ABSTRACT

THE EFFECT OF A MENTORING INTERVENTION ON THE TEACHING
SELF-EFFICACY OF PRE-SERVICE SPECIAL EDUCATION
TEACHER CANDIDATES

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The purpose of this study was to examine the effects of a specific mentoring intervention on the teaching self-efficacy of pre-service special education teacher candidates. A Special Educators Efficacy Scale (SEES) was developed to measure self-efficacy for the initial skill set required for novice special educators. A two-group, pre-test/post-test design was used to compare the special education teaching self-efficacy scores between the intervention and comparison group.

The self-efficacy scores reported by 245 pre-service special education candidates from two universities were analyzed (intervention group, $N = 43$; comparison group, $N = 202$) before and after a 10-week mentoring intervention. ANCOVA findings indicated a statistically significant difference across all subscales between groups while controlling for the pre-test scores. The analysis of demographic characteristics such as age and grade level did not reveal any statistically significant differences between groups. This study posits that a specific mentoring intervention designed to meet the unique skill set of special educators has the potential to increase teaching self-efficacy among pre-service special education candidates.

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THE EFFECT OF A MENTORING INTERVENTION ON THE TEACHING

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TEACHER CANDIDATES

BY

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DEDICATION

This work is a loving dedication to my grandmother, Mary Agin, for all of her unconditional love

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Finally, to my children, Tony and Jessica, and my nephew, Stevie –

Always dream big and never underestimate the power of education and what can be

accomplished through hard work.

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CHAPTER 1

INTRODUCTION TO THE STUDY

Introduction

Novice special education teachers are required to enter the field with a solid understanding of how individuals with disabilities learn (Council for Exceptional Children, 2013). They are charged with the daunting task of presenting content across all disciplines for individuals with distinct learning styles and for understanding the vast characteristics of a multitude of disabilities. The novice special educator must also possess specific knowledge in the utilization of research-based interventions and data collection to monitor student progress. The unique responsibilities of special educators, isolation from general education teachers, and limited access to appropriate mentors often present insurmountable challenges for the novice special educator (Brownell, Ross, Colon & McCallum, 2005; Duffy & Forgan, 2005; Washburn-Moses, 2010). The effects of these challenges are high rates of teacher attrition in the field of special education and ongoing research regarding teacher self-efficacy and mentoring that may improve the resiliency of novice special educators.

Researchers report novice teachers leaving the profession at epidemic rates (Billingsley, 2003; Plash & Piotrowksi, 2006; Smith & Ingersoll, 2004). It is estimated that 30 percent of general education teachers leave the profession within the first three years of teaching. However, according to Smith and Ingersoll (2004), the rate of novice special educators leaving the profession is 2.5 times higher than that of novice general education teachers. A 2002 study bythe

Study of Personnel Needs in Special Education (SPeNSE) revealed that 6 percent of all novice special education teachers who were interviewed planned to leave their jobs immediately after the first year of teaching. This shortage of special education teachers is more severe than any other areas of teaching (Boe, Cook, & Sunderland, 2005), with the shortage of certified special education teachers ranging from 20–30% higher than the shortage of certified general education teachers. The special education teachers cited unmanageable workloads, excessive paperwork, multiple categories of disabilities per classroom, inadequate preparation, and lack of mentoring as the primary reasons for leaving. A 16-year examination of long term trends in the attrition rates of special educators between the 1987/1988 school year through the 2002/2003 school year revealed a steady annual increase in special education teacher shortages (Boe, 2006). The attrition rates almost doubled from 7% in 1993/1994 to 13% in 2002/2003, which created a shortage of approximately 54,000 special educators nationwide.

Highly qualified special education professionals continue to be in high demand (U.S. Department of Education, 2011), but the effect of the shortage has created a practice of hiring alternatively certified or uncertified personnel to work with students with disabilities. Data from the U.S. Department of Education indicated an increase in uncertified special education teachers and showed that over 11% of all special educators were uncertified to work with students with special needs.

These alarming statistics and persistent gaps in student achievement nationwide, particularly among students with disabilities, have prompted further investigation into the preparation and retention of special educators. To meet the above mentioned challenges, several theories have been explored to improve teacher attrition and effectiveness. Teacher self-efficacy based on Bandura's (1997) cognitive theory of social learning has been researched extensively.

High teacher self-efficacy has been considered a predictor of teachers who may be better able to deal with the challenges of the first years of teaching. Teacher self-efficacy is also considered to be an indicator of teacher motivation, resiliency, and effectiveness in the classroom (Lee, Patterson & Vega, 2011; Pendergast, Garvis & Keogh, 2011). High levels of teacher self-efficacy are associated with confidence in meeting student needs, improving student motivation, and higher levels of student achievement (Woolfolk, 2007). The ability of individuals to influence the world around them is strongly linked with belief in their ability to bring about change. A teacher's sense of self-efficacy has also been associated with personal goal setting and the persistence to meet these goals (Ashton & Webb, 1986).

In response to the high novice teacher attrition rates, the theories and benefits of mentoring relationships have also been investigated in higher education and public education over the past two decades (Darling-Hammond, 2003; Ingersoll & Strong, 2011). The research indicated a positive relationship between mentoring and levels of teacher self-efficacy (Beckford & Roland, 2010; Pendergast et al., 2011). Mentoring relationships are defined as a collaborative model in which novice teachers are directly assisted by seasoned professionals to develop the required skills for effective teaching (Sweeney, 2008). The model should be a continuum beginning during initial certification preparation at the university level and include professional collaboration between pre-service teacher candidates, mentor classroom teachers, university mentors, and field supervisors (Beckford & Roland, 2010; Hudson & Skamp, 2003). A review of literature (Billingsley, 2003) recommended mentoring models for pre-service special education candidates that includes mentoring in role management, collaboration skills, and inclusion pedagogy.

Several recommended practices are currently being utilized and/or researched for effectiveness in mentoring pre-service teachers. Some models include professional development school-university partnerships, peer placements, dual certification, action research, and service learning. The models may vary slightly in design; however, the underlying objectives are similarly grounded in integrated experiences, collaboration, community, linking theory to practice, and a mentoring continuum from pre-service through the first years of teaching (Hobson, Harris, Buckner-Manley & Smith, 2012). Although certain aspects of mentoring models for pre-service teachers address serving individuals with exceptionalities, there is relatively little research directed specifically at the mentoring and preparation of pre-service special education candidates. In an effort to adequately address the needs of special education pre-service teachers, the present study utilized a mentoring intervention in an attempt to develop efficacious special education teachers equipped to teach and remain in the profession.

Theoretical Framework

The study was organized and viewed through theories of experiential learning, social learning, and self-efficacy (Bandura, 1977; Dewey, 1938; Rotter 1954; Vygotsky, 1978). These learning theories emphasize the critical components of modeling and observation in learning behaviors. *Experiential learning theory* emphasizes participation in learning behaviors in which learners gain knowledge through active engagement and collaboration with skilled mentors. Pre-service special educators prepare for professional life through experiential programs such as school-university partnerships, service learning, and student cohorts.

Social learning theory describes a process of learning behaviors through social experiences as well as through reciprocal relationships of observing the characteristics, attitudes,

and reactions of others. Social learning is achieved as pre-service special education candidates observe, rehearse, and adopt the modeled behaviors of experienced professionals.

Additionally, this study utilized the foundation of *self-efficacy theory* to investigate relationships among social learning, experiential learning, and changes in self-efficacy in pre-service special education teachers. The highly collaborative nature within the field of special education warrants this particular set of lenses for this study. The detailed theoretical framework for this study is discussed in Chapter 2.

Problem and Purpose Statements

In an age of accountability following decades of educational reform, teacher preparation programs are under a great deal of scrutiny due to continued concerns surrounding public educational systems (Darling-Hammond, 2005; Fullan & Hargreaves, 1992; National Commission on Excellence in Education, 1983; Tyack & Cuban, 1995). There are persistent gaps in student achievement nationwide (National Center for Education Statistics, 2011; U.S. Department of Education, 2011). Students with disabilities have significantly lower scores in reading and mathematics as well as high rates of retention and mobility. Federal legislation such as No Child Left Behind (2001) requires each state to demonstrate adequate yearly progress in student achievement, including students with special needs. Special education teacher preparation programs and the delivery of special education services in schools are ever-changing as a result of students with special needs struggling to meet the state requirements on standardized testing. These concerns illuminate the need for increased numbers of highly qualified special educators entering and remaining in the field.

Special education has been one of the largest shortage areas in the field of education for the past three decades (Payne, 2005; West & Hudson, 2010). The effect of these shortages has also caused a limited supply of highly qualified cooperating teachers to provide mentoring to pre-service special education candidates. .A promising strategy for reducing special education shortages is to design and incorporate an effective mentoring model that addresses the numerous roles and responsibilities of special education teachers in pre-service programs. Research suggests the importance of a mentoring continuum beginning at the pre-service level during early clinical internship experiences (Beckford & Roland, 2010; Hudson & Skamp, 2003) and the need for mentors with specific knowledge of special education policy and practice, in an effort to better prepare novice teachers to work with a distinctly diverse population of students (Washburn-Moses, 2010).

Special educators who have experienced a quality mentoring continuum starting from their early teacher preparation are less at risk for teacher burn-out than unprepared teachers (Andrews, et al., 2002). Mentoring program components, such as mentors with knowledge of special education policies and procedures, are likely to have the highest potential to produce efficacious and effective professionals that mediate positive effects on students' success (Aiken & Day, 1999; Brownell et al., 2005; White & Mason, 2006). High levels of teacher self-efficacy contribute to a teacher's ability to overcome challenges within the first years of teaching.

This study investigated the effect of an intensive mentoring intervention on the teaching self-efficacy of special education pre-service teacher candidates. There is limited research that describes the effectiveness of a mentoring intervention within special education teacher preparation and its relationship to teacher self-efficacy (Coladarci & Brenton, 2012; Hartmann, 2012; Lee, Patterson & Vega, 2011). Bandura's (1997) research suggested that teacher self-

efficacy is developed through vicarious experiences of observing mentors, actual practice teaching, and being taught the art of teaching.

Therefore, the purpose of this study was to examine the relationship between a mentoring intervention group at the pre-service level and the teaching self-efficacy of special education teacher candidates. A specific mentoring intervention within special education teacher preparation was examined to determine its effect on special education teaching self-efficacy.

Research Questions and Hypotheses

The research study sought to answer the following research questions:

1.   What is the effect of an intensive mentoring intervention on the teaching self-efficacy of pre-service special education teacher candidates?

2.   Does age moderate an effect of treatment on teaching self-efficacy?

3.   Does level within the preparation program (sophomore, junior, senior) moderate an effect of treatment on teaching self-efficacy?

These questions were guided by the following hypotheses:

a) H_0 : There is no difference in the change in teaching self-efficacy between the control and intervention groups.

b) H_0 : Age does not moderate an effect of treatment on teaching self-efficacy.

c) H_0 : Level within the preparation program (sophomore, junior, senior) does not moderate an effect of treatment on teaching self-efficacy.

Significance of the Study

The significance of this study has implications for all stakeholders, including pre-service teacher educators, special educators, administrators, and students with disabilities. At the time of this study, the research on teacher self-efficacy has shown limited application to special educators (Tschannen-Moran, Hoy, & Hoy, 1998), and the existing teacher self-efficacy instrumentation does not address the unique roles and responsibilities of the special educator (Brownell et al., 2005; Duffy & Forgan, 2005; Washburn-Moses, 2010). The researcher sought to add to the research regarding the preparation of effective and efficacious special educators to meet the academic needs of individuals with disabilities by evaluating a mentoring intervention at the pre-service level and its relationship to teacher self-efficacy. Additionally, the researcher addressed the need for a teacher self-efficacy measurement instrument specific to the initial skill set required for special educators entering the profession (Council for Exceptional Children, 2013).

Definitions of Terminology

Mentor Teacher: cooperating teachers assigned as coaches and models for pre-service teacher candidates satisfying practical field experiences required for initial certification (Cornell, 2003)

Mentoring: support with a focus on career readiness, for a developing professional by an experienced person (Sweeney, 2008)

Mentoring Intervention: intervention specifically designed to build confidence and competencies in the initial teaching skill set for special educators (Council for Exceptional Children, 2013; Hudson & Skamp, 2003)

Pre-service Special Education Teacher Candidates: teacher candidates at the university level preparing to teach and seeking initial teacher certification in special education, specifically teacher candidates participating in early clinical internship experiences or student teaching practicums (Council of Chief State School Officers, 2011)

Teacher Self-Efficacy: defined as the beliefs teachers hold in regard to their own ability in performing teaching tasks and meeting the needs of their students (Bandura, 1997)

Organization of the Study

This study is organized into five chapters. Chapter 1 introduces the study and provides initial background information about the topic. The chapter includes a statement of the problem, purpose of the study, research questions, hypothesis, significance of the study, and definition of terms. An abstract of the theoretical framework of the study is also included in Chapter 1.

Chapter 2 includes a review of the literature related to the study and is organized into three sections: Mentoring, Teacher Self-efficacy, and Special Education Teacher Preparation. A detailed description of the theoretical framework is also contained in Chapter 2. Chapter 3 includes a description of the research design, participants, setting, sampling, instrumentation, data collection, data analysis, and limitations. Chapter 4 presents the findings of the study, and Chapter 5 includes recommendations for practice and future research.

CHAPTER 2

LITERATURE REVIEW

Introduction

The unique role of the special educator and the alarming attrition rates in the field of special education have motivated research on effective special education teacher preparation practices, including experiential learning and mentoring at the pre-service level (Andrews et al., 2002; Billingsley, 2003; Brownell et al., 2005; Washburn-Moses, 2010). Teacher self-efficacy and its relationship to motivation, resiliency, attrition rates, and student achievement (Bandura, 1997; Gibson & Dembo, 1984; Guskey, 1994; Guskey & Passaro, 1994; Tschannen-Moran, Hoy & Hoy, 1998) are also important areas of related research. Therefore, this literature review synthesizes research, identifies gaps, and examines related research and theories associated with the relationships between mentoring and teachers' self-efficacy, specifically in the area of special education pre-service teacher candidates. The review includes a theoretical framework and three sections of related literature: mentoring, teacher self-efficacy, and special education teacher preparation.

Mentoring

Accountability in education has reignited interest in the benefits of mentoring programs nationwide. Induction and mentoring programs are now being implemented in over 80% of schools in the United States (Ingersoll & Strong, 2011). An analysis of national data over t

decade between 1990 and 2000 revealed that the number of novice public school teachers

receiving mentoring in the first two years of teaching rose from 51% to 83% (Smith & Ingersoll,

2004), and those novice teachers who were provided multiple supports tended to stay in the

profession longer than their colleagues who had not received adequate mentoring and induction

supports. Teachers who have experienced quality mentoring beginning during teacher

preparation are less at risk for teacher burn-out than teachers who did not experience mentoring

at the pre-service level (Andrews, Evans & Miller, 2002; Billingsley, 2003).

<p align="center">Mentoring Pre-Service Teachers</p>

The concept of mentoring pre-service teachers is not a new one and dates back to Dewey

(1896). His ideology compared other areas of professional preparation, such as medical

practitioners that included an experiential learning component, to the preparation of teachers.

