness. What could be seen as limiting the conclusions of the study is that it contains just one professional's interpretation of participants' interview responses. Reflexive analysis was used between each interview and through fact checking in an attempt to screen out researcher perspectives and maintain the focus on participants' viewpoints. Researcher journaling and constant comparison of audiotaped interviews were employed to address this limitation and increase procedural rigor. Researcher bias is a constant challenge and can be limiting to the potential study outcomes. As a currently practicing special education administrator, this researcher attempted to control for the potential bias but acknowledgement is warranted of the impact that this may have had on the interpretation of results.

A second potential limitation was the use of the survey data. Surveys may be poorly constructed, yielding questionable results that are difficult to interpret. This potential limitation was addressed by using sections of existing survey instruments with acceptable validity and reliability. As described in Chapter 3, the survey instrument was designed by combining three independent instruments from experts in the teacher self-efficacy and EBP for students with ASD. The Teacher Self-Efficacy Scale (Tschannen-Moran & Hoy, 2001) short form surrounding topics of instructional strategies was used as a subscale to decipher the participants' sense of self-efficacy. The Evidence-Based Practices Inventory was developed by research leaders in the field who are credible based upon their expertise and the twenty-four evidence-based practices were vetted from the research literature according to the National Professional Development Center for Autism Spectrum Disorder (Odom, Collet-Klingenberg, Rogers, & Hatton, 2010). While the instrument holds vast credibility, it could be seen as limiting that excerpts from the inventory were utilized to lessen the survey completion time for the participants.

The sample for this research study consisted of participants from one geographic area surrounding a university in the mid-Atlantic region of the country. It is possible that results would be different if conducted in another portion of the country or with participants affiliated with a different professional development program or university. It should be recognized that

this study was not designed to generalize to other populations or across the field of special education due to the study limitations. As described in Chapter 4, the sample consists of educators from various undergraduate and graduate training backgrounds as well as current professional assignments. Some participants were practicing classroom teachers in a direct role with students while a small number were related service personnel serving in an indirect role. The results were likely influenced by these participant characteristics more than originally anticipated and because of the small sample size the voice of the professionals with indirect roles contributed to the results. To the extent that professionals with an indirect role use evidence-based practices in a variety of ways and their self-efficacy is likely impacted in a different way by that assignment, these results are useful in informing the field about professional development for teaching students with ASD. These results are considered relevant and useful primarily for professionals in Virginia, yet with a certain potential to inform all special education professional development programming.

Another limitation is the small sample size and the respondents were all female teachers or related service professionals. Despite numerous attempts to recruit more survey respondents from the overall potential pool of 33 certificate graduates, the actual survey respondents (n= 13) and interview participants (n=6), provided a small sample. Ten of the thirteen survey respondents said they would volunteer for interviewing, however only six actually participated

in the interviews. The results may have been different if there was diversity of gender, conformity of teaching assignment and greater congruence between the number of survey and interview participants. The participants who declined participation may have provided more insight into the research questions, and the resulting participant pool may have impacted the nature of the interview discussions. A similar limitation related to this sample is there is a problem of transferability due to the low generalizability of results, yet the interpretation and use of the qualitative component becomes the responsibility of the research consumer (Krefting, 1991).

Finally, there is the limitation resulting from this researcher's inexperience, since this was only the second research opportunity with qualitative methods. Equipment and software challenges, along with the coding strategies, could have impacted the results. In order to minimize these possibilities, strategies were used to address the inexperience. For example the use of the interview protocol and planned probing strategies provided consistency in the interview process. The researcher's reflective journal and concerted effort to not influence the interviewee responses as well as the sequential explanatory and semi-emergent design reduced the impact of researcher inexperience and provided credibility in the methods.

Implications for Personnel Development

This study addressed the gap in the literature about teacher development regarding students with ASD, specifically about teacher self-efficacy and use of evidence-based practices. As noted by previous research, teacher preparation programs are lacking in content about instructional strategies that work for students with autism spectrum disorder and there is the need for increased emphasis on evidence-based practice (Odom, et al, 2010a, Simpson & Myles, 2008, Scheuermann et al, 2003). The study participants from the Post-Baccalaureate Certificate in ASD program overwhelmingly believed that they gained knowledge and skilled use of evidence-based practices through their coursework. Further, they indicated high levels of self-efficacy about instructional strategies with students with ASD.

The program was a hybrid online format that benefited working teachers. Each of the study participants were current professionals working in schools who appreciated that some of the course requirements were in the online format allowing for self-paced learning on individualized schedules to the extent possible. The online course format was also appreciated by several participants when there was a healthy aspect of collaboration using the online forum of the course management system. The collegial learning aspect was noted by several participants, aligning with research by Edmonds and Spradlin (2010) who concluded that effective professional development includes a professional learning community component.

These results suggest that teacher preparation and professional development programs can address the needs of working teachers through several key features in their format. First, the hybrid course format, with the combination of online and face to face classes, could be instituted.

Second, the program should incorporate a “hands on” learning component or supported, field based experience which is consistent with the findings from Morrier et al (2011). For example, one survey respondent recommended the provision of demonstration classrooms with master teachers working with students with autism and providing opportunities for novice teachers to directly observe the use of evidence-based practices. During a fact checking session with this respondent, this topic was expanded. This teacher realized it may not be ethical or practical to demonstrate techniques for addressing challenging behaviors of students with ASD. Additionally, she said it would be hard to “catch” the student demonstrating the target behaviors necessary for the demonstration, therefore, making the planned observations unlikely to always result in learning about evidence-based practices. Therefore, she recommended that videos of demonstrations be used to “autopsy” the implementation of the target, challenging behavior and evidence-based practices. There was a general acknowledgement from these participants that more supported field based experiences would make the program more valuable.

Several participants suggested more emphasis on the full range of characteristics of students with ASD. One participant who served students with high functioning autism and Asperger's Syndrome commented that many of the evidence-based practices seemed more suited for students with classic autism characteristics. While it could be asserted that the evidence-based practices found in literature can be adapted and applied across the student learning needs of students with ASD, these participants believed that at least some of the practices were not necessary for older or higher functioning students. This suggests that educators require true experience using learning theory and these evidence-based practices to enable professional adaptation of strategies across setting and student characteristics. Consequently, this participant's suggestions included the need for the program to be more comprehensive and responsive to the fact that higher functioning students are in a variety of educational settings such as general education classrooms or gifted or advanced academic programs, and some techniques do not easily translate to those environments.

The participant suggestions and study outcomes lead this researcher to recommend that simulation exercises could address some of these needs for authentic or supported hands-on practice of evidence-based strategies. A computerized simulation of common behaviors that teachers of students with Autism Spectrum Disorder face would be beneficial. This technology currently exists with the use of online training packages using simulated students and teachers.

The trainee using the simulation interacts by selecting from a choice of options. Depending on the choice, the simulated students respond, providing the user practice with selecting the most appropriate, evidence-based practice or strategy for an optimal outcome. One company currently developing health care training, Kognito, designs immersive learning experiences with virtual humans that demonstrate practices which promote positive health behavior changes. The technology allows for online and mobile simulations in which virtual humans prepare individuals and professionals to effectively manage challenging conversations about mental health (<https://www.kognito.com/research/> retrieved 11/6/14). This classroom simulation technology is seen in the medical education literature as an effective technique for professional learning (Shin, Park & Kim, 2014). It would seem promising then for adaptation with graduate education or professional development options for teachers learning how to employ effective evidence-based practices.

