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## An Examination of Special Education Teachers' Self-Efficacy By Certification Status, Credential Type, Age, Gender, Previous Experience in Special Education, and Years Taught

Sarah R. Johnson

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AN EXAMINATION OF SPECIAL EDUCATION TEACHERS' SELF-EFFICACY BY  
CERTIFICATION STATUS, CREDENTIAL TYPE, AGE, GENDER, PREVIOUS  
EXPERIENCE IN SPECIAL EDUCATION, AND YEARS TAUGHT

by

Sarah R. Johnson

FACULTY RESEARCH COMMITTEE

Chair: Dane Joseph, PhD

Member: Susanna Thornhill, PhD

Member: Scot Headley, PhD

Dissertation

Presented to the Faculty of the

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“AN EXAMINATION OF SPECIAL EDUCATION TEACHERS' SELF-EFFICACY BY CERTIFICATIONS STATUS, CREDENTIAL TYPE, AGE, GENDER, PREVIOUS EXPERIENCE IN SPECIAL EDUCATION, AND YEARS TAUGHT,” a Doctoral research project prepared by SARAH JOHNSON in partial fulfillment of the requirements for the Doctor of Education degree in Educational Leadership.

This dissertation has been approved and accepted by:

04/12/18

A handwritten signature in black ink, appearing to read "Dane Joseph".

Date

Dane Joseph, PhD

Committee Chair

Assistant Professor of Education

4/12/18

A handwritten signature in black ink, appearing to read "Scot Headley".

Date

Scot Headley, PhD

Professor of Education

4.12.18

A handwritten signature in black ink, appearing to read "Susanna Thornhill".

Date

Susanna Thornhill, PhD

Associate Professor of Education

# SPECIAL EDUCATION TEACHERS' SELF-EFFICACY

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### **Abstract**

This study explored differences and relationships between pre-service and in-service special education teachers' self-efficacy ratings. These educators taught in California on alternate permits, Provisional Intern Permit (PIP), Short-Term Staff Permit (STSP), Intern Credential, valid Preliminary, and Clear credentials along with type of certification (Mild/Moderate, Moderate/Severe, and Early Childhood Special Education). The differences and relationships were examined across several demographic variables (gender, age, previous experience in special education, and number of years teaching special education). The study participants were employed in one of two large school districts as special education teachers on a PIP/STSP, Intern, Preliminary, or Clear Credential in Central Valley of California.

This study used a quantitative non-experimental correlational survey design. The Teachers' Sense of Efficacy Scale (TSES) created by Megan Tschannen-Moran and Anita Hoy (2001) was the selected instrument to measure special education teachers' self-efficacy ratings. Independent t-tests and One-way ANOVAs were conducted to determine the difference (if any) between groups. Significant differences were found in special education teachers' self-efficacy by credential classifications including teachers with Preliminary and Clear credentials and those with substandard permits (PIP/STSP). Significant differences were found in special education teachers' self-efficacy ratings and age between the age categories of 20-29 years and 50-59 years. Significant differences were also found in special education teachers' self-efficacy ratings and years taught in several categories assessed.

No statistically significant differences were found between special education teachers' self-efficacy ratings and credential type, gender, and previous experience as a substitute or para-

educator in special education. This indicates that special education teachers that have persisted in the field longer, are valuable assets and more efficacious.

The results of this study added to the limited research on special education teachers' self-efficacy ratings and certification status, credential type, gender, age, previous experience in special education, and years taught.

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## Chapter One: Introduction

All across the United States, a teacher shortage exists in most grade levels and subject areas. The shortage is especially great in the area of special education. As early as 1999, special education experienced the greatest shortage of teachers in the largest 200 cities in the United States (Miller & Markowitz, 2003; Mueller, 2002). And in 2000, Fielder, Foster, and Schwatz reported that the greatest shortage of teachers was in special education. The scarcities have continued to the present time. During the 2015-2016 academic year, 48 states (and District of Columbia) reported shortages in special education (Sutcher, Darling-Hammond, & Carver-Thomas, 2016). As a result of these shortages, teacher education institutions, districts, and states have identified special education as the number one educational field with severe shortages (Sutcher et al., 2016).

Many individual states are affected by the national teacher shortage; California is among them. As is true across the US, California schools have had difficulties filling teacher vacancies, with persistent complications in filling special education positions (Carver-Thomas & Darling-Hammond, 2017). In the academic year of 2015-2016, California's teacher shortages mainly impacted filling teaching positions in the following subjects: English, drama, humanities, history, social science, math, computer education, science, self-contained classes, and special education (Strauss, 2016). Over 3,900 open teacher positions existed in 2014; these have since doubled (Darling-Hammond, Furger, Shields, & Sutche, 2016). In 2017, the Learning Policy Institute surveyed over 200 representative California school districts and found three out of four are currently facing teacher shortages (Carver-Thomas & Darling-Hammond, 2017). Districts reported the teacher shortage has rapidly reached critical proportions and is getting worse (Carver-Thomas & Darling-Hammond, 2017).