Dewey's ideas embraced the importance of clinical experiences for the professional development

of pre-service teachers. The construct began with the earliest form of professional preparation, a

laboratory school, which dates back to 1887. The fundamental purpose of this model was to

mentor and prepare pre-service teachers in a realistic setting. The modeling of teaching skills

during field experiences by qualified mentors had a significant impact on professional growth

and is considered to be an effective tool for preparing pre-service teacher candidates (Bandura,

1997). The history of professional preparation and mentoring pre-service teachers has led to

current educational reform efforts and recommended practices for mentoring at the pre-service

level, which is described next.

Professional Development School Model

  The professional development school model, which began in the 1990s, is currently being practiced within teacher education. The professional development school consists of an innovative design formed through partnerships between teacher preparation programs and P–12 schools. This model has several goals: collaboration and a symbiotic partnership between schools and universities, expanded early clinical experiences, a continuum of mentoring, reform in teacher education, enhanced student achievement, professional development for participants, and research on promoting cultural and linguistic diversity and culturally responsive teaching and preparing teachers for urban school settings (Johnston-Parsons, 2012; Wenger, 1998; Wilber et al., 1988).

  Johnston-Parsons (2012) offered suggestions for implementing a successful mentoring model through partnerships, like the professional development school model, in teacher preparation. Johnston-Parsons identified that an essential key to success is the mutual ownership of the learning community. Additionally, collaborative roles need to be established and well defined and the relationship should be built on trust and offer benefits to all stakeholders. The community of practice created by the professional development school should be theoretically grounded in social learning theory (Bandura, 1977). The theory suggests that we are social beings and that knowledge and learning are gained through observing and experiencing the world around us. During teacher preparation, this occurs when pre-service teachers have the opportunity to practice teaching skills and observe mentors in the field.

  Although the goals of most professional partnerships remain consistent, current models of professional development schools take many forms. An innovative example of a school-

university partnership is the School Community Integrated Learning (SCIL) Pathway (Hudson &

Hudson, 2013). This professional development school model was created to improve the

application of theory in classroom practice and to provide a full year of mentoring and clinical

experience for pre-service teachers. The setting for this particular model was a partnership

between an Australian university and a low socio-economic urban community school district.

The district demographics reported only 25% of the graduates continued on to higher education.

This small scale study was a pilot for a grant-funded initiative to create a true partnership with

benefits for all members of the community. The pre-service teachers were offered a choice

between the SCIL and the traditional early clinical internship.

     The full year experience followed the school district calendar, and pre-service teachers

were working in the schools prior to the start of the university semester with reduced

requirements for university coursework (Hudson & Hudson, 2013). The pre-service teachers

were involved in all aspects of school year preparation, in-service activities, parent

communication, whole-school planning, school policy, and assessment. Information sessions and

professional development on mentoring were provided for mentor teachers. A university

coordinator was assigned to each school to oversee the project and offer support to mentor

teachers and to discuss the progress of pre-service teachers.

     Although there were some limitations to the pilot study, including a small sample size

and the lack of data on cost-effectiveness, the results of the pilot model survey, given to both

pre-service and mentor teachers, indicated all participants agreed or strongly agreed the

experience facilitated professional growth and created professional relationships between

parents, colleagues, and within the community (Hudson & Hudson, 2013). They stated the

experience provided a more realistic view of the roles and responsibilities of a teacher and

education system requirements. The pre-service teachers expressed a feeling of purpose within the school community because they had the opportunity to contribute to the creation of behavior management plans and to observe teaching strategies and activities that occur throughout an entire school year. The pre-service teachers reported that the SCIL allowed for more collaboration with peers than the traditional internship which often left them feeling isolated during the experience.

<u>Peer Placements</u>

Peer placements have been a viable option for mentoring at the pre-service level. This professional collaboration model pairs two pre-service teachers with a mentor teacher for early clinical internships. This model of mentoring had been credited with creating a more collaborative and supportive learning experiences in comparison to traditional mentor teacher-single candidate placements (Baker & Milner, 2006; Gardiner & Robinson; 2011; Smith, 2002). The pairs of pre-service teachers take on equal roles in the collaborative processes of teaching. They also experience a sense of ownership and are invested in their partner's learning, in addition to their own. The pre-service partners support each other and have opportunities to plan more innovative lessons as well as assist each other in classroom management challenges. Although the pre-service teachers reported an increased workload and time commitment, the peer placements were considered a much more realistic introduction to teaching responsibilities and teaching as a profession (Gardiner & Robinson, 2011).

This mentoring model does present challenges that do not exist in traditional single pre-service field placements (Gardiner & Robinson, 2011). Tensions between collaborators were reported and included a lack of experience with a collaborative relationship and a limited amount

of time to collaborate. Inequities among the partners' commitment to the relationship also was a

cause of concern and tension. Gardiner and Robinson (2010) consider collaboration as a skill that

needs to be learned and developed and note that preliminary work must be done to support a

successful experience for all participants. The pre-service teachers needed to be prepared for the

behaviors necessary for professional collaboration. Mentor teachers also needed to be coached

on the unique roles and responsibilities involved with mentoring a paired pre-service partnership.

Mentoring peer placements involve additional skills such as teaching the art of compromise,

mediating conflicts, and alleviating tensions between peers. Despite the challenges, the paired

field placements appeared to offer a more realistic picture of mentoring needs and the

collaboration skills needed in the field of education.

Peer Feedback and Peer Mentoring

Peer feedback and peer mentoring were have also been studied as viable options to

promote professional development during teacher preparation (Carter, 2012; Kurtis & Levin,

2000; Wilkins, Shin & Ainsworth, 2009; Wu & Kao, 2008). Mixed-methodology studies

revealed the collaborative approach provided an opportunity for pre-service teachers to take an

active role in their own professional development, support peers, and gain knowledge of student

assessment skills. The practice provided an opportunity for pre-service teachers to review and

reflect on their teaching. The research revealed peer assessment was useful and aided in the

reflective process and in confidence building. Some common limitations of these examples of

peer collaboration and mentoring were the inexperience of pre-service teachers' ability to

provide meaningful feedback, lack of resources, and necessary technology. The importance of

feedback during practice teaching has prompted research into effective supervision models.

Supervision Models

Another area of importance in mentoring pre-service teachers is supervision and providing teacher candidates with systematic and objective data on teaching skills is directly related to teacher effectiveness (Acheson & Gall, 2003). There were concerns that the traditional triad of supervision (pre-service teacher—mentor teacher—university supervisor) was outdated. Alger and Kopcha (2009) cited some flaws with this traditional supervision model such as a lack of evidence and artifacts from pre-service teachers to subjective assessments, inconsistent quality of supervision, and undefined roles among mentor teachers and university supervisors.

Electronic modules for supervision and mentoring are being researched in response to budget constraints and reduced faculty at many institutions as well as institutions that place teaching secondary to research. These electronic modules were developed to address the needs of pre-service teachers as well as to prepare mentor teachers for their vital role in the preparation of teachers.

According to Stanulis and Russell (2000), another aspect of clinical experiences and supervision that increases teacher candidate performance and creates a more supportive experience is ongoing communication with mentor teachers and university faculty supervisors. Developing a strong professional relationship requires time, trust, and appropriately matched mentors. Sweeney (2008) suggests matching is one of the problem areas in mentor programs and stresses the importance of matching criteria based on the mentees strengths and needs. Communicating the non-evaluative role of the mentor encourages discussion and removes anxiety from the relationship. These conditions create an atmosphere in which pre-service teachers can develop competencies and grow professionally.

Summary

In summary, the mentoring models discussed above may vary slightly in design; however, the underlying objectives are similarly grounded in integrated experiences, collaboration, community, linking theory to practice, and the mentoring continuum. Although certain aspects of mentoring models for pre-service teachers address serving individuals with exceptionalities, there is relatively little research directed specifically at the mentoring and preparation of pre-service special education candidates. Some of the current models of mentoring may not meet the unique needs of pre-service special educators (Gehrke & McCoy, 2007; Washburn-Moses, 2010).

Mentoring Pre-Service Special Educators

Brownell and colleagues (2005) reviewed literature to provide some common characteristics of effective practices in mentoring pre-service special education candidates. The results of the inquiry revealed several important features. These commonalities included extensive and carefully supervised clinical experiences, program evaluations, and a strong collaborative component. Although the philosophies of the programs varied, most contained an emphasis on cultural diversity and the inclusive setting prevalent in schools today. The collaboration component referred to faculty working together, partnerships with schools, and student cohorts. The most important feature of the mentoring programs was the emphasis on the skills specific to special educators such as facilitating inclusion, I.E. P. procedures, transition planning, and data-based decision making.

Recent relevant research in mentoring makes a distinction between the needs of general educators and special educators (Brownell et al., 2005; Duffy & Forgan, 2005). The research suggested that the current mentoring practices may not be appropriate or address the needs of special educators, thus leading to higher attrition rates. State and district mentoring policies were examined to compare these polices to the actual implementation practices in both general and special education (Washburn-Moses, 2010). The participants were from two large urban school districts in a Midwestern state and included 200 schools. The findings revealed state and district mentoring policies lacked provisions to support special education teachers, noting that only 64 percent of special educators reported having access to a mentor in comparison to 86 percent of general education teachers and the structure of traditional pre-service mentoring programs often leaves beginning special educators feeling ill-equipped to collaborate with parents or within the community.

A service learning mentoring approach has been investigated as an option for preparing pre-service special education candidates prior to student teaching. This model contains several additional benefits for pre-service special education candidates: access to diverse populations of learners and special education mentors, increased social responsibility, and collaboration within the community. Service learning pedagogy has the potential to develop dispositions for commitment to teaching, awareness and sensitivity to diverse learning needs, caring, and democratic values (Novak et al., 2009). This particular example was a study of two special education teacher preparation courses designed as parent-professional partnerships in which teams of pre-service special educators worked with parents of children with disabilities to create a virtual family project. The parents used their own children as examples to help pre-service teachers create a virtual child with a given disability. The teams were required to work through

the challenges facing the child as presented by the parent partners. The pre-service teachers were also responsible for conducting small group presentations in the community. The topics of these presentations were based on the results of a survey given to identify the needs of the parents and professionals within the community. Pre-service participants were presented with a working syllabus that allowed control over their own learning experience. This feature of the service learning course encouraged ongoing reflection.

The findings from the service learning mentoring opportunity indicated pre-service special education candidates gained an increased sense of efficacy toward their chosen profession, knowledge of the abilities of children with disabilities, and an appreciation for parents as partners in education (Novak et al., 2009). This mentoring model design contained a strong element of collaboration as pre-service candidates and parents contributed to the planning and development of the experience. Another aspect of quality mentoring that existed within the service learning model was the matching considerations. Observations by university supervisors of ice-breaker activities and information from student, parent, and pre-service candidate questionnaires were used to carefully match partners.

Billingsley (2002) also recommended mentoring models for pre-service special education candidates that included mentoring in role management, collaboration skills, and inclusion pedagogy. Research among early career special educators revealed a need for quality mentors who would serve as role models (West & Hudson, 2010). However, there is a gap in research related to the preparation of school leaders in their ability to work with and adequately supervise and/or mentor special education teachers (McHatton, Boyer, Shaunessy & Terry, 2010). These investigations into effective mentoring models have sought to provide insight into building teaching competencies and self-efficacious teaching professionals.

Teacher Self-Efficacy

Formal self-efficacy research dates back four decades to Rotter's (1954) social learning theory. The theory indicated that learning was not independent from one's environment. Rotter believed that an individual's personality and behavior are ever-changing and are developed through interactions and responses to life experiences. While continuing to research social learning theory, Bandura (1977) developed a theory of self-efficacy and defined the concept as "beliefs in one's capabilities to organize and execute the course of action required to produce given attainments" (p. 3). The construct of teacher self-efficacy was derived from these two independent lines of research. The meaning of teacher self-efficacy has carried various understandings and has continued to transform through a host of researchers (Ashton et al., 1982; Gibson & Dembo, 1984; Guskey, 1987, 1994; Rose & Medway, 1981). It was suggested that teacher self-efficacy is developed through vicarious experiences of observing teaching, actual practice teaching, and being taught about teaching (Bandura, 1977). Higher levels of teacher self-efficacy are associated with resiliency and the ability to rebound from setbacks and exercise some control over events that affect their lives (Tschannen-Moran, Hoy, & Hoy, 1998).

The term teacher self-efficacy was originally conceived by Research and Development (RAND) Corporation researchers using two items from Rotter's (1966) locus of control instrument (Armor et al., 1976). Researchers conducting studies for the RAND Corporation created a scale for measuring a teaching self-efficacy score. This instrument identified two dimensions related to teacher self-efficacy. Personal teaching efficacy (PTE) referred to teachers' personal beliefs in their ability to produce desired results. General teaching efficacy (GTE) was

defined as a teacher's effectiveness and power of teaching to produce results among students in the classroom.

Shortly after the seminal RAND studies were conducted, several researchers began developing instruments to expand the RAND survey items and self-efficacy dimensions (Guskey, 1987; Rose & Medway, 1981). Guskey developed the Responsibility for Student Achievement Questionnaire (RSA). This 30-item scale provided a score ranging from 0 to 100 and concentrated on two main factors. Teachers were measured on situations they believed were either within or out of their control. When the scores from the RSA were compared to teacher efficacy as defined by the two dimensions on the original RAND study, Guskey (1994) found significant positive correlations between self-efficacy and teacher responsibility for student success. The results indicated teachers were more confident in their ability to contribute to student success rather than controlling failures. Rose and Medway (1981) created the Teacher Locus of Control (TLC) survey, which consisted of 28 items containing a two-choice forced response. This instrument also focused on the teachers' perceived sense of responsibility for student failures and successes. Scores from the TLC have been weakly related to the two original RAND items. With the exception of a comparative analysis of the TLC and the two RAND questions, there was no other published work using this measure (Greenwood, Olejnik, & Parkay, 1990).

Several versions of the Teacher Efficacy Scale (TES) were developed in an ongoing effort to identify the most effective way to measure teacher self-efficacy (Bandura, 1997, Gibson & Dembo, 1984; Schwarzer, Schmitz, & Daytner, 1999; Woolfolk & Hoy, 1990); however, Bandura's (1997) work was the foundation for the development of many teacher self-efficacy measurement instruments and continued research. Bandura's Teacher Self-Efficacy Scale is

based on the belief that a teacher's efficacy beliefs are not consistent across content areas or

teaching tasks. The scale was developed to include six dimensions in the measurement of

teaching efficacy: Efficacy to Influence Decision Making, Instructional Self-Efficacy,

Disciplinary Self-Efficacy, Efficacy to Enlist Parental Involvement, Efficacy to Enlist

Community Involvement, and Efficacy to Create a Positive School Climate. The 100-point

confidence scale ranged from (0) "Cannot do at all" to (100) "Highly certain can do."

The Teachers' Sense of Efficacy Scale (TSES) was developed at The Ohio State

University, and a factor analysis identified three dimensions of teacher efficacy (Tschannen-

Moran & Woolfolk Hoy, 2001). These dimensions included student engagement, instructional

strategies, and classroom management. The respondents were asked to rate the 24 items on a

nine-point scale in terms of how much they can contribute to the situations presented. The

responses ranged from (1) "Nothing" to (9) "A Great Deal." This scale was used internationally

by researchers, with translations in Turkish, Chinese, Arabic, Greek, and Portuguese.