The study data and relevant literature (Edmond & Spradlin 2010, McCleskey, 2011, Morrier et al, 2012) suggest that effective professional development and personnel development program components include online courses with course management system technology options for discussions, traditional face to face coursework, field-based tours to observe a variety of students on the spectrum, video role play or simulation exercises, and hands on practice of evidence-based practices during intern or practicum experience. A

comprehensive model for effective professional development or teacher preparation program components is proposed in Figure 3.

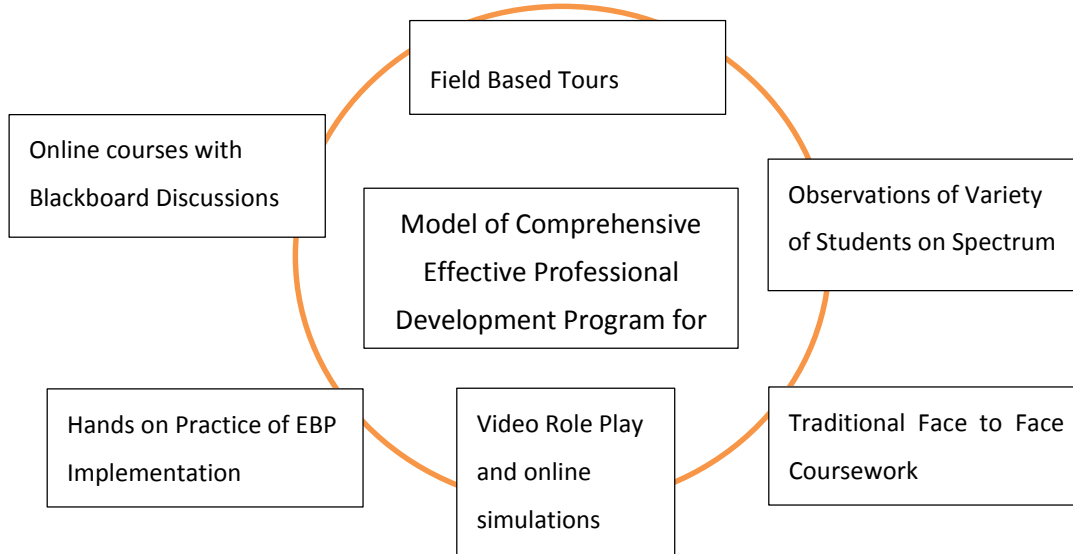


Figure 3. Model of Comprehensive Effective Professional Development for ASD

Recommendations for Further Research

The field of special education for students with ASD continues to grow as more is learned about ASD and effective teaching strategies to increase students’ learning outcomes. In order to continue growth in the field, more research is needed on the link between effective instructional practices and children’s learning as well as the link between teacher self-efficacy and her ability to impact children’s learning. As Lee, Patterson & Vega (2008) found, there is a high correlation between high quality professional development and teacher self-efficacy.

Perceived self-efficacy did impact ability to handle challenges in the study done by Caprera et

al, (2006) suggesting that a study to further investigate what aspect of professional development increases self-efficacy so that it can be built into advanced training formats would be very useful. Therefore, continued research about teacher efficacy and the relationship to teacher satisfaction, retention and student outcomes is warranted. Research by Ruble, Usher, & McGraw (2011) indicates that teachers who feel they have ability to handle the challenge of teaching students are likely to persist and increase positive outcomes for their students.

Ruble et al (2011) investigated career stage and looked for a relationship with self-efficacy but found no differences across career stages. Despite those results, it could be that if a larger sample of teachers across their career was available, it would be recommended to compare teacher sense of self-efficacy at different stages of career such as novice, beginner, mid-career and late career. Would a late career teacher score higher on self-efficacy and skillful use of evidence-based practice? In this small study, the mostly early to mid-career stage professionals had high self-efficacy in instructional strategies.

In order to further expand the knowledge of the impact of personnel development for teachers of ASD, researchers might elect to use a pre and posttest design to establish whether knowledge and skilled use of EBP increases with certain personnel development components. For instance, the effectiveness of simulation training could be investigated so that participant

perceptions of the value as well as the cost of implementing that component could guide decisions for inclusion into a certificate training program.

Another informative use of the pre and posttest research design may be to use the survey as well as observation rubric instruments before and after a certificate training program field based observation course requirement. The results would inform decision makers whether in fact, the skilled use of EBP as measured through the rubric and self-efficacy survey scores are higher following field based experiences with students with ASD. This information would be valuable to the field of education for students with ASD.

Implications for Policy

The results of this study suggest that state education officials responsible for teaching standards, higher education institutions, as well as local education leaders who design learning and professional development experiences should consider increased ways of incorporating authentic learning opportunities. The teachers from this study all endorsed the notion that effective implementation of evidence-based practices takes place following observation and practice and discussion with the university instructor. This is consistent with research that documented significant relationships between the quality of teacher support and teacher self-efficacy. Lee, Patterson & Vega (2011) found that well designed teacher education that included an intern model of student teaching with consultation from a supervisor increased

teacher self-efficacy. The professional learning community component infused in teacher support similarly increased teacher self-efficacy, according Edmonds & Spradlin (2010). These two studies show that effective and credible teacher education and professional development programs include hands on practice and professional consultation components. Policy for teacher education for licensure as well as relicensure, or standards for professional development for teachers, must include these same elements in order to support the development of teachers of students with ASD.

Future research should focus on whether the use of immersive online simulation training increases the familiarity and the use of evidence-based practices and whether or not increased skillful use of the practices increases teacher self-efficacy. This type of study could further the results found from this study and provide additional emphasis and expanded practice component to the professional development for teachers of students with Autism Spectrum Disorder. The technology might be the key to providing teachers with ways to safely practice their teaching and increase confidence leading to self-efficacy.

It could be inferred from the study outcomes that effective personnel development relies on strong linkages between university programs for teacher education and local school divisions. For example, in order to develop avenues for teachers to learn to use effective evidence-based practices, classroom teachers and students need to observe and to practice with

support. Likewise, universities sustain their graduate programs when local school divisions support their teachers through implementation of professional development courses, workshops or activities. Teacher learners involved in advanced coursework for teaching students with ASD need coaching, professional learning community opportunities as well as internship or other field work opportunities. The partnership between the university and local schools is vital to bridge the gap between research and practice and to ensure the success of personnel development that positively impacts student learning.

This study expands on previous research and addresses the need for personnel development for teachers who teach students with ASD. States enact standards of teacher qualifications, and within those standards, these results provide further support for an emphasis on clinical experiences for teachers in training and professional development to stay abreast of evidence-based practices. Student performance is impacted by the teacher's sense of self-efficacy (Allinder, 2004; Wheatley, 2005; Tschannen-Moran & Hoy, 1998). While this study did not address the link between student achievement and self-efficacy, it did show that within the small sample of teachers surveyed and interviewed, that use of evidence-based practices did impact their confidence and self-efficacy. More research around these topics could lead to increased effective personnel and professional development methods that produce confident and

effective teachers who are more likely to be retained; positively impacting the shortage of special educators willing to work with students with ASD.

Summary

An expanded model of personnel development has emerged from this study which investigated research questions about whether the use of evidence-based practices influences teacher self-efficacy and teacher perceptions about their training. The data suggests that teachers need hands on experiences in order to accomplish comprehensive learning about teaching students with ASD. The components of a comprehensive personnel development program could include traditional course work, online coursework, field based learning, observations of a variety of learners with ASD, video role play and online simulations, instructor feedback following observation of teaching and the opportunity to observe other teachers use evidence-based practices with students. The model that emerged in this study through the process of constant comparison of all data was that increased use of evidence-based practices does increase teacher self-efficacy; and personnel development programs that include components of evidence-based practices with opportunity for learning and practice are more likely to be effective.