Many factors contribute to the teacher shortage, with attrition and burnout being an epidemic in special education (Wasburn-Moses, 2005). Thornton, Peltier, and Medina (2007) found high attrition levels, new demands placed on special education teachers, and high turnover has created a crisis for this educational specialty (Fall, 2010; Thornton et al., 2007). The attrition rate of teachers overall in the U.S. is high, hovering near 8% for the past decade (Sutcher et al., 2016). In 2010, the national attrition rate for special education teachers was reported to be 13.5% with up to 9% (22,000) educators exiting special education within their first year of teaching (Fish, Wade & Stephens, 2010).

Professionals and educators have researched, examined relationships, and implemented numerous strategies to address these teacher shortages. Strategies have included: providing extra support and/or higher salaries, examining the relationships between job satisfaction, job commitment, levels of motivation, and self-efficacy, and creating alternate certifications (California Commission on Teacher Credentialing, 2015; Canrinus, Helms-Lorenz, Beijgaard, Buitink, & Hofman, 2012; Fall, 2010; Thornton et al., 2007). Research shows that special education teacher burnout and their resulting departure from the profession are a result of many factors, with the main factor being stress. Stress experienced by special education teachers leads to chronic burnout, which can include feelings of powerlessness, depersonalization, and exhaustion (Maslach, 1982). Additional sources of stress and teacher burnout for special education teachers include lack of advancement opportunities, excessive paperwork, unsuccessful administrative meetings (Roach, 2009), high workload and poor teaching conditions (Whitaker, 2001), and insufficient certification (Miller, Brownell, & Smith, 1999). These factors contributed to lower self-efficacy. Researchers have found teachers' self-efficacy influences their students' motivation, achievement, and their behavior (Skaalvik & Skaalvik,

2016). Teachers with lower self-efficacy reported lower levels of job satisfaction (Klassen, Bong, Usher, Chong, Huan, Wong, & Georgiou, 2009), as well as increased difficulties in higher levels of job-related stress and teaching (Betoret, 2006). Klassen and Chiu (2016) found teachers with greater classroom stress had lower job satisfaction and lower self-efficacy. Teachers with lower self-efficacy were also more apt to leave the field when compared to teachers with higher self-efficacy (Wasburn-Moses, 2005).

### **Teacher Shortages and Self-Efficacy**

Due to the shortage and high attrition rate, numerous studies have researched relationships and differences in teachers' self-efficacy ratings. In investigating teachers' self-efficacy studies from 1998-2009, Klassen, Tze, Betts, and Gordon (2011) found more than three times as many studies on teacher efficacy in 1998-2009 than compared to the previous 12 years. Their overall results showed increases in research on teachers' efficacy. Teacher efficacy is considered a key motivational belief influencing student learning and teachers' behavior. It is the belief and/or confidence teachers hold about themselves and their capabilities to influence student learning (Klassen, Tze, Betts, & Gordon, 2011). Klassen and Durksen (2014) report that pre-service teachers with higher self-efficacy have a higher commitment to teaching at the end of their teacher preparation programs. Chestnut and Cullen (2014) found a significant and positive correlation with preservice teacher self-efficacy and commitment to the profession ( $r = 0.35, p < .01$ ). In their study utilizing additional variables (self-efficacy, emotional intelligence, and satisfaction with expectations of FEW), all variables were found to be significant, with self-efficacy accounting for 3.53% of the variance (to commitment). Hoy and Spero (2005) found that teachers who reported more optimism and less stress stated they would remain in the teaching profession after their first year of teaching. While somewhat dated, Coladarci's (1992)



research indicated that women tend to have higher commitment to the field than male teachers; however, he found no significant differences in self-efficacy ratings (Coladarci, 1992). Sarfo, Amankwah, Sam and Konin's research results in 2015 were consistent with Coladarci's findings in 1992. Conflicting studies found women teachers to have higher self-efficacy than male teachers, but a significant difference was not found (Arbabisarjou, Zare, Shahrakipour, & Ghoreishinia, 2016).

Teacher self-efficacy has been associated with many educational outcomes (Tschannen-Moran & Hoy, 2001). Some positive educational outcomes of teachers with higher self-efficacy include teachers' enthusiasm, persistence, instructional behavior and commitment, as well as student outcomes such as motivation, self-efficacy beliefs, and achievement (Tschannen-Moran & Hoy, 2001). Additional positive outcomes included fewer referrals of students to special education (Coladarci, 1992; Meijer & Foster, 1988; Podell & Soodak, 1993), and teachers' willingness to try new methods (Berman, McLaughlin, Bass, Pauly, & Zellman, 1977).