Information on construct validity and reliabilities was provided by the researchers, and the

analysis of the instrument showed correlations among the variable mean scores, standard

deviations, and Cronbach's alphas.

Schwarzer, Schmidt, and Daytner (1999) developed another instrument to measure

teacher self-efficacy. The researchers identified four specific areas within the teaching profession

they believed to be of great importance to effective teaching. These areas were defined as

professional development, accomplishments, interactions, and the ability to cope with stress. The

response format required respondents to rate efficacy beliefs ranging from 1) "Not true at all" to

4) "Exactly true." The ten items were constructed using Bandura's (1997) guidelines based on

social cognitive theory. The researchers tested for validity and test-retest reliability for two trial

years for optimum validity. The results indicated the more specific instrument was a reliable measure and yielded higher associations with personal attitudes toward teaching than general efficacy instruments.

The Norwegian Teacher Self-Efficacy Scale (Skaalvik & Skaalvic, 2007) was adapted from the TSES (Woolfolk & Hoy, 1990) to study the effects of self-efficacy on teacher burn-out. This multi-dimensional scale consisted of 24 items and also followed Bandura's (1997) guidelines for survey item creation. The dimensions measured teachers' self-efficacy across instruction, differentiating for individual student needs, motivating students, maintaining discipline, collaborating with colleagues and parents, and coping with change. Each dimension contained four items with responses based on a seven-point scale. Analysis of the instrument showed correlations among the variable mean scores, standard deviations, and Cronbach's alphas. The above mentioned measures of general teaching self-efficacy lead to the examination of teaching self-efficacy for specific populations and content areas.

<u>Self-Efficacy and Content-Specific Measures</u>

In an effort to investigate the hypothesis that teacher self-efficacy was content specific, the Ashton Vignettes were created (Ashton et al., 1982). The vignettes were developed to describe realistic teaching experiences and measure the effect of stress factors on teacher effectiveness and self-efficacy. The instrument consisted of 50 problem situations and asked respondents to rate their perceived level of effectiveness in dealing with each scenario. The vignettes included several dimensions of teaching including, but not limited to, instruction, discipline, motivation, planning, and assessment. The vignette instrument was not widely accepted as reliability and validity information was not made available, and the self-referenced

vignettes were not significantly correlated with RAND items. Only one other study outside of the original was identified as including this research instrument in data collection.

Riggs and Enochs (1990) explored another specific content area and investigated the effects of efficacy on science teaching and learning. The researchers created the Science Teaching Efficacy Belief Instrument (STEBI), based on the work of Gibson and Dembo (1984), to measure two factors believed to be associated with teacher efficacy toward science teaching. The instrument was designed to measure Personal Science Teaching Efficacy (PSTE) and the Science Teaching Outcome Expectancy (STOE). The STEBI contained 25 items based on a five point Likert-type scale with responses ranging from strong agreement to strong disagreement to survey items. The instrument was used in several studies, and results indicated the two factors were uncorrelated (Enochs, Posnanski, & Hagedorn, 1999).

More recently, Tschannen-Moran and Johnson (2011) created the Teacher Self-Efficacy Beliefs for Literacy Instruction (TSELI) instrument, and a factor analysis of the measure demonstrated construct validity of the instrument. The study explored the relationship between the TSES and TSELI. Although the findings revealed some slight overlap and moderate correlations between the two instruments, it was concluded that the two measures were significantly different. These instruments were designed for specific content areas and aimed at general education teaching and did not address special education teaching self-efficacy.

<u>Self-Efficacy Instruments and Special Education</u>

The Teacher Efficacy in Deaf-Blindness Education (TEDE) scale was developed to study this specific area of disability (Hartmann, 2012). The scale was an adaptation of the TSTE (Tschannen-Moran & Woolfolk Hoy, 2001) and designed as a 36-item Likert-type scale with

additional open-ended questions measuring the confidence of teachers in tasks and teaching skills related to teaching the deaf-blind population. The items were analyzed using construct and response modeling and reported strong internal consistency as well as a respondent to item fit. The researchers provided evidence of the validity of the instrument and split-half reliability. The discussion emphasizes the importance of self-efficacy in supporting the practice of special educators working with students with deaf-blindness.

In the past decade, the Teacher Inventory (Paneque & Barbetta, 2006) was developed to measure self-efficacy beliefs of special educators working with English language learners with disabilities. The instrument was designed using Bandura's (1997) guidelines and contained 20 items based on a nine-point scale as well as open-ended questions. The results indicated higher levels of efficacy were associated with the teachers' proficiency in the students' native language. Along with these self-efficacy instruments designed to measure teaching efficacy for specific areas of disability, instruments were being developed to measure teaching self-efficacy in special education settings.

The Teacher Efficacy Scale (Gibson & Dembo, 1984) was modified for use in two studies to measure self-efficacy among special educators in the resource setting and at the elementary and secondary level (Coladarci & Brenton, 2012; Shippen, et al., 2011). A factor analysis was conducted to test the validity of the revised instrument. The items were modified by adding "with disabilities" to the statements regarding students. It was reported that the factor analysis revealed comparable results to the original scale designed for regular educators. The study conducted by Coladarci and Brenton also examined the effects of teacher supervision on self-efficacy, and the findings revealed a significant positive relationship between the variables.

Lee, Patterson, and Vega (2010) also conducted research that measured teacher self-efficacy based on the quality of the content, support, and resources in the preparation of special education teachers. The survey tool measured both personal teaching efficacy (PTE) and general teaching efficacy (GTE). The PTE was defined as the level of personal confidence in the ability to teach, while GTE referred to the individuals' feeling of power within teaching. The researchers investigated the preparation of pre-service teachers participating in an alternative certification program in the state of California to address a special education teacher shortage. The participants (N=154) were all novice special education teachers holding alternative credentials. There were no data presented to compare the alternative credential program to traditional certification and the relationship to teacher self-efficacy.

The researchers examined the correlation between the components of the special education teacher preparation alternative certification program and perceived teaching efficacy. The results indicated that the PTE and GTE were unrelated factors. The respondents (N=92) indicated higher levels of PTE compared to GTE. They also reported high levels of support during teacher preparation and diminished support when they entered the field due to limited contact with special education mentors. The questions regarding challenges to being an effective teacher revealed three major themes: working conditions, support, and student issues. The working condition issues were related to a lack of resources, planning time, and large case loads. The respondents also reported a lack of support from administrators and access to special education mentors. There were also concerns over dealing with severe student discipline challenges. There was limited access to supplementary personnel and services for the teachers dealing with students in need behavior interventions and supports. The researchers included detailed tables to illustrate the various categories, demographics, and descriptive statistics;

however, they did not offer evidence of validity or reliability testing for the instrumentation used (Lee, Patterson & Vega, 2011). The research on teaching self-efficacy in the above mentioned studies was related to in-service teacher teaching and did not examine self-efficacy among pre-service teachers.

Self-Efficacy and Pre-Service Teachers

The vast majority of existing efficacy instruments and studies were designed to measure the self-efficacy of in-service teachers. The Teaching Confidence Scale (Woolfolk Hoy, 2000) was developed specifically to measure pre-service teachers and the effectiveness of teacher preparation programs on building teacher efficacy. The scale was created in collaboration with program faculty and their responses to the skills that pre-service teachers should possess after completing the required teacher preparation coursework. The instrument consisted of a list of 24 teaching skills including classroom management, student product assessment, use of cooperative learning strategies, and basic math and science concepts. The responses were calculated on a six-point scale of pre-service teachers' self-reported confidence levels for completing each teaching skill. This research lead to additional studies focused on comparing teaching self-efficacy across preparation programs.

Pendergast, Garvis, and Keogh (2011) conducted a study involving pre-service teachers over three Graduate Diploma of Education programs: Early Childhood, Primary and Secondary. The researchers utilized the Teacher Sense of Efficacy Scale (Tschannen-Moran & Woolfolk-Hoy, 2001) to measure self-efficacy during the first week of the first semester, prior to any classroom experience, and again at the end of the final semester after completing a seven week practical experience. The scale consisted of three subscales and measured self-efficacy in

instructional strategies, classroom management, and student engagement. This particular study focused solely on the teacher preparation program and its relationship to pre-service teacher perceptions of self-efficacy. The scale consisted of 24 items based on a nine-point continuum, with nine being the highest level of self-efficacy. The findings revealed a decline in mean and standard deviation for teacher self-efficacy between a survey one mean of 7.40 (SD=0.77) and a survey two mean of 6.98 (SD=1.29). Although the findings were surprising, the discussion of these findings indicated the decline may have been a result of the candidates' beliefs prior to practical experience changing once they had actually experienced the reality of classroom teaching.

Another example of a quantitative study at the pre-service level focused on a specific mentoring intervention for teachers of primary science (Hudson & Skamp, 2003). This study utilized a two-group post-test only design. There was a group of 60 final-year pre-service teachers (control group) and a second group of 12 final-year pre-service teachers (intervention group). The intervention group was provided with a four-week intensive mentoring intervention on the teaching of primary science. A five factor self-efficacy survey was then administered to both groups at the end of the semester. The findings suggested evidence of improved teaching practices of the mentees included in the study. The researchers asserted a specific and intensive mentoring intervention may be effective in improving teacher readiness even when administered over a relatively short period of time. Some limitations to the study were a relatively small sample size and a four-week period during one academic semester.

The majority of the research conducted in the development of self-efficacy during teacher preparation utilized qualitative phenomenological case studies, which included interviews, observations, focus groups, artifacts, and reflective journaling. There were relatively few

quantitative studies focused specifically on self-efficacy beliefs of pre-service special education

teachers. The need for quality program design in special education and specialized training has

evolved from the passage of federal mandates in an age of accountability (U.S. Department of

Education, 2011). Teacher education programs are responsible for the development of pre-

service teacher identity and self-efficacy. A high level of self-efficacy at the pre-service teacher

level translates into a more resilient novice teacher with effective teaching skills (Pendergast, et

al., 2011).

Summary

In summary, the construct of self-efficacy is grounded in social cognitive learning theory

(Bandura, 1977; Rotter, 1954). This theory adds a social element to learning and posits people

can attain new information vicariously by observing others. The early seminal studies conducted

by the RAND Corporation added items to a previously created scale and used them to calculate a

teacher self-efficacy score (Armor et al., 1976). In the decades that followed, researchers

continued to examine self-efficacy and its relationship to various dimensions that include, but are

not limited to, student achievement, teacher ratings, classroom management, and teacher attrition

(Ashton et al., 1982; Bandura, 1977; Gibson & Dembo, 1984; Guskey & Passaro, 1994;

Tschannen-Moran et al., 1998; Woolfolk & Hoy, 1993). Table 1 represents a review of previous

research and instrumentation created to measure teacher self-efficacy.

Table 1

Teacher Self-Efficacy Instruments

Self-Efficacy Instrument	Researcher(s)	Year	Measure(s)
RAND Studies	RAND Corporation	1976, 1977	Personal teaching efficacy (PTE) and General teaching efficacy (GTE)
Teacher Locus of Control (TLC)	Rose & Medway	1981	Teachers' perceived sense of responsibility for student failures and successes
The Webb Scales	Ashton et al.	1982	Positive teaching style and positive teaching experiences
Ashton Vignettes	Ashton et al.	1982	Effect of stress factors on teacher effectiveness and self-efficacy
Teacher Efficacy Scale (TES) Long-form	Gibson & Dembo	1984	Personal Efficacy (PE) and Teaching Efficacy (TE)
Responsibility for Student Achievement Questionnaire (RSA)	Guskey	1987	Teacher control
Teacher Efficacy Scale (TES) Short form	Woolfolk & Hoy	1990	Personal Efficacy (PE) and Teaching Efficacy (TE)
Science Teaching Efficacy Belief Instrument (STEBI)	Riggs & Enochs	1990	Two factors believed to be associated with teacher efficacy toward science teaching
Teacher Self-Efficacy Scale	Bandura	1997	Six dimensions of teacher self-efficacy
Teaching Confidence Scale	Woolfolk Hoy	2000	Pre-service teachers and the effectiveness of teacher preparation programs on building teacher efficacy
Teachers' Sense of Efficacy Scale (TSES)	Tschannen-Moran & Woolfolk Hoy	2001	Three dimensions of teacher self-efficacy

Table 1 (continued)

Self-Efficacy Instrument	Researcher(s)	Year	Measure(s)
Teacher Inventory	Paneque & Barbetta	2006	Self-efficacy beliefs of special educators working with English language learners with disabilities
Norwegian Teacher Self-Efficacy Scale	Skaalvik & Skaalvic	2009	Effects of self-efficacy on teacher burn-out
Teacher Self-Efficacy Beliefs for Literacy Instruction (TSELI)	Tschannen-Moran & Johnson	2011	Explored the relationship between the TSES and TSELI
Teacher Efficacy in Deaf-Blindness Education (TEDE)	Hartmann	2012	Confidence of teachers in tasks and teaching skills related to teaching the deaf-blind population

This summary contains several existing self-efficacy instruments based on Bandura's (1977) theoretical framework. Bandura offered specific guidelines for constructing self-efficacy scales as well as organizing and creating scale items, although some of the examples do not follow these suggested guidelines. Many of the instruments are adaptations of previously created scales altered to examine teacher self-efficacy in specific content areas. There were limited studies and survey instruments pertaining to the self-efficacy of special education teachers but none that addressed pre-service special education teacher candidates.

Special Education Teacher Preparation

Today's pre-service special education teacher candidates must be prepared for unprecedented responsibilities—serving students with diverse academic, social, racial, linguistic, and economic backgrounds, serving students in a variety of classroom settings (e.g. self-contained, inclusion, and resource), and collaborating with and providing consultation to general education teachers and other school staff. These realities can have a profound impact on student

learning and the candidates' ability to be effective in the classroom. Research indicates clinical teaching experiences with mentoring at the pre-service level, coupled with content knowledge, represent key components of teacher preparation programs likely to have the highest potential for positive effects on students' success (Aiken & Day, 1999; Reynolds, 1990).

Previous research examines the relationships between special education teacher preparation and teacher effectiveness (Berry, Daughtrey, & Wiedner, 2009). Federal regulations require students with disabilities to be educated in the least restrictive environment. The percentage of students with disabilities placed in regular education settings has risen considerably over the past decade (National Center for Education research, 2011), and the National Bureau of Economic Research (2011) reported that teacher effectiveness among students in high needs and high risk categories may improve under the right conditions during teacher preparation. These conditions included extensive clinical experiences, quality mentoring and supervision during these experiences, access to local school curricula, and candidate action research or portfolios.

The knowledge base necessary to adequately prepare pre-service special education candidates may be more than a traditional four-year program can accommodate. Due to the vast competencies required for efficiency in the field of special education, a five-year model was developed (Judge & Greshkina, 2004; Reynolds, 1990). Although the program models vary, a typical model was designed with course work distributed over the first four years of the program with the majority (60%) of the concentration in special education content. The five-year program supported mentoring and intensive clinical experiences beginning the first year. The fifth year of the program contained one semester of a final practicum and a culminating project. This model was also created to address the criticism of professional preparation in the field of education.