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APPENDIX 1

Table 1

Professional Development and Teacher Self-Efficacy

Citation	Study Design	Participants Characteristics	Professional Development Method	Measurement Tools	Variables Measured	Results
Brady & Woolfson (2008)	Quantitative	118 general and special education teachers in Scotland	Post graduate training and qualification (working on higher credential with formal coursework)	3 surveys, The Sense of Self-Efficacy Scale, Teacher Attribution Scale, Interaction with Disabled Persons Scale	Causality, self-efficacy, and attitude toward persons with disabilities, attribution	No relationship between training (level of education) and self-efficacy More experienced scored higher on self-efficacy, and attributed external factors (as opposed to internal learning difficulty) to student failure. <i>r</i> =.24, <i>p</i> <.008
Brownell & Pajares (1999)	Quantitative	200 second grade general education teachers	In-service	Survey Working with Diverse Students: The General Educator's Perspective	Perceived success and self-efficacy for teaching diverse students; collegiality	Pronounced influence on collegiality and perceived success In-service impact on self-efficacy

Edmonds & Spradlin (2010)	Qualitative –focus groups	5 highest performing special education districts formed focus group	Professional Learning Community (PLC)	Unstructured focus group	High performing district leadership and instructional practice	Identified themes of self-efficacy, ownership, child centeredness and belongingness were found. Districts with high performance of students with disabilities showed staff with high self-efficacy, had strong leadership and demonstrated focused instructional practices.
Gebbie, Ceglowski, Taylor & Miels (2012)	Qualitative with structured interviews	Three early childhood special education teachers	National Staff Development Council recommended sustained and focused concept of workshops	Interviews pre and post training on (a) positive behavior supports, (b) strategy implementation and, (c) online learning community	Perceived efficacy for teaching challenging children	Increased efficacy for teaching challenging children; increased use of online learning community
Gotshall & Stefanou (2011)	Mixed methods: surveys and interviews with case study method	37 teachers	RtI component; consultation	Gibson & Dembo TES, Learned Helplessness Scale, demographics and case study	Hours of training, self-efficacy, and learned helplessness	The effect of on-going consultation on teachers' self-efficacy was negative and very large ($d=2.234$) significant correlation between self-efficacy and learned helplessness, for

						teachers who received ongoing consultation in RtI; no relationship between training about disabilities, self-efficacy, $r=.539$, $p<.001$
Jennett, Harris, & Mesibov (2003)	Quantitative	64 teachers of autism, 34 ABA & 30 TEACCH	Coursework Training in their group's philosophy	Autism Treatment Philosophy Questionnaire, Maslach Burnout Inventory (MBI) Teacher Efficacy Scale for Special Educators	Commitment, teaching efficacy, and burnout	No differences between groups; both had high efficacy and low burnout and high commitment
Lee, Patterson & Vega (2011)	Quantitative	92 special education teachers with intern status in CA; mean of years' experience = 2.74	University supervisor consultation monitoring and support	Modified Teacher Efficacy Scale (Gibson & Dembo) with items based upon CEC knowledge and skills standards	Perceived supports, challenges and sense of control	Underscore the importance of well-designed and effective teacher education programs with high quality, Significant relationship between quality of support and personal self-efficacy, $r=.62$, $p<.01$

Swackhamer, Koellner, Basile & Kimbrough, (2009)	Mixed method; constant comparative analysis of post course open ended questions	88 general education teachers, Denver area	Number of courses taken in science as post graduate level	Science Teaching Efficacy Belief Instrument based upon TES, (Gibson & Dembo) and 25 item survey with some open ended questions researcher developed to measure perceived course benefits	Increased math and science content knowledge and personal efficacy	Teachers increased personal self-efficacy to teach diverse students, content courses and pedagogy, increased self-efficacy $p=.01$
Caprara, Barbaranelli, Steca & Malone, (2006)	Quantitative	2000 teachers in Italy	This study did not specifically investigate professional development. Sense of competence from student grades and achievement across years 1, 2, 3	Job descriptive index, 12 items from Teacher's Sense of Self Efficacy Scale and pretest and final exam grades	Grades, self-efficacy and job satisfaction	Personal efficacy affected satisfaction, achievement even when controlling for previous achievement, Perceived self-efficacy did impact ability to handle challenges; $r^2=.48$, $p<.05$
Ruble, Usher, & McGrew (2011)	Quantitative	35 teachers of students with Autism	Years of teaching as "mastery"	Teacher Interpersonal Self-Efficacy	Mastery experience - years teaching,	Years teaching was not associated with self-efficacy

Spectrum
Disorders from
Midwest and
southern states

Scale, Multifactor
Leadership
Questionnaire,
MBS

administrator
support and
emotional
exhaustion

Stress and burnout was
associated

Appendix A

**Syllabus
SEDP 638.C91**

Instructional Design and Field Experience for Autism Spectrum Disorders

**Virginia Commonwealth University
RPS Cohort**

Instructor:	Dawn Hendricks, Ph.D.	
Contact Information:	Office Address:	1314 Main Street Richmond, VA 23284
	Office Phone:	804-827-0746
	E-mail:	drhendricks@vcu.edu
Office Hours:	By appointment, please e-mail with any questions.	
Dates:	September 12, 2011 – December 16, 2011	
Orientation Class:	September 12, 2011 4:00-6:00 – Mary Munford Elementary School - Library	
Wimba Class/Phone Consultation:	October 4, 2011 4:00-7:00	
Last Day to Withdraw	October 26, 2011	

Course Texts - All students must purchase the texts below:

Aspy, R. & Grossman, B. (2007). *The Ziggurat Model: A Framework for Designing Comprehensive Interventions for Individuals with High-Functioning Autism and Asperger Syndrome*. Shawnee Mission, KS: Autism Asperger Publishing Co. ISBN: 1-931282-36-6

Henry, S. & Myles, B. S. (2007). *The Comprehensive Autism Planning System (CAPS)*. Shawnee Mission, KS: Autism Asperger Publishing Company.

Course Description:

This course will focus on the integration of theoretical and practical concepts related to supporting individuals with autism spectrum disorders from early intervention through transition to adult services in educational settings. It provides the opportunity to apply knowledge of assessment, curriculum design, teaching methodologies and environmental and technological supports while working collaboratively with parents and educational teams to develop individualized programming. This course has a 20 hour field-based experience that is to take place in an educational setting. The field-based experience will be coordinated with the course instructor. (3 credits)

Course Goals:

The goal of this course is to prepare educators and clinicians to become critically reflective practitioners as they examine and incorporate professional practices designed for students with autism spectrum disorders. This goal will be accomplished through demonstration of a variety of effective teaching strategies, including technology integration and student-centered instruction, positive behavioral supports, strategies for collaborative work with parents and professionals, as well as promotion of curriculum development that ensures familiarity with best practice for students with autism spectrum disorder.