Teacher self-efficacy is positively related to motivation in both students and teachers (Scherer, Jansen, Areepattamannil, & Marsh, 2016). Positive student outcomes have also been related to higher teacher self-efficacy (Ashton & Webb, 1986; Baker, 2004) and related to their classroom behavior.

The national teacher shortage and high attrition rates are troubling. Research found up to 20% of new teachers leave the profession within three years, and 50% of teachers from urban school districts leave the profession within the initial five years of teaching (California Commission on Teacher Credentialing, 2015). The California Teachers Association (CTA) reported a 13% attrition rate of new teachers at the conclusion of their second year of teaching, and one third of new teachers leave the field of teaching within the first 7 years (California

Commission on Teacher Credentialing, 2015). In 1992, Coladarci found general self-efficacy emerged as one of the two strongest predictors of teaching commitment, school-climate, and teacher-student ratio. Teachers with higher efficacy expressed greater commitment to teaching (Coladarci, 1992).

To address the problem of teacher shortages in California, the California Commission on Teacher Credentialing (CCTC) has created alternate certifications. These alternate certifications allow individuals to be hired and work as teachers in the classroom prior to earning a valid teaching credential. In 2015 in California, due to the alternate credentials, it was found that almost half of new special education teachers (48%) lacked full preparation for teaching (Sutcher et al., 2016).

### **Educational Specialist Credentials**

The CCTC was created in 1970 as an agency of the California State Government of the Executive branch (California Commission on Teacher Credentialing, 2015). This agency provides the licensing and credentialing for professional educators, state standards for teacher preparation, discipline of credential holders, and enforcement of professional practices. The CCTC's mission is:

to ensure integrity, relevance, and high quality in the preparation, certification, and discipline of the educators who serve all of California's diverse students" (California Commission on Teacher Credentialing, 2015, p. 1). The CCTC's vision is: "all of California's students, preschool through grade 12, are inspired and prepared to achieve their highest potential by well prepared and exceptionally qualified educators (California Commission on Teacher Credentialing, 2015, p. 1).

In California, the Education Specialist Credential (special education) is a two-level teaching credential. The two levels are “preliminary” and “clear”. An Education Specialist Preliminary Credential is the first document issued after basic credential requirements have been met (California Commission on Teacher Credentialing, 2016). The basic credential requires the candidate to (a) hold a baccalaureate or higher degree from a regionally-accredited university or college, (b) satisfy the basic skill requirement, (c) provide verification of subject matter competency, (d) pass the Reading Instruction Competence Assessment (RICA), (e) pass an exam or complete a course from a regionally accredited university or college on the principles and provisions of the U.S. Constitution, and (f) complete a Commission-approved teacher preparation program in a specialty area (credential type). The candidate may then receive a formal recommendation by the Commission-approved sponsor. The Preliminary credential is valid for five years and is not renewable (California Commission on Teacher Credentialing, 2016). It is important to note that individuals pursuing an Early Childhood Special Education Credential do not take the California Subjects Examination Test (CSETs) or the Reading Instruction Competence Assessment (RICA). These two assessments are required for individuals pursuing an Educational Specialist Credential in the specialty types of Mild/Moderate and/or Moderate/Severe.

The Clear Credential is issued once all credential requirements have been met. This includes completion of a Clear Credential program from a Commission-approved Induction Program. The program must be approved specifically for special education. The Clear Credential is renewable every five years (California Commission on Teacher Credentialing, 2016).

The Education Specialist credential offers three types of certification in special education. The three specified credential types are: Mild/Moderate Disabilities (M/M), Moderate/Severe

Disabilities (M/S), and Early Childhood Special Education (ECSE). The Mild/Moderate Education Specialist credential allows credential holders to serve individuals with “specific learning disabilities; mild to moderate intellectual disabilities; other health impairments; serious emotional disturbance; and authorizes service in grades K-12 and in classes organized primarily for adults through age 22” (California Commission on Teacher Credentialing, 2015, p. 1).

The Moderate/Severe Disabilities (M/S) Educational Specialist credential allows teachers to serve individuals with “autism; deaf blindness; moderate to severe intellectual disabilities; multiple disabilities; serious emotional disturbance; and authorizes service in grades K-12 and in classes organized primarily for adults through age 22” (California Commission on Teacher Credentialing, 2015, p. 1).

The Early Childhood Special Education (ECSE) Education Specialist allows credential holders to serve individuals with “the mild/moderate and moderate/severe disabilities listed above and traumatic brain injury” and “authorizes service to children ages birth to prekindergarten only” (California Commission on Teacher Credentialing, 2015, p. 2).