Some models were designed to offer a master's degree with successful completion of a thesis as an additional requirement at the end of the five-year program. The comparative study by Judge and Greshkina presents findings that support the effectiveness of an extended program for special education teacher preparation.

In light of the need for qualified special educators, dual preparation programs were developed to meet the needs of inclusive classrooms (Jenkins, Pateman, & Black, 2002). The University of Hawaii designed a field-based school-university partnership program that integrated general and special education curricula. The goal of the program was to provide more practical experience in the classroom under the guidance of quality mentors. Mentor teachers were required to meet specific criteria and to hold certifications in both general and special education. A minimum requirement of two years of experience was strictly adhered to as well as evidence of successful co-teaching in inclusive classrooms. Mentor teachers were paired with university faculty in a collaborative model and shared responsibility of mentoring the pre-service teachers. The questionnaire design did not yield particularly valuable data; however, the focus groups revealed enthusiasm for the program design, confidence to enter the field, and the benefits of professional development for both pre-service and mentor teachers. Pre-service teachers indicated that the exposure to mentors with the knowledge and skills to meet the needs of children with a wide range of abilities in one classroom prepared them well. Special education pre-service teachers reported increased content-area knowledge and collaboration skills.

The Combined Elementary and Special Education program at San Francisco State University is another example of an innovative teacher preparation program (Wolfberg, LePage & Cook, 2009). This program addresses the deficiencies in current programs that segregate special education and regular education. General education teachers have very little exposure to

strategies necessary to meet the needs of the special education population of learners. They often have no access to mentors with knowledge of special education practices. Special education teachers are generally prepared to educate special education students in self-contained settings and lack confidence in subject area content knowledge due to limited exposure to general education mentors in the field. "As a result, neither general nor special education graduates are prepared to work effectively in the inclusive programs that are evolving in our nation's schools" (p. 19). This particular teacher preparation program consist of a cross training model in which the candidates graduated with credentials in special education, elementary education and English language learners. The qualitative data collected from participants were analyzed and revealed that earning both credentials made them feel well prepared to work with children with special needs at varying levels of learning readiness. The participants described the collaborative design of the clinical experiences as a key piece of their professional growth.

Research credits successful teacher preparation programs with the inclusion of at least one year of extensive clinical internships (Aiken & Day, 1999; National Bureau of Economic Research, 2011). A survey of pre-service teachers also revealed that clinical internships provided the most meaningful preparation for a special education teacher (McLoughlin & Maslak, 2003). These internships offer opportunities to increase confidence and gain an appreciation for student differences and diversity (Novak et al., 2009). The University of Washington solicited input from recent graduates who were working in the field to contribute to the "renewal" of the teacher preparation program (West & Hudson, 2010). Focus groups were used to collect data related to beginning teacher quality. The top rated themes included both coursework and field experiences during initial pre-service training. The participants felt there was a strong need for coursework related to linguistic diversity and cultural differences. The need for "more real class experience

versus book training" was a recurring theme. The comments related to clinical internships were also centered on working with diverse families and settings. The most meaningful experiences for pre-service teachers were defined as the experiences that moved them out of their comfort zone.

A review of literature revealed research in special education teacher preparation was almost nonexistent in comparison to other fields of education (Brownell, et al., 2005). In the absence of a solid synthesis of special education teacher preparation programs and features, the researchers attempted to provide some common characteristics of effective programs. The study included a search for manuscripts over the past 13 years in Psych-Info, ERIC, and PROQUEST databases. Sixty-four publications with sufficient information were included and reviewed. Evaluation procedures for determining the quality of the pre-service teachers and the effectiveness of the program were identified in 81% of the program descriptions. The researchers concluded more extensive research is necessary to demonstrate the relationship between special education teacher preparation, professional development, and student achievement.

Billingsley (2003) offers an analysis of literature addressing some of the unique needs and considerations for special education teacher preparation. A contributing factor to barriers in developing and researching effective special education mentoring models and special education teacher preparation is the decentralized nature of the special education teacher certification (Judge & Oreshkina, 2004). Each individual state's Department of Education selects the requirements, policies, and procedures for special education licensure and degree requirements vary widely from state to state. The fact remains—beginning special educators need to be prepared for ever-changing program designs and models of special education service delivery. Research indicates special educators who have experienced a quality mentoring continuum

during teacher preparation are less at risk for teacher burn-out than unprepared teachers. Special

education has been one of the largest shortage areas in the field of education for the past three

decades (Payne, 2005; Plash & Piotrowski, 2006). One of the effects of these shortages is a

limited supply of highly qualified cooperating teachers to provide mentoring to pre-service

special education candidates. This appears to create a circular pattern, or "catch-22"

phenomenon, in special education teacher preparation and mentoring. The lack of qualified

mentors in the field due to special education teacher shortages and attrition rates makes it

increasingly difficult to provide the mentoring necessary to build special education teacher

populations. The need for more innovative mentoring designs in the special education research

community is crucial to meet the complex needs of special educators as well as the students with

disabilities (Brownell, et al., 2005).

Theoretical Framework

The theoretical framework of this study is based on three prominent areas of educational

research: experiential learning, social learning, and teacher self-efficacy (Bandura, 1977; Dewey,

1938; Rotter 1954; Vygotsky, 1978). The premise of these theories, all relate to individuals

learning from one another to build competencies and confidence, frames this study and validates

the focus on mentoring relationships within teacher preparation.

Dewey (1938) concluded that "all genuine education comes about through experience;

this does not mean that all experiences are genuinely or equally educative" (p. 25). Dewey's

work stressed the importance of the role of quality experiences in professional development.

Dewey defined learning experiences as a circular pattern of trying, questioning, and further

experimentation. The foundation of experiential learning is that experience matters and without

experience there can be no true understanding (Kolb, 1984). The educational goals of institutions of higher education often align with the ideals of experiential learning and employ cooperative models for professional preparation. Cooperative education allows for the application of knowledge through experience and creates an opportunity for growth through communication, reflection, and social learning.

The *social learning theory* emphasizes the value of observing modeled behaviors and attitudes. Rotter's (1954) work on social learning included the concepts of avoiding negative outcomes and promoting positive outcomes through observation of behaviors. Modeled behaviors are seen as crucial components to valued and desirable results. Bandura and his colleagues' (Bandura, Ross & Ross, 1961) work in *cognitive social learning theory* at Stanford University included an experiment with children exposed to models of aggressive behaviors and then observed if they would repeat the behaviors. The theory of self-efficacy, an individual's belief that specific behaviors would produce favorable outcomes, emerged through this research in social learning.

Self-efficacy theory (Bandura, 1977; Rotter, 1954) has been used extensively across many disciplines including education. Teacher self-efficacy has evolved from two areas of educational research: Rotter's work on teachers' locus of control and Bandura's social learning theory. Teacher self-efficacy has been defined as a teacher's belief in his/her own abilities to bring about desired results through a specific course of action (Tschannen-Moran, et al., 1998). Subsequent definitions include the belief that a teacher's teaching practices will bring about student learning (Gibson & Dembo, 1984; Guskey & Passaro, 1994). Bandura (1977) proposed that a teacher's self-efficacy "determines whether coping behavior will be initiated, how much effort will be expended, and how long it will persist in the face of aversive experiences" (p. 191). It stands to

reason that a teacher's feelings of confidence in his/her abilities would be a key indicator of organization, practice, and effectiveness in the classroom. Research supports the level of efficacy toward teaching affects and promotes higher expectations for students and a willingness to explore research-based interventions and strategies (Ashton et al., 1983).

In summary, the researcher designed this study to reflect theories of experiential learning, social learning, and teacher self-efficacy. The decades of research have provided ample evidence of the contributions of these educational theories in the professional preparation of teachers.

Conclusion

The review of the literature revealed limited exploration into specific special education teacher preparation strategies that may increase the effectiveness and attrition of novice special education teachers. Therefore, special education teacher preparation needs more detailed research, and further investigation into the extent of mentoring models, interventions, and high-quality internships on pre-service special education teacher self-efficacy is warranted.

This review investigated the overall trends in teacher preparation program design and research data that support and/or dispute the effects of these programs on special education pre-service teacher self-efficacy, readiness, and effectiveness. However, this literature review has also identified some existing gaps in relevant research. There were no studies involving special education teaching self-efficacy among candidates enrolled in a traditional teacher certification program. There was only one survey tool developed to included items specific to the roles and responsibilities of special educators. Although the survey was based on standards from the Council for Exceptional Children (CEC) and aligned with skills and knowledge necessary for

pre-service teachers to enter the profession, no evidence was presented as to the validity or reliability of scores resulting from this tool.

To date, relatively few studies have focused solely on the unique needs of special education pre-service teachers. The review revealed a need for further research in the area of special education pre-service teacher self-efficacy. The need for highly qualified special education mentors within schools of education, as well as the clinical internships, has confirmed the importance of this research topic. There were implications from the literature for teacher educators to serve as mentors and to design teacher preparation programs that deliver examples of best practices in teaching, including quality feedback, when the clinical experiences were not adequately providing these supports. Specifically, there are gaps in the literature that explore the effects of a mentoring intervention on special education pre-service teacher candidates' self-efficacy beliefs. Explicit data involving the connection between special education teacher preparation, mentoring at the pre-service level, teacher self-efficacy, teacher effectiveness and the achievement of children with special needs would prove valuable for the future of special education.

CHAPTER 3

METHODOLOGY

Introduction

This chapter will review the problem and purpose of the study, research questions, and

hypotheses. The chapter includes a discussion organized into the following sections: research

design, setting and participants, sampling, instrumentation, data collection, data analysis, and

limitations. The instrumentation section includes background on self-efficacy measures and

construction guidelines for self-efficacy instruments. An outline of results from the pilot survey

factor analysis is also included to address validity and reliability of the efficacy scores.

Problem and Purpose Statements

In an age of accountability following decades of educational reform, teacher preparation

programs are under a great deal of scrutiny due to continued concerns surrounding public

educational systems (Fullan & Hargreaves, 1992; National Commission on Excellence in

Education, 1983; Tyack & Cuban, 1995). There are persistent gaps in student achievement

nationwide (National Center for Education Statistics, 2011; U.S. Department of Education,

2011). Students with disabilities have significantly lower scores in reading and mathematics as

well as high rates of retention and mobility. Federal legislation such as No Child Left Behind

(2001) requires each state to demonstrate adequate yearly progress in student achievement,

including students with special needs. Special education teacher preparation programs and the

delivery of special education services in schools are ever-changing as a result of students with special needs struggling to meet the state requirements on standardized testing. These concerns illuminate the need for increased numbers of highly qualified special educators entering and remaining in the field.

Special education has been one of the largest shortage areas in the field of education for the past three decades (Payne, 2005; West & Hudson, 2010). These shortages have resulted in a limited supply of highly qualified cooperating teachers to provide mentoring to pre-service special education candidates. A promising strategy for reducing special education shortages is to design and incorporate an effective mentoring model that addresses the numerous roles and responsibilities of special education teachers in pre-service programs. Research suggests the importance of a mentoring continuum beginning at the pre-service level during early clinical internship experiences (Beckford & Roland, 2010; Hudson & Skamp, 2003) and the need for mentors with specific knowledge of special education policy and practice in an effort to better prepare novice teachers to work with a distinctly diverse population of students (Washburn-Moses, 2010).

Special educators who have experienced a quality mentoring continuum starting from their early teacher preparation are less at risk for teacher burn-out than unprepared teachers (Andrews et al., 2002). Mentoring program components, such as mentors with knowledge of special education policies and procedures, are likely to have the highest potential to produce efficacious and effective professionals that mediate positive effects on students' success (Aiken & Day, 1999; Brownell et al., 2005; White & Mason, 2006). High levels of teacher self-efficacy contribute to a teacher's ability to overcome challenges within the first years of teaching.

This study investigated the effect of an intensive mentoring intervention on the teaching self-efficacy of special education pre-service teacher candidates. There is limited research that describes the effectiveness of a mentoring intervention within special education teacher preparation and its relationship to teacher self-efficacy (Coladarci & Brenton, 2012; Hartmann, 2012; Lee, Patterson & Vega, 2011). Bandura's (1997) research suggested that teacher self-efficacy is developed through vicarious experiences of observing mentors, actual practice teaching, and being taught the art of teaching.

Therefore, the purpose of this study was to examine the relationship between a mentoring intervention group at the pre-service level and the teaching self-efficacy of special education teacher candidates. A specific mentoring intervention within special education teacher preparation was examined to determine its effect on special education teaching self-efficacy.

Research Questions and Hypotheses

The research study sought to answer the following research questions:

1. What is the effect of an intensive mentoring intervention on the teaching self-efficacy of pre-service special education teacher candidates?

2. Does age moderate an effect of treatment on teaching self-efficacy?

3. Does level within the preparation program (sophomore, junior, senior) moderate an effect of treatment on teaching self-efficacy?

These questions were guided by the following hypotheses:

a) H_0 : There is no difference in the change in teaching self-efficacy between the control and intervention groups.

b) H_0 : Age does not moderate an effect of treatment on teaching self-efficacy.

c) H_0 : Level within the preparation program (sophomore, junior, senior) does not

moderate an effect of treatment on teaching self-efficacy

Research Design

The quasi-experimental quantitative study employed a teacher efficacy instrument created to measure self-efficacy related to the responsibilities specific to special educators. Quantitative research consists of numerical data and quantifying relationships between variables (Mertens, 2010). The quantitative research design enabled the researcher to express relationships between variables using effect statistics such as correlations or differences between means in an effort to test the null hypothesis and identify any statistically significant differences (Cronbach, 1982; Field, 2013). This study sought to examine relationships between the changes in pre-service special educator self-efficacy prior to and following the provision of an intensive mentoring intervention during teacher preparation.

The quantitative quasi-experimental survey research design was chosen to compare repeated measurements between groups (control and intervention) before and after introducing an intensive mentoring intervention (Patten, 2011; Salant & Dillman, 1994). The quantifiable data warranted the research design and correlational analysis.

Setting and Participants

The study took place in an urban setting of a Midwestern state, primarily due to researcher accessibility. The city is the third largest in the state, with an estimated population of 120,235 (United States Census Bureau, 2012). The population demographics are comprised of 82% Caucasian, 13% African American, 1% American Indian, 1% Asian, and 3% a combination

of two or more races. Four percent of residents speak a language other than English in the home. Eighty-five percent of the residents have earned a high school diploma or equivalent, and 19% have completed a bachelor's degree or higher. The median household income is $36,143, with 20% of the population living below poverty level. The home ownership rate is at 56%, with a median home value of $89,900.

The urban setting contains two institutions of higher education within the city limits. The larger public institution is located on the west side of the city and hosts 10,820 students (University website). The enrollment demographics consist of 60% female and 40% male and a primarily (90%) Caucasian student population. The university's overall retention rate is 63%, with a 33% graduation rate. The smaller private institution is situated on the east side of the city, with a student population of 2,526 (University website). The university's retention rate is 83%, with an overall graduation rate of 63%. The enrollment demographics consist of 58% female, 42% male and primarily (97%) Caucasian student population.

The study included pre-service special education teacher candidates enrolled in two accredited special education teacher preparation programs. The participants were undergraduate candidates seeking initial licensure in special education from one private and one public institution. They were enrolled in at least one of the nine sections of special education coursework with an associated semester-long clinical internship or student teaching practicum. The criteria for participation also included the requirement of the completion of a minimum of one clinical internship. This criterion ensured that the participants had some experience in the classroom and could provide responses based on practical experience and exposure to realistic roles of special educators. The candidates ranged in age from 19-22 years and were from sophomore to senior standing.