Upon completion of this course, the student should be able to:

Provide environmental modifications and visual supports that will increase independence for individuals with autism spectrum disorder

Select, adapt, and use assessment techniques, curriculum design, instructional strategies and supports with individual with autism spectrum disorder

Evaluate and refine curriculum design, instructional strategies and supports with individual with autism spectrum disorder using performance data and information from stakeholders

Integrate instruction and behavior management for individuals and groups with autism spectrum disorder in a variety of educational environments

Develop and implement comprehensive, longitudinal, individualized programs in collaboration with parents and educational team members

Course Standards:

The following professional standards outlined by the Council for Exceptional Children for teaching students with autism spectrum disorders will be covered in this course:

Standard 4 Instructional Strategies

ICC4S1	Use strategies to facilitate integration into various settings
ICC4S3	Select, adapt, and use instructional strategies and materials according to characteristics of the individual with exceptional learning needs
ICC4S4	Use strategies to facilitate maintenance and generalization of skills across learning environments
DDA4.S3	Provide specialized instruction for spoken language, reading and writing for individuals with developmental disabilities/autism spectrum disorders

Standard 5 Learning Environments/Social Interactions

ICC5S1	Create a safe, equitable, positive, and supportive learning environment in which diversities are valued
ICC5S3	Identify supports needed for integration into various program placements
ICC5S4	Design learning environments that encourage active participation in individual and group activities
ICC5S6	Use performance data and information from all stakeholders to make or suggest modifications in learning environments
ICC5S15	Structure, direct, and support the activities of paraeducators, volunteers, and tutors
DDA5.S3	Structure the physical environment to provide optimal learning for individuals with developmental disabilities/autism spectrum disorders

Standard 7 Instructional Planning

ICC7K2	Knowledge of the scope and sequences of general and special curricula
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ICC7K4	Knowledge of technology for planning and managing the teaching and learning environment
ICC7K5	Knowledge of roles and responsibilities of the paraeducator related to instruction, intervention, and direct service
ICC7S1	Identify and prioritize areas of the general curriculum and accommodations for individuals with exceptional learning needs
ICC7S2	Develop and implement comprehensive, longitudinal individualized programs in collaboration with team members
ICC7S3	Involve the individual and family in setting instructional goals and monitoring progress
ICC7S9	Incorporate and implement instructional and assistive technology into the educational program
ICC7S10	Prepare lesson plans
ICC7S11	Prepare and organize materials to implement daily lesson plans
ICC7S12	Use instructional time effectively
ICC7S15	Evaluate and modify instructional practices in response to ongoing assessment data
DDA7.S1	Plan instruction for independent functional life skills and adaptive behavior
DDA7.S2	Plan and implement instruction and related services for individuals with developmental disabilities/autism spectrum disorders that is both age-appropriate and ability-appropriate
DDA7.S4	Plan systematic instruction based on learner characteristics, interests, and ongoing assessment

Standard 8 Assessment

ICC8S8	Evaluate instruction and monitor progress of individuals with exceptional learning needs
DDA8.S1	Select, adapt and use assessment tools and methods to accommodate the abilities and needs of individuals with developmental disabilities/autism spectrum disorders

Standard 9 Professional and Ethical Practice

ICC9S5	Demonstrate commitment to developing the highest education and quality-of-life potential of individuals with exceptional learning needs
ICC9S9	Conduct self-evaluation of instruction
ICC9S11	Reflect on one's practice to improve instruction and guide professional growth

Standard 10 Collaboration

ICC10S1	Maintain confidential communication about individuals with exceptional learning needs
ICC10S2	Collaborate with families and others in assessment of individuals with exceptional learning needs
ICC10S3	Foster respectful and beneficial relationships between families and professionals
ICC10S6	Collaborate with school personnel and community members in integrating individuals with exceptional learning needs into various settings
ICC10S8	Model techniques and coach others in the use of instructional methods and accommodations
ICC10S10	Communicate effectively with families of individuals with exceptional learning needs from diverse backgrounds
ICC10S11	Observe, evaluate, and provide feedback to paraeducators

Pace of Course:

Please note that this is **NOT** a self-pacing course. You will have assignments and due dates that must be adhered to. The course will be broken down into modules. You will work your way through 1 module at a time, completing readings, viewing lectures and completing specified assignments by the posted due date. Each module will have assignment due dates. You will **not** have access to future modules until the current module has expired and I have allowed access to

the new module. (I typically try to get the new module information posted one day before its start date to ensure the information is up and accessible.)

All assignments must be completed by midnight on the designated due date. Warning: Allocate plenty of time to complete assignments. Also, avoid doing assignments at the last minute. Try to provide additional time for the possibility of technical difficulties. Hopefully, everything will run smoothly and you will not encounter any problems, but do account for this as you complete and post your assignments.

The 20 hours of field experience will be coordinated with your instructor and is to be completed within a determined time frame at the end of the semester in order to ensure continuity.

Course Requirements:

This course is designed to provide you with the skills needed to teach individuals with autism spectrum disorders in a variety of settings and across the age range. Assignments and the field experience were developed to provide you with multiple opportunities to demonstrate your understanding of the course material and to integrate knowledge into the classroom. Please work to have all assignments completed well before the final date of class. I encourage questions and comments. I will do my best to make sure that the course meets your needs for learning. I encourage you to e-mail me if I can help you better address your needs.

Course Modules:

Module 1– September 12 – September 24

1. Reflective Examination

Assignments:

- Readings
- Quiz
- Group Discussion
- **Reflective Examination (Self-evaluation)**

Module 2– September 25 – October 8

1. Incorporating Academic, Communication, Social and Behavioral Strategies into the Classroom: Pulling it All Together

Topics:

- Selecting appropriate intervention based on student needs, learning style, and desired outcome
- Components of the curriculum (scope and sequence, environment, materials, instructional strategies)
- Curriculum development and selection for students
- Scheduling concerns and considerations

- Staffing concerns and considerations
- Selecting appropriate instructional strategies
- Instructional considerations

Assignments:

- Readings
- Quiz
- Group Discussion
- **Wimba Class / Phone Conference Call**
- **Due – Field Based Experience Agreement Form (This form was discussed at the information session and provides information regarding your FBE. Additionally, this form is used by your instructor to plan the observation during the FBE.)**

Module 3 – October 9 – October 22

Modifications and Accommodations to Support Skill Development

Topics:

- Teaching literacy
- Providing inclusion opportunities
- Modifying the environment, instruction, and activities to promote inclusion
- Using technology for social and inclusion supports
- Low tech organization and social skill support tools
- Mid/High tech organizational and social skill support tools
- Teaching the use of technology to support individuals with ASD in inclusive and community based environments

Assignments:

- Readings
- Quiz
- Group Discussion
- **Program Improvement Plan Proposals (2)**

Module 4 – October 23 – November 5

1. Collaborative Teaming

Topics:

- Role of the student as part of the educational team
- Role of the parents as part of the educational team
- Role of school personnel as part of the educational team
- Conducting effective educational meetings
- Communicating with families
- Providing support and training to families

- Collaborating with the paraprofessional
- Collaborating with ancillary personnel outside of the school setting
- Collaborating with medical personnel
- Models and strategies of collaboration
- Community resources

Assignments:

- Readings
- Quiz
- Group Discussion

Final Module – Field Based Experience – November 7 – December 16
(6 weeks)

1. Incorporating theoretical and practical concepts into the classroom

Topics:

- Providing a supportive and safe classroom environment
- Providing a predictable and structured classroom environment
- Utilizing class and individual schedules
- Promoting personal independence and competence
- Selecting, designing and implementing appropriate intervention based on student needs, learning style, and desired outcome
- Utilizing a variety of instructional strategies and supports in order to maximize learning
- Designing and implementing appropriate curriculum content based on students' needs
- Modifying the environment and using supports to meet the needs of the student
- Utilizing functional behavior assessments and positive behavior supports
- Evaluating and monitoring student progress
- Modifying intervention strategies and curriculum content based on data

Assignments:

- Group Discussion
- **Daily Schedule (*Due November 12)**
- **Field Experience Reflection Paper**

Assignment Descriptions:

Assignments are designed to help the student demonstrate mastery of the content by incorporating information into a variety of activities. In this class, there are different types of assignments.

1. Readings

You have reading assignments from your text and from miscellaneous other readings that I will make available on Blackboard.