Sampling

Convenience sampling was used and based on researcher accessibility (Mertens, 2010).

The similarities in state special education teacher licensure requirements and teacher preparation

programs were also considered when choosing the university sample pool. University faculty

from both institutions identified participants based on the above criteria. Approximately 75 pre-

service special education teacher candidates from the private institution and 190 from the public

institution were invited to take part in the study. Pre-service special education teacher candidates

were recruited during internship orientation seminars near the beginning of the spring semester.

They were recruited by invitation to complete the special education teaching efficacy scale and

participate in the mentoring intervention group (Appendix A). The invitations were sent via

email, with follow up email and class visits to encourage survey completion. The pre-service

special education teacher candidates chose to join the intervention group or participate only in

the survey portion of the study (comparison group). Pre-service special education teacher

candidates were ensured of respectful and ethical practices while participating in the study, and

those who chose to participate in the mentoring group remained confidential. The self-efficacy

scale was administered as an online survey, and participants were instructed to create an

identification code to ensure anonymity of responses.

Sample Size

Several factors were considered when selecting a sample and determining sample size

(Field, 2013; Patton, 2011; Salant & Dillman, 1994). Consistent findings in the review of

literature indicated larger sample sizes are more precise approximations of the larger population.

The researcher considered the size of the population as well as identified and defined the target population for the purposes of the study. Organizing and defining the survey objectives as well as using knowledge of the population have been recommended and considered for sample size. Sampling error represents one source of possible error, and the researcher must decide how much of this type of error can be tolerated in the study and estimate with the confidence level. The characteristics of interest among the population were estimated in advance in an effort to define variance proportions.

Instrument Construction

Bandura (1997) offered a guide for constructing self-efficacy instruments to promote and support continued research. His research emphasized the need for multiple measurement instruments due to the existence of a variety of domains of functioning throughout the behavioral and social sciences. The study of teacher self-efficacy provided evidence for developing teacher preparation programs that encourage professional growth and lead to social change. These guidelines were followed to construct an instrument specific to the purpose of this study.

The preliminary work of the instrument construction consisted of pilot questionnaires and open-ended interviews (Bandura, 1997). The documentation and analysis of these items provided information on the tasks, domains, and challenges to efficacy. The data and information from research literature were used to develop the survey items. Then the pilot instrument was reviewed by scholars in the field of study.

The guidelines for item construction included the avoidance of non-specific examples. The items were created to be as specific as possible, to avoid ambiguity, and to be tailored to the particular domain of functioning being studied (Bandura, 1997). Because self-efficacy is

perceived as self-reported capabilities, the suggested phasing of the items included "I can"

statements rather than statements of intent such as "I will." Bandura also offered

recommendations for a scale construction based on 100 points and a ten point interval ranging

from (0) "Cannot do" to (100) "Highly certain can do" or a simpler format developed on a

single interval ranging from zero to ten.

Bandura (1997) strongly suggests pre-testing all of the items in the instrument. Details

from the pilot survey are included in the next section. Items for this study that were too general

were re-written or removed. Items that appeared to test similar dimensions of special educator

self-efficacy were combined within the instrument scoring. The items were designed to measure

efficacy in specific roles and responsibilities of a special educator's initial teaching skill set

(Council for Exceptional Children, 2013). When the pilot analysis revealed items in which the

maximum efficacy level was selected by the test respondents, the items were adapted to increase

the difficulty level of the task. Cronbach's (1982) alpha was used to assess the internal reliability

of the scores.

Another consideration in creating the efficacy scale for this study was the response bias

possible with self-assessment instruments. Administration instructions were utilized as a tool to

reduce the occurrence of response bias (Bandura, 1997). The instrument was completed privately

with identification coding rather than respondent names and was administered anonymously

through a computerized data collection system. The researcher included a statement of

anonymity and the purpose of the research to encourage frankness in responses. The importance

of the participants' contributions to the field of study was emphasized. Bandura (1997)

recommends a very general, non-descriptive instrument title to avoid any influence on item

responses. The instrument included sample items to familiarize the respondents with the measurement scale being used prior to completing the actual efficacy items being studied.

The survey instrument was created using recommended guidelines and consisted of 23 numerical scale (0-10) response items. (Bandura, 1997; Tschannen-Moran & Woolfolk Hoy, 2001; Woolfolk & Hoy, 1990). Discussion and interviews with pre-service special education teacher candidates were used to identify the domains of special education pre-service teacher efficacy and the challenges that impeded the perceived levels of teacher efficacy. Candidates revealed areas of professional preparation they believed needed further development prior to the first year of teaching. Input from pre-service candidates was compared to initial teaching standards for special educators (Council for Exceptional Children, 2013) and used to create survey items for the Special Educators Efficacy Scale (Appendix B) employed in this study. This information was also used to design the mentoring intervention.

Reliability and Validity

Reliability was addressed through the administration of a pilot survey. The pilot Special Educators Efficacy Scale (SEES) instrument was reviewed by five professionals in the field of special education, survey creation, and statistical analysis. Suggestions from these scholars included the use of identification coding, item alignment with current standards, analysis, and item phrasing. The pilot survey was also completed by special education teacher candidates. A link to an electronic version of the SEES instrument was sent to special education teacher candidates at two universities, one public and one private via email. The item scores were analyzed to assess consistency of scores across the scale items. The pilot administration can later be compared to the results from the study to assess the degree of test-retest reliability.

Validity of the scores resulting from the SEES instrument was addressed through a factor analysis. The analysis was conducted on pilot scales to determine how pre-service special educators respond to items and identify consistent factors. A longer scale was developed for pre-service teachers, as previous research indicated less validity in the factor structure among these respondents (Woolfolk & Hoy, 1990). The instrument items were aligned with current standards (Council for Exceptional Children, 2013) for added validity. The language used to construct survey items was consistent with descriptors provided in recent CEC Initial Level Special Educator Preparation Standards.

Seminal works in quasi-experimental design identified specific factors threatening the validity of research studies (Campbell & Stanley, 1963; Cook & Campbell, 1979; Cronbach, 1982). Several factors were cited as threats to validity that include, but are not limited to, experimental design, maturation, regression, mortality, and instrumentation. The pre-test, post-test comparison group quasi-experimental design was a strongly recommended approach. The design controls for several threats to validity if the study follows specific procedures. The groups should be tested at the same time and in similar settings. An identical instrument should be used for both measurements, follow the same administration procedure, and be given by the same researcher. A relatively short time frame for the study, one academic semester, should assist with the threats of history between the first and second measurement. The effects of participant maturation on self-efficacy levels should be controlled in both groups as long as the selection of participants in the intervention group is not based on extreme scores or characteristics. Threats to validity based on mortality or drop-out rates were considered controlled in this design only if there was an equal occurrence in each group.

Construct validity is an ongoing process and is grounded in theory and hypothesis testing (Bandura, 1997). A principal axis factorial analysis was chosen and conducted on the 23-item SEES instrument to assess the dimensionality of the scale. The goal of the instrument was to remain true to the intended measure in an effort to represent face validity. The pilot administration of the instrument indicated a mean completion time of 5.4 minutes. Table 2 represents the descriptive statistics. An initial data screening revealed no missing values, a statistically significant Bartlett's measure of sphericity ($< .001$), and a determinant of the matrix large enough to suggest there were no multicollinearity problems within the data set (Field, 2013). The Kaiser-Meyer-Olkin statistic (KMO = .702) falls above the minimum criterion of .5, which indicated an adequate sample size for factor analysis with over 10 cases per variable.

The item correlation matrix indicated correlation coefficients that were not excessively large, so the researcher did not choose to eliminate any items as a result of the pilot study analysis. Both orthogonal and oblique rotations were employed for a comparison of correlation coefficients between factors (Field, 2013). The rotation results indicated correlations between three extracted factors, and the constructs being measured appeared to be interrelated. The researcher examined the item clusters with variables loading highly (standardized loadings > .4) and identified patterns associated with scale items among three factors that accounted for approximately 70% of the variance. The scree plot revealed a break and leveling off after the third component. A comparison of eigenvalues from the exploratory factor analysis and the criterion values from the parallel analysis support the researcher's decision to retain only three factors (See Table 3). The three-factor analysis is represented in Table 4 with subscales identified and labeled.

Table 2

Descriptive Statistics ($N = 243$)

	Mean	Std. Deviation
I can...support struggling students	7.8519	1.69670
plan for ELL	5.4444	2.35137
motivate reluctant learners	7.0000	1.92847
promote cooperative learning	7.8889	1.55079
overcome adversity	7.5556	1.62114
use FBA	6.4444	2.01030
create BIP	6.5556	2.62064
facilitate inclusion	8.2222	1.45170
redirect disruptive students	7.3333	1.59026
make accommodations	7.6667	1.90909
use a variety of assessments	7.2963	1.78454
keep students engaged	7.5556	1.16775
record frequency data	6.8519	2.19378
facilitate IEP meetings	5.4074	2.87671
use data to create benchmarks and goals	6.9630	2.22371
collaborate with IEP team members	7.3333	2.55841
differentiate instruction	7.4444	2.22123
complete IEP paperwork	6.3704	2.79659
use a variety of strategies	7.6667	1.80907
create transition plans	6.1111	2.79906
use assistive technology	7.1111	1.93489
aware of sped law	6.8519	1.82348
develop supportive partnerships with families	7.8148	1.78916

Note: Survey responses are based on a scale ranging from (0) "Strongly Disagree" to (10) "Strongly Agree."

Table 3

Comparison of Eigenvalues from Factor Analysis and Parallel Analysis

Subscale	Eigenvalue from Factor Analysis	Criterion Value from Parallel Analysis	Decision
1	11.859	1.6098	Accept
2	2.922	1.5052	Accept
3	1.495	1.4241	Accept
4	1.218	1.3638	Reject
5	1.169	1.3059	Reject

The researcher used language from current CEC (2013) initial standards for special educators to create the SEES items. The pattern matrix was examined to identify themes and label subscales to align with these standards. Table 5 includes a summary of each subscale with corresponding scale items.

A reliability analysis was conducted to assess the reliability of the SEES items. The reliability analysis revealed the value of *Cronbach's alpha* (Subscale 1: α = .954; Subscale 2: α = .895; Subscale 3: α = .923), which indicated the reliability of the scores obtained from the SEES instrument was good (Kline, 1999). The values of *Cronbach's alpha* when specific items were deleted did not substantially increase the overall alpha value. The researcher determined that it was not necessary to remove items to improve reliability.

Table 4

Pattern Matrix

	Learner Development and Learner Differences	Instruction and Strategies	Curriculum Content and Planning
create BIP	.941		
complete IEP paperwork	.823		
facilitate IEP meetings	.790		
collaborate with IEP team members	.702		
aware of sped law	.598		
use data to create benchmarks and goals	.597		
use a variety of assessments	.507		
facilitate inclusion	.482		
create transition plans	.442		
develop supportive partnerships with families	.397		
I can...support struggling students		.873	
overcome adversity		.830	
redirect disruptive students		.830	
motivate reluctant learners		.820	
promote cooperative learning		.652	
plan for ELL		.648	
use a variety of strategies			-.860
make accommodations			-.858
use FBA			-.836
use assistive technology			-.682
keep students engaged			-.642
differentiate instruction			-.611
record frequency data			-.552

Note: Rotation Method: Varimax with Kaiser Normalization

Table 5

Subscales with Items

Learner Development and Learner Differences
7. I can create a behavior intervention plan (BIP).
8. I can facilitate the inclusion of my students in general education settings by collaborating with general education teachers.
11. I can use a variety of assessments to determine the academic needs of my students.
14. I can facilitate an individualized education program (IEP) annual review meeting.
15. I can use assessment data to create short term behavioral objectives/benchmarks.
16. I can collaborate with all members of the IEP team to develop appropriate individualized annual goals.
18. I can complete the required IEP paperwork.
20. I can create a transition plan for students with disabilities as they prepare for secondary education.
22. I am aware of special education mandates, policies, and procedures.
23. I can develop supportive partnerships with families.
Instruction and Strategies
1. I can support struggling students.
2. I can plan instruction to address the linguistic and cultural characteristics of English Language Learners (ELL) with disabilities.
3. I can motivate reluctant learners.
4. I can promote cooperative learning.
5. I can overcome adverse situations that impede student learning.
9. I can redirect disruptive behaviors.
Curriculum Content and Planning
6. I can use functional behavioral assessment (FBA) procedures to determine the reasons for inappropriate behaviors displayed by students with severe cognitive and communicative disabilities.
10. I can make accommodations and modify curriculum based on students' needs.
12. I can keep students engaged and on task.
13. I can record frequency data for behavior intervention plans (BIP).
17. I can differentiate instruction to meet the diverse needs of my students.
19. I can use a variety of strategies to reach students with disabilities.
21. I can use assistive technology devices to support communication, learning, and improved functional capabilities of individuals with disabilities.

Data Collection

The pre-test/post-test design consisted of a comparison group and an intervention group. The comparison group of special education pre-service teacher candidates followed the program requirements for early clinical internships (12 hours per week for 10 weeks) with an assigned cooperating teacher in the field to provide supervision. In addition to the program requirements for clinical internship hours and a supervising cooperating teacher, the intervention group of pre-service special education teacher candidates participated in a 10-week mentoring program designed for developing teaching practices and the responsibilities unique to special education teachers, as defined in Chapter 1.

The SEES instrument was administered twice, first as a pre-test and later as a post-test. The pre-test was completed by the pre-service special education teacher candidates in both groups near the beginning of one academic semester in the spring. The post-test was administered to both the comparison and treatment group after the end of the 10-week mentoring intervention. The instrument was created using LiveText forms, a web-based data collection system. The electronic SEES instrument was launched publicly, and the link was emailed to pre-service special education teacher candidates. The instrument instructed participants to create an identification code (ID Code: Mother's first name and your birth month (i.e., MaryLou11) to allow for response matching while ensuring anonymity. Follow-up email correspondence and classroom visits were used to encourage survey completion.

Intervention Detail

Pre-service special educators were invited to join a 10-week mentoring intervention group for pre-service special education candidates. The two-hour weekly group meetings consisted of activities and presentations designed to build initial special educator teaching skills as defined by the Council for Exceptional Children (2013) and aligned with the InTASC Model Core Teaching Standards for teacher preparation. Pre-service special educators committed to the 10-week intervention, and the activities were conducted during the allotted or agreed upon time to ensure the entire group was able to participate in the experiences. The pre-service teachers who were unable to commit to the entire 10-week mentoring intervention group were not considered in the intervention group data.

Pre-service special educators in the intervention group had opportunities to collaborate with and support peers, practice teach, and benefit from additional peer and mentor feedback. The participants had the opportunity to facilitate and contribute to mock I.E.P. meetings focusing on data-driven decision making and writing measurable annual goals. Positive behavior interventions and supports as well as certification in non-violent crisis intervention techniques were provided to increase preparation for working with individuals with behavioral and emotional disorders.