2. Quizzes

You are required to respond to quiz questions during the first four modules. They will be essay. I will post 1 question for each module. The goal of the Quizzes is to informally assess your knowledge of the reading and lecture content. You can use notes and readings to answer the questions if you would like. The goal is to encourage thinking and to help you integrate the knowledge from the course into real life situations, not simply to reiterate the information.

Quiz Questions Evaluation

The following will be used as a grading guide and will be applied to each quiz question:

Content Description/Analysis –

Answer is posted on time (1 points will be deducted for each day late)
Answered all components of the question thoroughly
Answered all components of the question accurately
Used content from lectures and readings
Demonstrated understanding of key issues and course content
Demonstrated ability to apply key issues and content to a real life situation

3. Group Discussion Board –

--During the 4 modules, you will have one question for each module. You are required to respond to each group discussion question a minimum of 2 times. For this class, you are required to make a minimum of one post every week. The discussion questions are designed to facilitate ongoing dialogue between class participants and to enable us to share experiences and learn from one another. I will start the discussion questions by providing a topic. You will be graded on posting one time per week as required. This will be an essential part of you earning all of the points for this assignment. Additionally, you will be graded on the quality and thoughtfulness of your post.

--During the Field Based Experience you will have one question every two weeks. You will post two times (at a minimum) to each question. The week will run from Sunday – Saturday. Dates will be posted on the board. During the field experience, your first post should include specific components. Following is the information that should be included in each **first posting**:

1. Objective Summary of an experience you have had with a person with ASD related to the topic provided. This will include: A brief description of an individual (first name, initials, or false name) work place, tasks, and any significant issues you observed (this could include problems, solutions and anything in between from which you gained insight or were able to apply knowledge you have gained from classes or past experiences.)
2. Subjective Summary of your reactions and thoughts on the situation, including any celebrations (client successes, or your own) or items learned.

3. Challenges/questions you had/have in performing your responsibilities, understanding instruction (methods, content, etc.), or other issues you would like to share/discuss related to the topic.

Any subsequent posts during the two weeks a topic is provided may take any form as long as it is a quality posting. In the subsequent post, you may respond to a classmate, describe a different experience, or expand upon the original experience you wrote about.

I encourage you to bring in information from your field experience as this will be fresh and exciting information to share. The more participation we have on the discussion questions, the better our learning experiences.

Discussion Board Evaluation

The following items will be used as a grading guide and will be applied to each discussion board posting:

Content Description/Analysis –

Posting is made 2 times during the module at separate weekly intervals Answered all components of the question thoroughly and accurately Demonstrated understanding of key issues and course content and ability to apply to real life situations Presented information from real life experiences that provide relevance and value to the question/conversation Engaged classmates in gaining information and knowledge
--

4. Projects

There will be projects that will need to be completed during the first three modules. They include:

- **Reflective Examination (Self-evaluation)** - Using the Student Evaluation, you are to look reflectively at each domain area on the form. For each domain area, evaluate the specific subcomponents and determine the implementation and effectiveness of each by providing a rating. Determine whether the domain area is appropriately accomplished within the learning environment or whether it is in need of improvement. Once you have completed the rating of each subcomponent, for each of the 7 domain areas, complete the Summary Section located at the end of the Evaluation by providing a thorough written evaluation noting both strengths and areas of need. Your ratings will be used to guide the written evaluation and help you identify strengths and needs that are to be reported.

Once you have completed the reflective examination, you will identify 2 areas that have the most critical need for improvement. You will later complete assignments designed to target improvement in the two areas selected.

- **Wimba Class / Phone Conference Call** – There will be a Wimba Classroom session held during module 2. The session will last approximately 1.5 hours long. The session will provide the opportunity to prepare for the field based experience and answer ongoing questions. The Wimba Classroom session will be followed by individual phone calls held between each student and the instructor. During this call, you will discuss the results of the Reflective Examination and the two areas identified for improvement. It is the responsibility of the student to be prepared for this call and to be ready to discuss identified strengths, needs, and specific areas to target over the course of the semester and during the field based experience. The phone call should last approximately 10 minutes. A schedule will be sent notifying you of your call time.
- **Program Improvement Plan Proposals** - Once you have completed the reflective examination, you will identify 2 skills that have the most critical need for improvement. As a teacher or service provider, prioritizing need based on significance and impact will be an ongoing part of your role. Therefore, you are to prioritize 2 areas of need and create 2 goals for self-improvement. These goals will later be targeted during the field based experience. For this assignment, provide a brief outline documenting your current practice/knowledge/use of the skill, reason for selecting the skill, and what you intend to accomplish during the field based experience. **You will submit 2 separate proposals; one proposal for each goal identified.**
- **Daily Schedule** – You will outline and describe a daily schedule for one student with ASD during your FBE. Once you have completed the schedule, answer reflection questions regarding delivery of activities. Analyze the schedule to better understand whether each activity is appropriate to meet the needs of the student. Identify times of the day when the student is involved in meaningful instructional activities as well as those times when instructional activities are in need of improvement.

5. Field Experience Reflection Paper

During the completion of the field experience, you are to complete a reflection assignment that helps you integrate learned information and skills into practice. For the Field Experience Reflection Paper, you will implement the Program Improvement Plans created previously during your field based experience. You will develop a detailed plan for implementation, implement the plan and reflect on the experience.

A thorough description of each project is provided separately.

Evaluation and Assessment Explanation:

There are a total of **710** points available in the course. Grades are based on the total number of points earned. A breakdown of letter grades by points is as follows:

- A = 90 to 100% of total points
- B = 80 to 89.9% of total points
- C = 70 to 79.9% of total points

D = 60 to 69.9% of total points
F = 59.9% or below of total points

Late Points

It is entirely the student's responsibility to do all of the work and turn in the assignments on or before the time that they are due. **All assignments are due by midnight on the final day of class, however, you are encouraged to turn them in as they are completed.** All late assignments automatically receive 2 points off per day of lateness before being graded for quality. If you are planning to turn in an assignment after the due date, you must e-mail me.

Written Assignments

Spelling, grammar, and writing style are important components of professional writing. Accurate, clear, concise writing is required of all professionals and will be considered in the grading of all assignments. Written assignments will be evaluated for content, clarity, format, cohesiveness, and use of person-first language. Additionally, points will be deducted for spelling, grammatical, and word processing errors.

Accessing Blackboard and Checking Your VCU E-mail:

It is utterly essential that you check your VCU email on a daily or every other day basis. Failure to do so may result in you missing important information or changes in the course. I will respond only to your VCU email address. Your VCU email serves as the key link to our communication. If you encounter problems with your VCU e-mail account, you will need to contact the VCU Academic Technology (AT) HELP Desk to fix the problem (information on the HELP Desk is posted below). Also, it is helpful to e-mail me to notify me of your difficulties if they are not resolved right away.

E-mail Correspondence:

When you do email me, in the **SUBJECT** area of the email please list "COURSE IV" and then list the problem or assignment name (e.g., "COURSE IV, Quiz 5"). Also, in the email identify yourself and how I can best reach you, preferably through email, but as a backup a daytime phone number. Finally, please *always sign your e-mails with your name.*

Technology Problems:

Since people in this course will be using different types of computers and software, there are likely to be technology problems. Unfortunately, we can not help you with these problems. These problems are beyond our skills. *If you are having technology problems*, such as linking to VCU email, accessing Blackboard, problems with buttons on Blackboard, problems downloading and viewing documents, password problems, or other tech problems, you **MUST** first contact the VCU Academic Technology (AT) HELP Desk at (804) 828-2227 or <http://www.at.vcu.edu/helpdesk/index.html>.

The folks at the AT Help Desk are trained to deal many different types of technology problems. If they find that it is a problem that we must correct, they will contact us.

Technology in the Course:

The documents in this course will be using the following software: Adobe Acrobat, Microsoft PowerPoint, and Microsoft Word. It would be in your best interest to have this software available on your computer before opening documents. If you need a version of these that you can download for free, please access the following links:

Download Adobe Reader for **free** at this site:

<http://www.adobe.com/products/acrobat/readstep2.html>

Download PowerPoint viewer for **free** at this site:

<http://www.microsoft.com/downloads/search.asp?>

OR

<http://www.microsoft.com/downloads/details.aspx?FamilyID=7c404e8e-5513-46c4-aa4f-058a84a37df1&DisplayLang=en>

Download Microsoft Word for **free**. With the Microsoft® Word Viewer 97/2000, Microsoft Word users can share documents with those who do not have Word and users without Word can open and view Word documents.

<http://www.microsoft.com/downloads/details.aspx?FamilyID=9bbb9e60-e4f3-436d-a5a7-da0e5431e5c1&DisplayLang=en>

Important Note: If you use software packages other than the Microsoft package and deposit an assignment in the drop box or e-mail an assignment to me, first save the assignment in Rich Text Format (RTF) then send it or attach it as specified on the assignment sheet. Otherwise, I may not be able to read your document.

VCU Policies:

VCU Statement on Safety

What to know and do to be prepared for emergencies at VCU:

- Sign up to receive VCU text messaging alerts (www.vcu.edu/alert/notify). Keep your information up-to-date.
- Know the safe evacuation route from each of your classrooms. Emergency evacuation routes are posted in on-campus classrooms.
- Listen for and follow instructions from VCU or other designated authorities.
- Know where to go for additional emergency information (www.vcu.edu/alert).
- Know the emergency phone number for the VCU Police (828-1234). Report suspicious activities and objects.

VCU Honor System

Virginia Commonwealth University recognizes that honesty, truth, and integrity are values central to its mission as an institution of higher education. The Honor System is built on the idea that a person's honor is his/her most cherished attribute. A foundation of honor is essential to a

community devoted to learning. Within this community, respect and harmony must coexist. The Honor System is the policy of VCU that defines the highest standards of conduct in academic affairs.

The Honor System states that faculty members are responsible for:

- Understanding the procedures whereby faculty handles suspected instances of academic dishonesty. Faculty are to report any infraction of the VCU Honor System according to the procedures outlined in our policy.
- Developing an instructional environment that reflects a commitment to maintaining and enforcing academic integrity. Faculty should discuss the VCU Honor System at the onset of each course and mention it in course syllabi.
- Handling every suspected or admitted instance of violation of the provisions of this policy in accordance with procedures set forth in the policy.

The Honor System in its entirety can be reviewed on the Web at http://www.provost.vcu.edu/pdfs/Honor_system_policy.pdf or it can be found in the 2010-11 VCU Insider at <http://www.students.vcu.edu/insider.html> .

The Honor System must be upheld and enforced by each member of the Virginia Commonwealth University community. The fundamental attributes of our community are honor and integrity. We are privileged to operate with this Honor System.

VCU Guidelines for Student Conduct

VCU faculty play a critical role in helping to build an environment that is conducive to the academic success of our students. As you know, VCU has policies and procedures designed to create an environment conducive to academic excellence. One of these policies and procedures can be found in a document entitled “Guidelines for Faculty Members Regarding Student Conduct in the Instructional Settings.” This document is available on the VCU Web at <http://www.provost.vcu.edu/pdfs/FacultyGuideToStudentConductInInstructionalSettings.pdf> or it can be found in the 2010-11 VCU Insider.

Understanding these guidelines will help you to encourage classroom behavior that does not detract from the quality of each student’s educational experience. Please read the document and think about your role in promoting a University culture based on mutual respect and civility.

Statement on Military Short-Term Training or Deployment

Military students may receive orders for short-term training or deployment. These students are asked to inform and present their orders to their professor(s). For further information on policies and procedures contact Military Services at 828-5993 or access the corresponding policies at <http://www.pubapps.vcu.edu/bulletins/about/?Default.aspx?uid=10096&iid=30704> and <http://www.pubapps.vcu.edu/BULLETINS/undergraduate/?uid=10096&iid=30773> .

Statement on Americans with Disabilities Act

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 require Virginia Commonwealth University to provide an 'academic adjustment' and/or a

'reasonable accommodation' to any qualified individual with a physical or mental disability who self-identifies as having such. Students should contact the Disability Support Services office on the Monroe Park Campus (828-2253) or on the MCV Campus (828-9782) for appropriate academic adjustments or accommodations.

Attendance

Attendance is crucial for students to make the most of their classroom experience. If a student is to be absent from the field experience, s/he is asked to contact the instructor prior to class. Please read VCU's policy at <http://www.students.vcu.edu/rg/policies/attendance.htm>.

Religious Observances

It is the policy of VCU to accord students, on an individual basis, the opportunity to observe their traditional religious holidays. Students desiring to observe a religious holiday of special importance must provide advance written notification to each instructor by the end of the second week of classes. Review this policy at <http://www.students.vcu.edu/rg/policies/attendance.htm>.

MODULE	DATES	ASSIGNMENTS/ POINT VALUES	DUE DATE
Module 1	Sept 12 – Sept 24	Quiz (20) Discussion Board (20, 10 points per entry) Reflective Examination (100)	September 24
Module 2	Sept 25 – Oct 8	Quiz (20) Discussion Board (20, 10 points per entry) Wimba Class / Phone Consultation (30)	October 8
Module 3	Oct 9 – Oct 22	Quiz (20) Discussion Board (20, 10 points per entry) Program Improvement Plans (40, 20 points for each plan)	October 22
Module 4	Oct 23 – Nov 5	Quiz (20) Discussion Board (20, 10 points per entry)	November 5
Field Experience	Nov 7 – Dec 16	Daily Schedule (40)	*Due November 12
Field Experience	Nov 7 – Dec 16	Field Experience Attendance /Participation (100) Field Experience Observation/Evaluation (100) Field Experience Reflection Paper (100)	December 16
Field Experience Discussion Board	Nov 7 – Dec 16	Discussion Board (60, 10 points per entry for 6 weeks) You are to post one time per week.	Post 1 time per week

There are a total of **730** points available in the course.

Appendix B

Autism Spectrum Disorders, Certificate in (Post-baccalaureate graduate certificate)

Hendricks, Dr. Dawn R.

Department of Special Education and Disability Policy
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Admission requirements summary

Autism Spectrum Disorders, Certificate in (Post-baccalaureate graduate certificate)			
Degree:	Semester(s) of entry:	Deadline dates:	Test requirements:
Certificate	Fall	Mar 15	
	Spring	Nov 1	
	Summer	Mar 15	

The Post-baccalaureate Graduate Certificate in Autism Spectrum Disorders is designed to prepare personnel to support individuals with autism spectrum disorders in the educational setting from early intervention through adult services. The purpose of the certificate is to provide the wide range of competencies necessary for the provision of effective educational programming. The course sequence enables personnel to develop comprehensive knowledge and experience in assessment, teaching strategies and curriculum development. The certificate is geared toward teachers, potential teachers and related service personnel. However, it is available to all professionals working in the human service setting who wish to gain expertise in this area.