The components of the mentoring intervention were based on Sweeney's (2008) guidelines for high impact mentoring programs. These components consist of, but are not limited to, modeling of effective practices, and demonstration of research based strategies for special education, resources, observation, and peer feedback. The intervention group participated in and experienced additional mentoring at the university level. Collaboration with special education

professionals, agencies, and related program service providers who serve individuals with disabilities provided candidates in the intervention group multiple opportunities to demonstrate their capacity to integrate theory and pedagogical knowledge in real-life settings throughout the community. Candidates participating in the intervention group had opportunities during the group meetings to interact within not-for-profit organizations such as ARC, Best Buddies and The Prism Project, which provide services to children and adults with disabilities in a variety of programs. The participants were encouraged to work with these agencies on their own time outside of the intervention group on their own time only after the 10-week intervention was completed to avoid variations among mentoring time within the intervention group.

ARC has formed partnerships with universities nationwide as well as internationally to establish community Best Buddies chapters. Best Buddies was founded in 1989 by Anthony K. Shriver. Best Buddies has grown into a strong, international, non-profit organization dedicated to enhancing the lives of people with intellectual disabilities by providing opportunities for one-to-one peer relationships. Best Buddies partners individuals with disabilities with students at various academic institutions. University students who participate in the program are called "college buddies." ARC works to recruit individuals with disabilities in the communities to participate in this program and coordinates and processes the applications from individuals interested in participating. ARC also provides education and support to the university chapters. "College Buddies" receive practical training on how to communicate with individuals with disabilities as well as how to model social skills, and use assistive technology.

The Prism Project was founded through a university immersive learning grant in 2009 by Daehn and Hourigan (University website). The Prism Project has two main goals. The first is to provide opportunities for students with disabilities to develop appropriate social skills through

performing arts and direct engagement with their peers. Secondly, it is a training ground for pre-service special education candidates who wish to work with children who have exceptionalities. Pre-service special educators learn to apply motivational and instructional strategies that improve their ability and willingness to teach, work, and empathize with children with disabilities. The immersive learning opportunity provides beneficial tools to pre-service special education teacher candidates with limited experience teaching children with special needs and better equips them as they enter their teaching professions.

Presentations and panel discussions with professionals in the field provided additional information and preparation for the first years of teaching. University supervisors were included in the planning and presentation of topics in the mentoring intervention and were able to reinforce these skills in the field. Local agencies such as ARC, Best Buddies, and The Prism Project provided opportunities for experiences with individuals with disabilities and their parents within the community. Pre-service special education teacher candidates worked with local agencies and became involved with planning and participating in Disability Awareness events as a culminating activity to the mentoring group experience. Table 6 represents the weekly activities of the mentoring intervention group participants.

Comparison Group

Participants in the comparison group responded to the SEES survey portion of the study only. These participants were also enrolled in at least one of the nine sections of special education coursework with an associated semester-long clinical internship or student teaching practicum. The participants completed the pre-test at the beginning of their field experience and again at the end of the experience. The requirements for the internship experiences for both

institutions are 12 hours per week for 10 weeks with a university supervisor assigned to observe, provide feedback, and evaluate progress. The student teaching practicum is a 16-week teaching experience and also had a university supervisor assigned to observe, provide feedback, and evaluate progress. Both institutions follow the same lesson plan format and co-teaching model for these experiences.

Table 6

Mentoring Intervention Group Detail

Week (SEES Item Covered)	Topic	Activities	Presenters
1	Presentation: The Importance of Mentoring	Group Discussion: Needs and Areas of Concern for Pre-service Special Educators	Special Education Faculty
2 (20, 23)	Community Disability Awareness Events Planning	Presentation: Local School District and Community Agencies Serving Individuals with Disabilities	Representatives Best Buddies, ARC, PRISM, Music Therapy and Special Education Faculty, Coordinator of Disability Services, Teachers
3 (6, 7, 13, 15, 17)	Assessment to Instructional Planning and Behavior Interventions	Working Groups: Analyzing Data, Data-based Decision Making	Special Education Faculty, Special Education Director
4 (8, 10, 17)	Collaboration and Co-teaching	Working Groups: Co-planning	Special Education Faculty, Teachers
5 (5, 7, 9)	Presentation: Getting the Most out of Your Observations	Non-violent Crisis Intervention Certification	Special Education Faculty

Table continued on following page

Table 6 continued from previous page

Week(SEES Item Covered)	Topic	Activities	Presenters
6 (8, 17)	Practice Co-teaching Lessons	Peer Feedback Circles	Special Education Faculty
7 (20, 23)	Disabilities form Pre-school to Post-Secondary Education	Panel Discussion	Parents and Individuals with Disabilities
8	Community Disability Awareness Fair	Poster Presentations	Best Buddies, ARC, PRISM, Music Therapy and Special Education Faculty, Coordinator of Disability Services, Teachers
9 (14, 16, 20, 22)	Transition Planning	Mock I.E.P. Meetings	Special Education Faculty
10 (14, 16, 20, 22)	Mock I.E.P. Meetings	Friendship Walk	Special Education Faculty, Best Buddies Representatives

Data Analysis

Hypothesis testing for the study included an analysis of covariance (ANCOVA) and associated effect sizes to assess the effect of the intervention. Data were screened to ensure the required assumptions had been met. ANCOVA analysis was used to compare means for statistically significant differences between groups while controlling for another variable (covariate) such as age or level with the program (Field, 2013; Kline, 1999; Martin & Bridgmon, 2012; Mertens, 2010; Nicol & Pextman, 1999). The ANCOVA analysis also treated the pre-test scores as a covariate within the data analysis. This specific data analysis procedure was chosen to support a single dependent variable and uncontrolled sources of variation.

Limitations

The quasi-experimental design in educational research restricted random sampling and contributed to threats of regression and self-selection reliability. The condensed time frame, 10 weeks within one academic semester, also presented a limitation to the study. There was also the risk of self-selection bias, as the pre-service special education teacher candidates were invited and allowed to choose to participate in the mentoring intervention group (Field, 2013). The self-reporting nature of the SEES instrument posed possible limitations to the data based on the accuracy in reporting by the pre-service special education teacher candidates (Ashton et al., 1982). A pre-test/post-test research design was used to address some of the limitations of this study. The above mentioned limitations may have posed threats to the validity and reliability of the study and warrant additional and continued research.

Summary

This chapter describes the research methodology of this study. The quasi-experimental quantitative study utilized the SEES online self-efficacy scale specifically created for this study and employed a pre-test and post-test design. The scale measured the self-efficacy of special education teacher candidates. Analyses were carried out to assess the effect of the mentoring intervention on the self-efficacy scores. The following chapter will present the findings and an analysis of the data.

CHAPTER 4

FINDINGS

Introduction

The purpose of this study was to examine the effect of a mentoring intervention on the teaching self-efficacy of pre-service special education teacher candidates. A self-efficacy scale was developed to address the specific skill set required for beginning special educators (Council for Exceptional Children, 2013). A pre-test/post-test quasi-experimental design was employed to examine changes in teaching self-efficacy after a 10-week mentoring intervention.

The findings presented in this chapter include a quantitative analysis of the SEES survey results. Data screening and descriptive statistics were carried out on the survey responses. An analysis of covariance (ANCOVA), analysis of variance (ANOVA), and associated effect sizes were used to examine the research questions and hypotheses for the purpose of this study.

Description of the Sample

A total of 245 pre-service special education candidates from two universities in a Midwestern state participated in the study. The participants were completing an undergraduate program for initial special education teacher certification. Participants in both groups ranged in age from 19-22 and held sophomore through senior standings. Table 7 describes the demographic characteristics of the sample.

Table 7
Frequency Distribution of Participant Demographic Characteristics

		Comparison Group	Intervention Group
Gender	Male	30 (15%)	6 (14%)
	Female	172 (85%)	37 (86%)
Ethnicity	Caucasian	194 (96%)	42 (98%)
	Hispanic	8 (4%)	1 (2%)
Age	19 years	18 (9%)	8 (18%)
	20 years	56 (28%)	17 (40%)
	21 years	99 (49%)	16 (37%)
	22 years	29 (14%)	2 (5%)
Grade Level	Sophomore	28 (13%)	8 (18%)
	Junior	88 (44%)	23 (53%)
	Senior	86 (43%)	12 (29%)
Preparation	1st Internship	35 (17%)	9 (21%)
	2nd Internship	57 (27%)	15 (35%)
	3rd Internship	90 (45%)	17 (40%)
	Student Teaching	20 (10%)	2 (4%)

Data Screening and Descriptive Statistics

The data were initially explored to assess assumptions for the one-way ANCOVA analysis as well as to provide descriptive statistics. The initial data screening revealed no missing values, normal distributions, and homogeneity of variance (variance ratio < 2). Additional ANCOVA assumptions were addressed and examined to test for a linear relationship between the dependent variable and covariates and homogeneity of regression slopes.

The descriptive statistics were based on a comparison group of 202 useable surveys which represents a 76% response rate (both pre-test and post-test were matched using identification codes) and an intervention group of the 43 participants completing the entire 10-

week mentoring intervention. Table 8 provides the descriptive statistics for each SEES item, as well as each of the three subscales, for comparison group pre-test and post-test data. Table 9 illustrates the descriptive statistics for each SEES item, as well as each of the three subscales, for the intervention group pre-test and post-test data.

Presentation of Data

Findings for Research Question 1

1. What is the effect of an intensive mentoring intervention on the teaching self-efficacy of pre-service special education teacher candidates?

   H_0 : There is no difference in the change in teaching self-efficacy between the control and intervention groups.

A one-way between groups ANCOVA was conducted for each of the subscales to examine the effectiveness of a mentoring intervention on the teaching self-efficacy of pre-service special education candidates. Mean scores for each of the previously identified subscales from the factor analysis were examined. Three separate analyses were conducted, to address the effect for each of the three subscales: Learner Development and Learner Differences, Instruction and Strategies, Curriculum Content and Planning. ANCOVA at the .05 probability level (α = .05) was used to determine if there were statistically significant differences between the control and intervention groups on the SEES post-test scores. The analysis tested the effect of the fixed categorical independent variable (group) and a covariate (SEES pre-test) on the dependent variable (SEES post-test) for each subscale.

Table 8

SEES Comparison Group Descriptive Statistics (*N* = 202)

Item/Subscale	Pre-test Min	Pre-test Max	Pre-test Mean	Pre-test Std. Deviation	Post-test Min	Post-test Max	Post-test Mean	Post-test Std. Deviation
Learner Development and Learner Differences	0.00	10.00	6.9335	1.75848	1.00	10.00	6.8525	2.26762
Instruction and Strategies	1.00	10.00	7.2178	1.79120	1.00	10.00	7.2228	1.78320
Curriculum Content and Planning	2.00	10.00	7.2687	1.87280	2.00	10.00	7.2758	1.86332

Table 9

SEES Intervention Group Descriptive Statistics (*N* = 43)

Item/Subscale	Pre-test Min	Pre-test Max	Pre-test Mean	Pre-test Std. Deviation	Post-test Min	Post-test Max	Post-test Mean	Post-test Std. Deviation
Learner Development and Learner Differences	0.00	10.00	6.5994	2.43684	3.00	10.00	8.1545	1.08883
Instruction and Strategies	1.00	10.00	7.0504	1.80237	2.00	10.00	7.3410	1.51951
Curriculum Content and Planning	2.00	10.00	7.1894	2.00644	3.00	10.00	7.9136	1.35212

Preliminary investigations were conducted prior to each analysis to ensure that there were

no violations of the assumptions of normality, linearity, homogeneity of variances and regression

slopes, and reliable measurement of the covariate. Subscale 1 violated the assumptions of

linearity and homogeneity of regression slopes. Therefore, scores for subscale 1 were

transformed into rank values, and the ranked scores were used to conduct the analysis (Conover

& Inman, 1982).

Levene's Test of Equality of Error Variances for subscale 1(Learner Development and

Learner Differences) indicated this assumption was not violated ($p = .33$). A Test of Between-

Subjects Effects for subscale 1 indicated the groups differed significantly, $F(1, 17) = 7.18, p <$

.01 with the intervention group reporting a higher mean score. The null hypothesis was rejected

for subscale 1. There was a statistically significant group difference in the SEES post-test scores.

The effect size ($n^2 = .17$) indicated a large effect (Cohen, 1988). This value also represented

how much of the variance was explained by the independent variable. The value indicated that

approximately 17% of the variance in the SEES post-test was explained by the independent

variable (group). Table 10 represents the ANCOVA summary for subscale 1.

Table 10

Test of Between-Subjects Effects: Research Question 1 Subscale 1
Dependent Variable: Rank of Subscale 1 Post-Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	SS
Corrected Model	400.496[a]	2	200.248	12.870	.000	400.496[a]
Intercept	172.741	1	172.741	11.102	.004	172.741
Group	111.696	1	111.696	7.179	.016	111.696
Rank of Subscale 1 Pre-test	334.760	1	334.760	21.515	.000	334.760
Error	264.504	17	15.559			264.504
Total	2870.000	20				2870.000
Corrected Total	665.000	19				665.000

a. R Squared = .339 (Adjusted R Squared = .219)

Levene's Test of Equality of Error Variances was also conducted for subscale 2

(Instruction and Strategies) and indicated this assumption was not violated ($p = .13$). A Test of

Between-Subjects Effects for subscale 2 indicated the groups differed significantly, $F\ (1,\ 9) =$

6.14, $p =.04$, and the null hypothesis was rejected. There was a statistically significant group

difference in the SEES post-test scores with the intervention group reporting a higher mean

score. The effect size ($n^2 = .03$) indicated a small effect (Cohen, 1988). This value also

represented how much of the variance was explained by the independent variable. The value

indicated that approximately 3% of the variance in the SEES post-test was explained by the

independent variable (group). Table 11 represents the ANCOVA summary for subscale 2.

Table 11

Test of Between-Subjects Effects: Research Question 1 Subscale 2
Dependent Variable: Subscale 2 Post-Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	6.317[a]	2	3.159	97.367	.000	.956
Intercept	.290	1	.290	8.925	.015	.498
Group	.199	1	.199	6.136	.035	.405
Subscale 2 Pre-test	6.275	1	6.275	193.439	.000	.956
Error	.292	9	.032			
Total	642.923	12				
Corrected Total	6.609	11				

a. R Squared = .339 (Adjusted R Squared = .219)

Again, Levene's Test of Equality of Error Variances was conducted for subscale 3

(Curriculum Content and Planning) and indicated this assumption was not violated ($p = .264$). A

Test of Between-Subjects Effects for subscale 3 indicated the groups differed significantly, $F\ (1,$

$11) = 5.64,\ p = .04$ with the intervention group reporting a higher mean score. The null

hypothesis was again rejected .There was a statistically significant group difference in the SEES

post-test scores. The effect size ($n^2 = .34$) indicated a large effect (Cohen, 1988). This value

also represented how much of the variance was explained by the independent variable. This

value indicated that approximately 34% of the variance in the SEES post-test was explained by

the independent variable (group). Table 12 represents the ANCOVA summary for subscale 3.