All applicants must hold a bachelor's degree in any area related to education, social work, psychology or human services. Participants are required to earn 12 graduate credits as outlined below. Upon successful completion of the certificate program, participants will be able to:

- Describe the primary and secondary characteristics of ASD and the impact on communication, socialization, sensory responses, patterns of behavior and learning style throughout the lifespan.
- Understand the concerns of families of individuals with ASD and describe strategies and provide resources to help address these concerns.
- Understand and apply theories and research that form the basis of curriculum development and instructional practice.
- Assess student ability and develop individualized programs that use evidence-based practice to support and enhance learning across environments and across areas of development and need.
- Describe the behavior of individuals with ASD in terms of its function and identify how to provide positive behavioral support in order to replace existing problem behavior or prevent the development of new problem behaviors.
- Provide environmental supports, structure and technology adaptations to provide optimal learning and independence for individuals with ASD across environments.

The four autism spectrum disorder courses can also be completed by students who do not wish to earn the post-baccalaureate certificate. In this case, admission to the VCU Graduate School is not required. Individual student needs and preferences determine the best way for the student to proceed.

Curriculum

	Credits
SEDP 532 Understanding Autism Spectrum Disorders	3
SEDP 634 Assessment, Curriculum, and Teaching Methods for Autism Spectrum Disorders	3
SEDP 635 Supporting Behavior and Social Skills for Autism Spectrum Disorders	3
SEDP 638 Instructional Design and Field Experience for Autism Spectrum Disorders	3
Total	<hr/> 12

Appendix C

Teacher of Autism Spectrum Disorders: Sense of Self Efficacy and Knowledge of EBP

Part One – Sense of Self Efficacy

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. Indicate #10 for not applicable. Your answers are confidential.

Teacher Beliefs	How much can you do?									
	Nothing	Very Little	Some Influence	Quite a Bit	A Great Deal	N/A				
1. How well can you respond to difficult questions from your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2. How much can you gauge student comprehension of what you have taught?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
3. To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
4. 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)	(10)
5. How much can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
6. To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

7. How well can you implement alternative strategies in your classroom?	(1) (2) (3) (4) (5) (6) (7) (8) (9) (10)
8. How well can you provide appropriate challenges for very capable students?	(1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

Part Two: Evidence-Based Practices

Directions: Please review each of the evidence-based practices listed in the checklist.

For each practice, first check the box indicating how familiar you are with it under column A and then answer the question how skilled do you feel you are at implementing this practice under column B. This information will help us understand your level of self-perceived skills in teaching students with ASD.

Evidence-Based Practice	A. How familiar are you with this practice?			B. How skilled do you feel you are at implementing this practice?		
	1 Not Familiar	2 Somewhat Familiar	3 Very Familiar	1 Novice	2 Practitioner	3 Expert
1. Prompting						
2. Reinforcement						
3. Task analysis						
4. Time delay						
5. Computer assisted instruction						

6. Discrete Trial Training (DTT)						
7. Naturalistic intervention						
8. Parent-implemented intervention						
9. Peer-mediated instruction/intervention						
10. Picture Exchange Communication System (PECS)						
11. Pivotal Response training (PRT)						
12. Functional Behavior Assessment (FBA)						
13. Functional Communication Training						
14. Antecedent-based interventions						
15. Differential reinforcement of other/alternative behavior						
16. Extinction						
17. response						

interruption/redirection						
18. Self-management						
19. Social narratives						
20. Social skills training groups						
21. Structured work systems						
22. Video modeling						
23. Visual supports						
24. Verbal Output Communication Aid (VOCA/Speech generated device)						

Part Three: Open Response Questions

Directions: Please provide a short answer to the following questions.

1. Give an example of something you find most challenging in teaching students with autism spectrum disorders (ASD).
2. Describe your implementation of a strategy that is/was effective with a student with ASD.
3. Based on your experience, what advice would you give to a new teacher about evidence-based practices?
4. What aspect of your training best prepared you for the demands of your teaching assignment?

5. If you feel underprepared, provide more information about how better to address this in the curriculum (i.e. modify the courses?)

Part Four: Tell us about yourself:

1. How many years have you taught special education? ___0 ___1-3, ___4-10, ___11-16, ___17+
2. How many years have you taught students with ASD? ___0 ___1-3, ___4-10, ___11-16, ___17+
3. How many years have you taught general education? ___0 ___1-3, ___4-10, ___11-16, ___17+
4. How many total years have you been in education? ___0 ___1-3, ___4-10, ___11-16, ___17+
5. What is your state licensure? ___ Provisional ___ Collegiate Professional ___ Post Graduate Professional, ___ Technical Professional, ___ Pupil Personnel Services
6. What is the size of the division where you work? ___ 1-3 schools, ___4-15 schools, ___16-33 ___ 34+
7. Describe characteristics of current students you teach: _____
8. Characterize the level of previous professional development you had in ASD: ___ none, ___ few overview workshop(s), ___ many overview workshops, ___ intensive, multi-day training on ASD

Follow up individual interviews will be held in the next few weeks to help identify more about teacher self-efficacy and knowledge and implementation of evidence-based practice. If you choose to participate and be interviewed or if you would like additional information, the contact information you provide below will **not** be linked to your survey responses. All survey responses will remain confidential.

____ Yes, I would like to be contacted.

Email address: _____

Phone number: _____

____ No, I would not like to be contacted.

Thank you for participating in the survey!

Appendix D

Individual Interview Guide

Questions/probes with content like this will be asked:

Questions	Probes
EXPERIENCE TEACHING STUDENTS WITH ASD	
What do you remember about your first months teaching students with ASD?	Did anything surprise you?
What are the critical skills related to teaching students with ASD that you recall from training and then practice?	Where do you recall first learning about those critical skills?
What do you wish you had learned about in training before teaching?	If you have taught other students, is anything different about this answer for teaching students with ASD?
What do new teachers assigned to teach students with ASD need to know first?	Why is this important?
TEACHER PREPARATION	
What was your teacher preparation program prior to this certificate program?	What was different, if anything, about how the courses were taught? Which type(s) of courses best prepared you?
What would have improved your initial teacher preparation program to prepare you to teach students with ASD?	What was not addressed that should have been?
How was feedback provided in the certificate program?	Was the feedback specific enough to be helpful? Did you practice what you learned in courses during your teaching and receive feedback on that?
Do you feel better prepared to teach students with ASD following your certificate training?	Why or why not? Describe.
What was one very important thing you learned in the certificate program?	What do you still want to learn?
What would you include in the certificate program for future completers?	

Appendix E

SEDP 638 – Field Based Experience Classroom Observation Evaluation

Consistent with the School of Education’s conceptual framework, the purpose of the Classroom Observation Evaluation is to prepare participants to reflect on their practice and to provide a system for participants, cooperating teachers, and university instructors to assess a participant’s skills and knowledge. The purpose of this form is to document measures demonstrated by the participant as well as those described as being implemented. Documentation is used to generate discussion among the participant, cooperating teacher, and university instructor about the strengths and weaknesses of the participant.

The Classroom Observation Evaluation contains seven areas for evaluation, each with a series of key elements. The participant is evaluated on each of the seven areas using the following rating scale:

3 = Target, Implemented Appropriately

Reflects on objective and implements it **appropriately** demonstrating knowledge and ability in the target area. Able to implement the majority of key measures of the area (approximately 80% or more) in a clear, coherent fashion. Implementation is individualized to meet student need. Participant articulates strategies for improvement in delivery regarding both quantity and quality of implementation. Participant sets high expectations for self regarding improvement in instructional delivery.

2 = Acceptable, Implemented Moderately

Reflects on objective and implements it **moderately** demonstrating acceptable ability in the target area. Able to implement at least half of the key measures of the area. Participant may implement measures only partially or occasionally but demonstrates knowledge of the elements and articulates strategies for improvement in delivery. Demonstrates an awareness of making it individualized to meet student need. Participant sets moderate or high expectations for self regarding improvement in instructional delivery.

1 = Beginning, Awareness of Implementation

Is **aware** of objective and identifies times and activities for implementation demonstrating knowledge of the target area. Able to describe the key measures and identify student skills that may benefit as a result of implementation. May implement infrequently, incorrectly, or lack individualization to meet student need, but articulates strategies for improvement in delivery.

0 = Unacceptable, Never implemented or implemented incorrectly

Is **not aware** of objective or is aware of objective and implements it infrequently or never. Implementation lacks individualization and may be conducted incorrectly or insufficiently to provide gain to the student. Participant sets no or low expectations for self regarding improvement in instructional delivery.

X = Implementation unknown / No opportunity to observe

Student: _____ University Instructor: _____
 _____ Semester: _____ Date: _____

School: _____ Supervising Classroom Teacher: _____
 _____ Class/Grade: _____

Lesson Observed: _____ Individuals Present: _____

The Classroom Observation will consist of an evaluation by the university instructor of the participant's proficiency in each of the 7 areas outlined below. The instructor and participant will work together to determine a mutually agreed upon time and how to structure the Observation in order to allow an effective evaluation and provide maximum benefit to the participant.

During the observation, the participant is to be prepared to demonstrate knowledge and skill implementation in each of the 7 areas below. Demonstration may be through modeling skills, displaying data collection, document review, and/or discussion. Please note, areas selected for improvement in the Field Based Experience Reflection Assignment must be demonstrated. For students placed in the Field Experience, the Observation will include an interview with the supervising teacher.

The significance of each area varies based on the student and his or her field experience placement, however, all areas should be discussed and evaluated, even if not directly observed. A rating of "Implementation unknown / No opportunity to observe" is permissible, but not recommended.

Visual Supports / Structure / Personal Independence				
Student Program Improvement Goal (Instructor provide goal here if applicable)				
Notes	Target Measures			
Rating	3	2	1	0
	Each student has his/her own work space and space to place personal items such as pencils, notebooks, and other instructional materials. These personal areas (e.g. work spaces) are clearly labeled for each student and are organized in a way to promote independence.			
	Setting is organized and structured and appropriate visual supports are used to promote independence with transitions, material organization, performance of routines, and assignment completion.			
	There is a defined space for student to engage in quiet or leisure activities. Students are aware of the purpose of the quiet or leisure area and use it appropriately.			
	A daily schedule of activities is available and used by students. The daily schedule is individualized to meet student need. All staff are aware of schedule and implement consistently.			
	Individualized schedules are utilized as necessary to support independent transitions. Schedules are appropriate for student's developmental level and steps are taken to teach schedule use.			

	Mini-schedules are used as appropriate to structure various activities and instructional periods.
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Activities / Instructional Strategies / Instructional Formats				
Student Program Improvement Goal (Instructor provide goal here if applicable)				
Notes	Target Measures			
Rating	3	2	1	0
	Approximately 80% of the school day consists of activities designed to promote active engagement.			
	Teacher uses varied instructional formats throughout the day (e.g., 1:1, small group, whole group)			
	Teacher uses systematic, behavioral approach to instruction by breaking down skills and using appropriate prompting procedures that are faded systematically.			
	Teacher uses varied efficacious instructional strategies to instruct, including natural environment teaching, discrete trial instruction, and task analysis. Strategies are individualized based on the student.			
	Reinforcers are used to increase student learning and appropriate behavior. Reinforcers are individualized and presented contingently.			
	Teacher individualizes task demands by varying length of instructional periods depending on the age and ability of student, providing an appropriate mixture of easy and difficult task demands, and breaking down skills into small learnable parts.			

Communication- Means of Communication, Structure / Promotion of Communication				
Student Program Improvement Goal (Instructor provide goal here if applicable)				
Notes	Target Measures			
Rating	3	2	1	0
	Individual communication systems (e.g., words, signs, AAC) are employed and individualized to maximize communication.			
	A variety of environmental arrangement strategies (e.g., preferred materials out of reach) are used so students need to communicate frequently.			
	Communication, both receptive and expressive, is promoted throughout all activities and settings during the school day and is targeted systematically.			
	Instruction is provided to increase the amount, function, and quality of communication so that each student increases his/her communication abilities.			
	Each student has the ability to communicate or is currently working towards communicating basic components including initiating communication, requesting needs, making choices, requesting help, and protesting in all settings throughout the day.			

Social / Peer Relationships

Student Program Improvement Goal (Instructor provide goal here if applicable)				
Notes	Target Measures			
Rating	3	2	1	0
				Staff plans daily opportunities for students with ASD to interact successfully with typically developing peers, develops appropriate goals, and provides support to foster social growth (e.g., peer partners/buddies, peer mediation).
				A variety of materials and activities that encourage communication and social interaction (e.g., board games, play scripts, dramatic play materials) are available to students throughout the day and used to encourage social interaction.
				Teacher uses varied efficacious instructional strategies designed to promote peer interaction and social development. Strategies are implemented planfully and systematically. Strategies are individualized based on the student.
				Social skill development is promoted throughout all activities and settings during the school day.
				Instruction is provided to increase appropriate play and leisure skills.

Functional Behavior Assessment / Positive Behavior Support				
Student Program Improvement Goal (Instructor provide goal here if applicable)				
Notes	Target Measures			
Rating	3	2	1	0
				For targeted challenging behaviors (i.e. behaviors identified as problematic and requiring a comprehensive intervention plan), a Functional Behavioral Assessment (FBA) is conducted that includes observation of the student and challenging behaviors in the context the student displays the behavior. Comprehensive intervention plans are developed based upon formulated hypotheses.
				Strategies are identified that prevent the occurrence of problem behavior; behavior is managed by positive approaches and antecedent control rather than negative consequences.
				Target skills are identified to replace challenging behaviors.
				Strategies are in place so that when the challenging behavior occurs, all staff members address it in a consistent manner. Classroom staff reinforce appropriate behaviors.
				Staff collects data on target skills to monitor and make decisions about the student's comprehensive intervention plan (i.e., both challenging behavior and replacement skills).

Assessment / Data Collection				
Student Program Improvement Goal (Instructor provide goal here if applicable)				

Notes				
Rating	3	2	1	0
	Target Measures			
	Assessment is an ongoing process. Assessment information is gathered in an appropriate way for the students and families and is used to guide the curriculum.			
	Data are collected regularly on all IEP objectives.			
	Data are collected in multiple formats (e.g., formal and informal assessments, direct observations, written narratives, interviews)			
	Data are summarized, analyzed, and used to guide instructional decisions.			

Teaming / Family Involvement				
Student Program Improvement Goal (Instructor provide goal here if applicable)				
Notes				
Rating	3	2	1	0
	Target Measures			
	A multidisciplinary team exists consisting of practitioners who provide services to students. Team members work together to meet the needs of the students.			
	Teams have regularly scheduled meetings to address the needs of the students. Both formal (e.g. IEP) and informal meetings are held.			
	Team members implement actions determined by the team in a consistent manner			
	Teachers and staff maintain a positive rapport and professional relationship with families.			
	Teacher has a system for regular communication that is individualized to each family and is consistently used and includes information about instructional strategies, community resources, and other topics as requested by family.			

Total Points = _____ (Grade: 21-14 points = A; 13-10 points = B; 9-7 points = C)

Summary:

Visual Supports/Structure/Personal Independence

Activities / Instructional Strategies / Instructional Formats

Communication- Means of Communication, Structure / Promotion of Communication

Social / Peer Relationships

Functional Behavior Assessment / Positive Behavior Support

Assessment / Data Collection

Teaming / Family Involvement