Table 12

Test of Between-Subjects Effects: Research Question 1 Subscale 3
Dependent Variable: Subscale 3 Post-Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	2.650[a]	2	1.325	2.822	.102	.339
Intercept	3.053	1	3.053	6.504	.027	.372
Group	2.636	1	2.636	5.615	.037	.338
Subscale 3 Pre-test	.001	1	.001	.002	.969	.000
Error	5.164	11	.469			
Total	840.207	14				
Corrected Total	7.814	13				

a. R Squared = .339 (Adjusted R Squared = .219)

Findings for Research Question 2

2. Does age moderate an effect of treatment on teaching self-efficacy?

H_0 : Age does not moderate an effect of treatment on teaching self-efficacy.

To identify any statistically significant moderating effect of age on the relationship

between groups and teaching self-efficacy scores an ANCOVA analysis was again conducted

across the three subscales. The age variable was transformed to a mean-centered value prior to

the analysis.

Levene's Test of Equality of Error Variances was conducted for subscale 1 (Learner

Development and Learner Differences) and indicated this assumption was not violated ($p = .06$).

A Test of Between-Subjects Effects for subscale 1 indicated the effect of the treatment did not

differ significantly by age, $F (6, 12) = 0.748$, $p = .40$, and the null hypothesis was not rejected.

Additionally, no main effect was evident for age, $F (4, 12) = 2.59$, $p = .09$. Table 13 represents

the ANCOVA summary for subscale 1.

Table 13

Test of Between-Subjects Effects: Research Question 2 Subscale 1
Dependent Variable: Subscale 1 Post-Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	13.626[a]	7	1.947	6.534	.002	.792
Intercept	3.516	1	3.516	11.801	.005	.496
Subscale 1 Pre-test	1.758	1	1.758	5.901	.032	.330
AgeT	3.089	4	.772	2.592	.090	.464
Group	6.852	1	6.852	22.999	.000	.657
AgeT * Group	.223	1	.223	.748	.404	.059
Error	3.575	12	.298			

a. R Squared = .792 (Adjusted R Squared = .671)

Levene's Test of Equality of Error Variances was again conducted for subscale 2

(Instruction and Strategies) and indicated this assumption was not violated ($p = .38$). A Test of

Between-Subjects Effects for subscale 2 indicated the effect of the treatment did not differ

significantly by age, $F (4, 6) = 0.03$, $p = .87$, and the null hypothesis was not rejected.

Additionally, no main effect was evident for age, $F (2, 6) = 0.948$, $p = .439$. Table 14 represents

the ANCOVA summary for subscale 2.

Table 14

Test of Between-Subjects Effects: Research Question 2 Subscale 2
Dependent Variable: Subscale 2 Post-Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	6.388[a]	5	1.278	34.554	.000	.966
Intercept	.349	1	.349	9.428	.022	.611
Subscale 2 Pre-test	4.192	1	4.192	113.393	.000	.950
Group	.116	1	.116	3.150	.126	.344
AgeT	.070	2	.035	.948	.439	.240
Group* AgeT	.001	1	.001	.030	.868	.005
Error	.222	6	.037			

a. R Squared = .966 (Adjusted R Squared = .938)

Subscale 3 (Curriculum Content and Planning) was also analyzed, and Levene's Test of

Equality of Error Variances indicated this assumption was not violated ($p = .40$). A Test of

Between-Subjects Effects for subscale 3 indicated the effect of the treatment did not differ

significantly by age, $F (4, 8) = 1.02$, $p = .34$, and the null hypothesis was not rejected.

Additionally, no main effect was evident for age, $F (2, 8) = 2.01$, $p = .196$. Table 15 represents

the ANCOVA summary for subscale 3.

Findings for Research Question 3

1. Does level within the preparation program (sophomore, junior, senior) moderate an

   effect of treatment on teaching self-efficacy?

   H_0 : Level within the preparation program (sophomore, junior, senior) does not

   moderate an effect of treatment on teaching self-efficacy

To identify any statistically significant moderating effect of grade level on the

relationship between groups and teaching self-efficacy scores an ANCOVA analysis was again

conducted across the three subscales.

Table 15

Test of Between-Subjects Effects: Research Question 2 Subscale 3
Dependent Variable: Subscale 3 Post-Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	4.382[a]	5	.876	2.043	.176	.561
Intercept	3.685	1	3.685	8.589	.019	.518
Subscale 3 Pre-test	.343	1	.343	.799	.398	.091
AgeT	1.727	2	.863	2.012	.196	.335
Group	3.073	1	3.073	7.163	.028	.472
Group * AgeT	.439	1	.439	1.023	.341	.113
Error	3.432	8	.429			

a. R Squared = .561 (Adjusted R Squared = .286)

Levene's Test of Equality of Error Variances was conducted for subscale 1 (Learner Development and Learner Differences) and indicated this assumption was not violated ($p = .40$).

A Test of Between-Subjects Effects for subscale 1 indicated the effect of the treatment did not differ significantly by grade level, $F (5, 13) = 0.06$, $p = .94$, and the null hypothesis was not rejected. Additionally, no main effect was evident for grade level, $F (2, 13) = 0.185$, $p = .834$.

Table 16 represents the ANCOVA summary for subscale 1, and Figure 1 represents the plot of subscale 1 post-test means by grade level.

Table 16

Test of Between-Subjects Effects: Research Question 3 Subscale 1
Dependent Variable: Subscale 1 Post-Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	10.463[a]	6	1.744	3.364	.032	.608
Intercept	4.190	1	4.190	8.083	.014	.383
Subscale 1Pre-test	2.139	1	2.139	4.126	.063	.241
Group	7.458	1	7.458	14.387	.002	.525
Level	.191	2	.096	.185	.834	.028
Group*Level	.064	2	.032	.062	.940	.009
Error	6.738	13	.518			

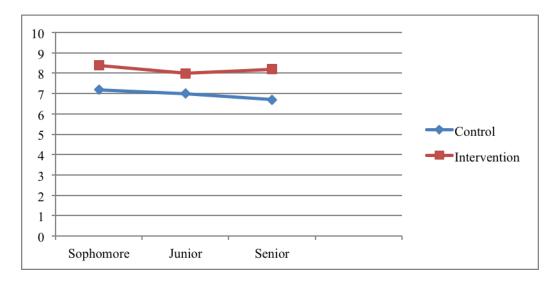a. R Squared = .608 (Adjusted R Squared = .427)

Figure 1: Subscale 1 plot of post-test means by grade level.

Levene's Test of Equality of Error Variances was also conducted for subscale 2
(Instruction and Strategies) and indicated this assumption was not violated ($p = .31$). A Test of
Between-Subjects Effects for subscale 1 indicated the effect of the treatment did not differ
significantly by grade level, $F (3, 9) = 0.096$, $p = .763$, and again the null hypothesis was not
rejected. Additionally, no main effect was evident for grade level, $F (1, 9) = 0.706$, $p = .423$.

Table 17 represents the ANCOVA summary for subscale 1, and Figure 2 represents the plot of

subscale 2 post-test means by grade level.

Table 17

Test of Between-Subjects Effects: Research Question 3 Subscale 2
Dependent Variable: Subscale 2 Post-Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.874[a]	4	.218	.284	.881	.874[a]
Intercept	3.138	1	3.138	4.080	.074	3.138
Subscale 2 Pre-test	.010	1	.010	.013	.910	.010
Group	.138	1	.138	.179	.682	.138
Level	.543	1	.543	.706	.423	.543
Group*Level	.074	1	.074	.096	.763	.074
Error	6.923	9	.769			6.923

a. R Squared = .959 (Adjusted R Squared = .935)

Subscale 3 (Curriculum Content and Planning) was also analyzed, and Levene's Test of

Equality of Error Variances indicated this assumption was not violated ($p = .40$). A Test of

Between-Subjects Effects for subscale 3 indicated the effect of the treatment did not differ

significantly by grade level, $F (4, 8) = 0.11$, $p = .75$, and the null hypothesis was not rejected.

Additionally, no main effect was evident for grade level, $F (2, 8) = 0.161$, $p = .854$. Table 18

represents the ANCOVA summary for subscale 3. The plot of subscale 3 post-test means is
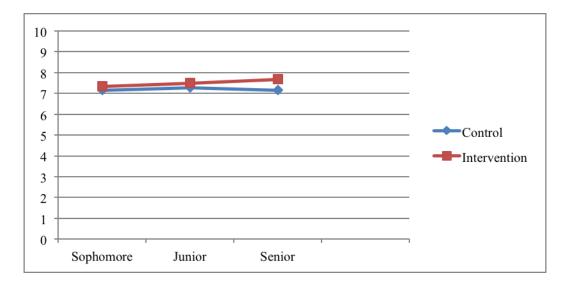
represented in Figure 3.

Figure 2: Subscale 2 plot of post-test means by grade level.

Summary

The current study sought to provide some insight into the effects of a mentoring intervention on the teaching self-efficacy of pre-service special education teacher candidates. In examining the teaching self-efficacy scores of pre-service special education candidates, statistically significant effects of the intervention were evident. The candidates participating in the mentoring intervention group reported a significantly higher post-test score on all three subscales: Learner Development and Learner Differences, Instruction and Strategies, and Curriculum Content and Planning. No statistically significant moderating effect of age or grade level on the intervention effect was evident for any of the subscales. Chapter 5 includes a discussion of these finding, recommendations for practice, and future research.

Table 18

Test of Between-Subjects Effects: Research Question 3 Subscale 3
Dependent Variable: Subscale 3 Post-Test

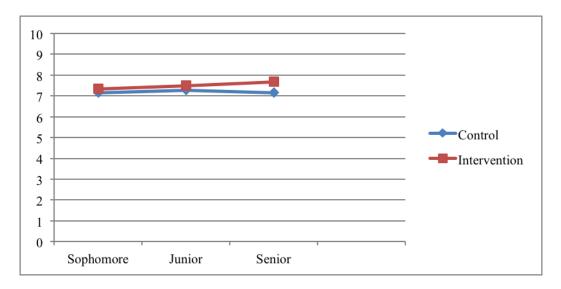| Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	2.870[a]	5	.574	.929	.510	.367
Intercept	1.731	1	1.731	2.800	.133	.259
Subscale 3 Pre-test	.056	1	.056	.090	.772	.011
Group	1.600	1	1.600	2.590	.146	.245
Level	.199	2	.099	.161	.854	.039
Group*Level	.068	1	.068	.110	.748	.014
Error	4.944	8	.618			

a. R Squared = .367 (Adjusted R Squared = .028)

Figure 3: Subscale 3 plot of post-test means by grade level.

CHAPTER 5

DISCUSSION, RECOMMENDATIONS, AND FUTURE RESEARCH

Introduction

Based on a review of related literature, there is a gap in research related to mentoring pre-service special education candidates and how a mentoring intervention during teacher preparation affects special education teaching self-efficacy. The literature also revealed that the available teaching efficacy instruments were primarily focused toward general education teaching. Therefore, the aim of this study was to develop a special educator self-efficacy instrument to measure teaching self-efficacy among pre-service special education candidates before and after a 10-week mentoring intervention.

This chapter will include a discussion of the findings, recommendations for practice, suggestions for future research, and final thoughts.

Discussion

One goal of this study was to examine existing teaching self-efficacy instruments for an appropriate measure for pre-service special education candidates. As the review of literature for this study revealed, there was no teaching self-efficacy scale to date designed to measure special education teaching self-efficacy during teacher preparation. The SEES instrument was created using research based guidelines (Bandura, 1997) and CEC (2013) standards for the initial skill set of special educators. This study made contributions to the field of special education and

teaching self-efficacy research by developing and accessing a new instrument to measure special education teaching self-efficacy.

The review of literature in preparation for this study also examined the evolution of teacher self-efficacy. The definitions of teaching self-efficacy include a careful consideration of appropriate and reliable measurement tools. The SEES instrument was designed specifically to assess special education teaching self-efficacy and to expand the meaning as it continues to evolve and interpret the power of this construct.

The primary goal of the current study as posed by research question one was to examine the effects of a mentoring intervention during teacher preparation on special education teaching self-efficacy. This study affirms the importance of a mentoring continuum beginning at the pre-service level and its relationship to teaching self-efficacy. The findings indicate that a specific mentoring intervention at the pre-service level produced positive effects on teaching self-efficacy among special education teacher candidates. The specific measure and mentoring intervention designed to meet the specific needs of pre-service special education candidates contributed to higher scores in special education teaching self-efficacy. The current study found that these mentees experienced higher teaching self-efficacy when the mentoring interventions addressed specific skill sets and the design allowed for flexibility to address the needs of the mentees.

In comparing the mean scores from the SEES between groups, the participants in the mentoring intervention group indicated a significantly higher sense of special education teaching self-efficacy between the pre-test and post-test across all three subscales. The higher mean score appeared to be closely related to activities and topics covered in the mentoring intervention group. These findings suggested that the detailed, skill-specific mentoring intervention framework helped facilitate professional growth and teaching self-efficacy among pre-service

special education candidates (Hudson & Scamp, 2003). The design of the mentoring intervention purposefully allowed time to address the perceived needs of the participants (Duffy & Forgan, 2005). For example, items within the subscale Learner Development and Differences were explicitly covered throughout the mentoring intervention and yielded the greatest gains in mean scores among the intervention participants. Participants in the intervention group also indicated through discussion that these specific skills (i.e., I.E.P. meetings, documentation, behavior interventions, inclusion, collaboration, benchmarks, and goals) were also a great source of anxiety for teaching readiness and the desired skill set for initial special educators (CEC, 2013).

The findings from the current study add to the literature and are consistent with multiple studies that have reported positive outcomes on teaching self-efficacy at the pre-service level through intensive mentoring (Darling-Hammond, 2005; Hobson et al., 2012; Hudson & Hudson, 2013). Previous research investigated the relationship between mentoring experiences designed for specific skill sets and teaching self-efficacy (Hudson & Skamp, 2003; Minke, 1996; Parameswaran, 1998; Reid, Vasa, Maag & Wright, 1994). These studies argue that teachers (pre-service and in-service) who are given explicit mentoring and experiences associated with specific and unique teaching responsibilities demonstrated higher levels of teaching self-efficacy than their peers who did not experience the same mentoring opportunities. Only three of these studies focused on mentoring interventions in the area of special education (Minke, 1996; Parameswaran, 1998; Reid et al., 1994).

In a design similar to the current study, Hudson and Skamp (2003) focused on a specific mentoring intervention for teachers of primary science. Their mentoring intervention group was given a four-week intensive mentoring intervention on the teaching of primary science. The five factor self-efficacy survey was then administered, and the findings suggested evidence of

improved science teaching self-efficacy of the mentees included in the study. The researchers argued that a specific and intensive mentoring intervention may be effective in improving teacher self-efficacy even when administered over a relatively short period of time. The current study supports these findings and also reports a significant effect of a short-term mentoring intervention on teaching self-efficacy.

The findings from the current study also support previous studies in the area of special education (Minke.1996; Parameswaran, 1998; Reid et al., 1994) that examined the teaching self-efficacy among pre-service and in-service teachers working with children displaying a variety of diverse learning needs. Parameswaran designed a specialized field experience for pre-service special education candidates during an educational psychology course. Parmeswaran's findings revealed a strong relationship between the specific skills practiced in the classroom and teaching self-efficacy for learners with diverse needs.

Minke (1996) and Reid and colleagues (1994) studied teaching self-efficacy among novice and in-service special education teachers. Minke's work explored teaching self-efficacy among special education teachers working with mentors in an inclusive setting. Results indicated this environment had a positive effect on teaching self-efficacy. Consistent with the current study, it was asserted that this setting provided opportunities for mentoring, frequent feedback, collaboration, and practical experiences with the skills unique to inclusive teaching.

Reid and colleagues (1994) focused specifically on teaching self-efficacy for meeting the needs of students with Attention Deficit Hyperactivity Disorder (ADHD). Their findings revealed teachers with specific preparation in the area of ADHD felt a greater sense of teaching self-efficacy toward effectively reaching this population. As supported by the findings of the current study, Reid and colleagues also asserted that there is an influential relationship that

appears to exist among teachers with access to an environment of mentoring, collaboration, and specific teaching skill sets. It is argued that these unique experiences enhance overall teaching self-efficacy. Across all of the above mentioned studies, teachers who did not have access to mentoring and specific learning opportunities did not report a strong sense of teaching self-efficacy for the given student populations. The current study reported similar findings among participants in the comparison group.

In the current study, the participants in the comparison group reported lower post-test scores than participants in the intervention group. These findings may be explained by the exposure during field experiences to the vast practical skills necessary to meet the diverse needs of the student (Pendergast et al., 2011). Preconceived notions and previous educational experiences may also contribute to an overestimated sense of self-efficacy and a realization of the need for further professional development and teacher preparation. A romanticized ideal of classroom teaching may exist due to positive personal educational experiences that may falsely inflate perceptions of special education teaching self-efficacy. The realization of the need for more preparation may come after practical experiences through internships in the classroom and lead to a much more accurate account of teaching self-efficacy.

Another goal of this study as posed by research questions 2 and 3 was to examine the moderating effects of demographic variables on differences in special education teaching self-efficacy between groups. The demographic characteristics of age and grade level were not found to have a statistically significant moderating effect on the difference in teaching self-efficacy scores between the comparison and intervention groups of pre-service special education candidates. A possible explanation for the lack of effect of grade level on teaching self-efficacy may be the design of special education internship experiences. Although the pre-service teacher

candidates have had more practical experiences as they progressed through the programs, these internship experiences are vastly different. Each internship may consists of different grade levels, settings, and categories of disabilities. These results are consistent with Tschannen-Moran and Woolfolk Hoy's (2007) findings that indicated demographic variables did not influence teaching self-efficacy. Consistent with the theoretical framework of the current study, these researchers also argue that knowledge and experiences have the greatest effect on perceived teacher self-efficacy.

The theoretical framework of this study is founded in theories of teaching self-efficacy, experiential learning, and social learning. The findings of this study are supported by these theories as they relate to learning through observing mentors, instruction from mentors, and practical experiences. As outlined in this study, within the framework of social and experiential learning, higher levels of special education teaching self-efficacy were associated with specific experiences and discipline specific mentors. The experiential and social learning experiences in the mentoring intervention were aligned with the standards-based instrumentation and addressed the unique skill set of special educators. The activities in the mentoring intervention were designed to address each of the four headings for initial preparation standards: Learner and Learning, Content Knowledge and Professional Foundations, Instructional Pedagogy, and Professionalism and Collaboration. There was a strong component of social learning as it relates to professional development built into the mentoring intervention. The mentoring sessions were designed to include observation as well as evoke discussion of special education teaching practices. The strategies included within the mentoring intervention were designed to promote collaboration among peers and mentors. The modeling of lessons, collaborative planning,

practice teaching, and feedback circles provided ample opportunities to share and reflect on practical experiences.

As theories of experiential learning posit, learning how to teach requires first-hand experiences. Many traditional teacher preparation programs have not consistently or adequately allowed for experiential learning prior to student teaching. The special education mentoring intervention created an opportunity for pre-service teachers to be actively engaged in teaching experiences. Participants in the intervention group were able to practice skills specific to special educators and essential for entering into the profession, such as facilitating I.E.P meetings and paperwork and collaborating with other professionals and parents. The findings of this study suggest that specific learning opportunities promote confidence in one's abilities and create efficacious teachers.

Recommendations for Practice

The findings from the current study present implications for special education teacher educators, program developers, school leaders, students with disabilities, and policy makers. The continuation of these pre-service mentoring interventions into the novice years of teaching along with continued research may reap benefits for all stakeholders.

The SEES instrument, aligned with teaching standards for the initial skill set of special educators, may prove valuable within teacher preparation programs. These recently adopted CEC (2013) standards, which include initial and advanced preparation standards, may be used to design mentoring interventions through several stages of teaching(interns, student teachers, novice teachers). Recommendations for special education teacher educators include the use of specific mentoring interventions at the pre-service level to reduce the current attrition rates and

special education teacher shortages. Mentoring interventions at the pre-service level should be non-evaluative and allow for some fluidity to address the needs and concerns of candidates as they arise. Careful consideration of mentoring intervention components such as qualified mentors and experiences designed specifically for the needs of special educators may also assist teacher educators in building teaching self-efficacy and a resilient novice special educator.

The short time frame for this study also provides implications for the possibility of positive outcomes, even when time limitations are a concern for providing mentoring interventions at the pre-service level. A well designed short-term mentoring intervention applied over several years during special education teacher preparation may produce greater effects on teaching self-efficacy.

If research confirms teaching self-efficacy can primarily be developed at the pre-service level, special education program coordinators may consider program designs that support this development in an effort to produce self-efficacious novice special educators. Program designs that include a mentoring component as early as the first professional semester may play a pivotal role in enhancing special education teaching self-efficacy.

Although the current findings suggest that a mentoring intervention benefits pre-service special education candidates, these benefits have implications for school leaders at the district and building levels as well. School districts expend a considerable amount of resources recruiting new teachers. This can be a costly endeavor when novice special educators are not remaining in the classroom. Building principals should carefully consider partnerships with teacher preparation programs to strengthen special education teaching self-efficacy. A collaborative effort between school districts and teacher educators to design a mentoring continuum as well as

effective models of professional development schools specifically designed for preparing special educators may improve teacher quality and attrition rates.

Retaining special education teachers also has implications for the educational outcomes of students with disabilities, as student achievement has been linked to teacher quality. Students with special needs struggle to close gaps in academic achievement without experienced special educators. Highly qualified special educators have the potential to change the quality of life for individuals with disabilities.

Policy makers at both the federal and state level should consider providing funding for an extended period of time to support a mentoring continuum beginning at the pre-service level. A partnership between policy makers and teacher education accreditation agencies with access to teacher preparation program data may prove beneficial in assessing the effectiveness of a mentoring continuum. Providing funding, mandating mentoring interventions beginning early within special education teacher preparation, and long-term data collection may provide the evidence needed to link mentoring to student achievement and bring about change.

Suggestions for Future Research

While continued research is necessary, this study revealed the potential of mentoring interventions for pre-service special education candidates. The current study may serve as baseline data for the SEES instrument and the effects of a special education mentoring intervention on teaching self-efficacy at the pre-service level. While this study demonstrated the positive effect of the specific mentoring intervention on special education teaching self-efficacy, it does not address the improvement of teaching practices. A larger study will be required to validate the long-term effects of a special education mentoring intervention. This future research

may follow participants over time to establish the effectiveness of specific mentoring interventions. This longitudinal approach to the relationship between special education teaching self-efficacy, teacher attrition, and teacher effectiveness may provide insight for the future of special education teacher preparation.

Additional research may consist of collaborative efforts between teacher preparation programs and school districts in an effort to design a mentoring continuum from pre-service to in-service. This research may focus on the content and development of mentoring interventions, and the most beneficial time in teacher preparation to begin a mentoring component. Research into the development of mentoring interventions may also examine the most effective mode of delivery, such as mentoring groups, electronic modules, or a combination.

Future research might also examine the effects of the mentoring continuum and increased special education teaching self-efficacy on student achievement. Research into the link between special education mentoring, teaching self-efficacy, and teacher effectiveness may provide evidence for much needed resources to support mentoring programs. Although student achievement is based on many variables, continued research into specific special education mentoring interventions at the pre-service level may produce positive outcomes among students with disabilities that encourage support among policy makers.

The findings from the current study suggest further examination into the development of special education teaching self-efficacy during teacher preparation is warranted. These findings also prompt further investigation into the sources of teaching self-efficacy during teacher preparation, and the relationship between special education teaching self-efficacy and actual knowledge of special education teaching practices.

Final Thoughts

The researcher has dedicated her career to serving individuals with disabilities. She believes pre-service teachers with a passion and commitment to work with this special population of students should be afforded every opportunity to enjoy longevity in their calling. It is also the belief of this researcher that students with disabilities deserve every opportunity for success. Specifically, this population of learners deserves highly qualified, self-efficacious teachers.

It was the goal of this researcher to add to the current instrumentation for measuring teaching self-efficacy. The researcher believes it was beneficial to the field of special education to develop an appropriate, valid, and reliable instrument for measuring special education teaching self-efficacy. This instrument may prove beneficial in measuring special education teacher self-efficacy throughout teacher preparation and in-service practice. This research into building special education teaching self-efficacy through a discipline specific mentoring intervention may provide some insight into keeping novice special education teachers in the classroom. The findings from this study demonstrate the potential of a mentoring intervention at the pre-service level to bring about much needed reform in special education.

The findings from this study have informed the practice of this researcher and have influenced changes in special education teacher preparation within the programs participating in this study. Collaborative efforts to design and implement a continuum of mentoring interventions beginning at the pre-service level may reduce the prevalence of inadequate and limited mentoring during teacher preparation.

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APPENDIX A

RESEARCH INVITATION

You are invited to participate in a research project involving pre-service special education candidate volunteers. The research is a partial requirement for a doctoral degree from Northern Illinois University. Participation in this study is strictly voluntary. The purpose of the research is to investigate whether there is a relationship between mentoring at the pre-service level and special educator self-efficacy beliefs. The information gleaned from this research may help in the establishment of mentoring interventions at the pre-service level, a reliable and valid instrument designed to specifically measure special educator self-efficacy, and possible program improvements to special education teacher preparation. You are eligible to participate in this research, if you 18 years of age or older and are a special education candidate who has completed at least one clinical internship. If you are interested in volunteering for this research, please complete the survey, which is included in this email as a LiveText link.

You are also invited to join a mentoring group for pre-service special education candidates. The weekly group meetings will consist of activities and presentations designed to build initial special educator teaching skills as defined by the Council for Exceptional Children and aligned with InTASC standards. The group meets on Tuesdays from 4:00-6:00pm at the University of Evansville, Graves Hall (Room 302). Participation in this group is completely voluntary, and you may choose to participate in the study by completing only the survey portion of the research.

The researcher knows of no risks to you if you participate in the research, but if you feel uncomfortable with providing an answer to any question, please skip it and move on to the next question. The researcher may publicly discuss the results of the research, and may publish the results in an educational journal. To preserve your anonymity, please do not include your name anywhere on the survey and use only the ID code format.

The principal investigator on this study is Mary Lombardo-Graves who may be contacted at 812-488-2370, ml182@evansville.edu. If you have any additional questions regarding this study, or if you have any questions about the ethical, legal, or social aspects; the review of this study by the Northern Illinois University's Institutional Review Board; or other questions you would like to discuss, you may contact the chair of this study, Dr. Elizabeth Wilkins, ewilkins@niu.edu, who will answer your questions or refer you to an appropriate person.

Thank you for your time and participation in this research study.

APPENDIX B

SPECIAL EDUCATOR EFFICACY SCALE (SEES)

ID Code: Mother's first name and your birth month (i.e. MaryLou11) _____

Directions: The following statements represent a proposed skill set for beginning special educators. Please indicate your level of confidence for each of the statements by choosing a response from (0) Strongly Disagree to (10) Strongly Agree. Please circle a response for each statement.
The purpose of this information is research related and may be used to assess and design program requirements. Your frank responses are appreciated and will remain anonymous.

Sample items:	**Strongly Disagree**				**Moderately Agree**				**Strongly Agree**		
I can lift 200 pounds.	0	1	2	3	4	5	6	7	8	9	10
I can run three miles.	0	1	2	3	4	5	6	7	8	9	10

Strongly Disagree   Moderately Agree   Strongly Agree

1. I can support struggling students.   0 1 2 3 4 5 6 7 8 9 10

2. I can plan instruction to address the linguistic and cultural characteristics of English Language Learners (ELL) with disabilities.   0 1 2 3 4 5 6 7 8 9 10

3. I can motivate reluctant learners.   0 1 2 3 4 5 6 7 8 9 10

4. I can promote cooperative learning.   0 1 2 3 4 5 6 7 8 9 10

5. I can overcome adverse situations that impede student learning.

0 1 2 3 4 5 6 7 8 9 10

6. I can use functional behavioral assessment (FBA) procedures to determine the reasons for inappropriate behaviors displayed by students with severe cognitive and communicative disabilities.

0 1 2 3 4 5 6 7 8 9 10

7. I can create a behavior intervention plan (BIP). 0 1 2 3 4 5 6 7 8 9 10

8. I can facilitate the inclusion of my students in general education settings by collaborating with general education teachers.   0 1 2 3 4 5 6 7 8 9 10

9. I can redirect disruptive behaviors.   0 1 2 3 4 5 6 7 8 9 10

10. I can make accommodations and modify curriculum based on students' needs.
0 1 2 3 4 5 6 7 8 9 10

11. I can use a variety of assessments to determine the academic needs of my students.
0 1 2 3 4 5 6 7 8 9 10

Strongly Disagree   Moderately Agree   Strongly Agree

12. I can keep students engaged and on task.   0 1 2 3 4 5 6 7 8 9 10

13. I can record frequency data for behavior intervention plans (BIP).
    0 1 2 3 4 5 6 7 8 9 10

14. I can facilitate an individualized education program (IEP) annual review meeting.
    0 1 2 3 4 5 6 7 8 9 10

15. I can use assessment data to create short term behavioral objectives/benchmarks.
    0 1 2 3 4 5 6 7 8 9 10

16. I can collaborate with all members of the IEP team to develop appropriate individualized
   annual goals.
    0 1 2 3 4 5 6 7 8 9 10

17. I can differentiate instruction to meet the diverse needs of my students.
    0 1 2 3 4 5 6 7 8 9 10

18. I can complete the required IEP paperwork.   0 1 2 3 4 5 6 7 8 9 10

19. I can use a variety of strategies to reach students with disabilities.
    0 1 2 3 4 5 6 7 8 9 10

20. I can create a transition plan for students with disabilities as they prepare for secondary
   education.
    0 1 2 3 4 5 6 7 8 9 10

21. I can use assistive technology devices to support communication, learning, and improved
   functional capabilities of individuals with disabilities.
    0 1 2 3 4 5 6 7 8 9 10

22. I am aware of special education mandates, policies, and procedures.
    0 1 2 3 4 5 6 7 8 9 10

23. I can develop supportive partnerships with families.
    0 1 2 3 4 5 6 7 8 9 10

Demographic Information:

Grade Level:

Freshman_____
Sophomore____
Junior_____
Senior_____
Age: _____

Gender:

Female_____
Male_____

Experience (Level of preparation completed):

First clinical experience_____
Second clinical experience_____
Third clinical experience_____
Student teaching_____

Institution Type:

Public_____
Private_____

Please feel free to provide additional explanations or questions about any of the above responses.
Comments:
_____
_____
_____
_____
_____
_____
_____
Thank you for taking the time to complete the survey.