Due to a shortage of fully credentialed teachers, the CCTC created two alternate certifications in 2005, in order to address two specific staffing needs for special education position: anticipated and acute. The two alternate certifications, the Provisional Intern Permit (PIP) and Short-Term Staff Permit (STSP) replaced the “Emergency” Credential, which was discontinued in 2003. These two alternate teaching permits, created in response to the phasing out of the emergency permits, became effective July 1, 2005. The PIP allows an employment agency to hire an individual for an immediate staffing need, even though the individual has not met subject matter competence requirements that are required to enter an Intern program (California Commission on Teacher Credentialing, 2015). Prior to an employment agency hiring

an individual on a PIP, they must verify an anticipated need and confirm that a credentialed teacher could not be found after a diligent search. The PIP is available at the request of an employing agency and once awarded, the individual is restricted to work only with the employment agency requesting the permit request (California Commission on Teacher Credentialing, 2015). The requirements for individuals to qualify for a PIP include possession of a baccalaureate degree or higher from a regionally-accredited university or college, and they must satisfy the Basic Skills requirement. The PIP is issued for one year (California Commission on Teacher Credentialing, 2015).

A STSP allows an employing agency to hire for an acute staffing need. An acute staffing need occurs when an employing agency must immediately fill a position of an unforeseen need and a diligent search did not yield a credentialed teacher (California Commission on Teacher Credentialing, 2015). As with PIPs, STSPs are available at the request of an employing agency and once awarded, the individual is restricted to work only with the employment agency requesting the permit. The requirements for individuals to qualify for a STSP include possession of a baccalaureate degree or higher from a regionally-accredited university or college, ability to satisfy the Basic Skills requirement, and successful completion of coursework for the type of permit requested. This includes passing of the appropriate subject matter competency. The STSP expires at the end of the employing agency's academic year. It cannot be issued for more than one year with the end of the school year being no later than July 1. If being used for an assignment for summer school, it will expire no later than September 1. The STSP is available once in a lifetime and is not renewable (California Commission on Teacher Credentialing, 2015).

Another teaching certification available for individuals prior to completing the valid Educational Specialist Credential, is the Intern Credential. The Intern Credential is for a teacher

of record who holds a University or district Intern Credential, but who is still completing pedagogical preparation for the preliminary credential. Intern Credentials are issued upon completion of the required 120 hours of intern preparation and have enrolled in a university or college Commission-approved intern program. The Intern Credential is administered by California colleges and universities in partnership with school districts (local employing agencies) designed to provide individuals with classroom experience as they complete coursework towards the Preliminary Credential. The requirements for an Intern Credential include the ability to obtain a baccalaureate or higher degree from a regionally-accredited university or college, satisfy the California Basic Skills (CBEST) requirement, satisfy subject matter competence (CSET), pass an examination or complete a course in the principles and provisions of the U.S. Constitution (from a regionally-accredited university or college), and complete an application (online recommendation) from a Commission-approved sponsor (California Commission on Teacher Credentialing, 2016). In California, for the 2015-2016 academic year, the average age of individuals employed on an Intern Credential in special education was 39 years of age (California Commission on Teacher Credentialing, 2016).

In California during the 2013-2014 school year, substandard authorizations (PIP/STSP, and/or Intern) accounted for just under half of new special education teachers. Since the 2011-2012 academic year, the number of Preliminary Credentials issued by the California Commission on Teacher Credentials decreased while the number of Substandard Authorizations increased. Over the past few years, the trends in California hiring have been shifting from Preliminary Credential holders to substandard authorizations. In 2011-2012, 60% of special education teachers in California were employed on a Preliminary Credential, with 40% employed on Substandard Authorizations (PIP/STSP or Intern Credential). The number of Preliminary and

Substandard Authorizations remained consistent for the 2012-2013 academic year. However, in 2013-2014, there was a shift to 52% of special education teachers in California employed under Preliminary Credentials with 48% teaching on Substandard Authorizations. The trend continued over the next two years. In the 2015-2016 academic year, special education teachers employed on a Preliminary Credential decreased to 36% and individuals employed under Substandard Authorizations increased to 64% (California Commission on Teacher Credentialing, 2016).

Table 1 illustrates these trends in special education teacher supply from 2011-2016 in California (California Commission on Teacher Credentialing, 2016).

Table 1

*Trends in Special Education Teacher Supply in California*

Year	n	Preliminary Credential	Percentage	Substandard Authorizations	Percentage
2011-2012	5,237	3,162	60%	2,111	40%
2012-2013	5,070	3,042	60%	2,028	40%
2013-2014	4,829	2,497	52%	2,332	48%
2014-2015	5,513	2,195	40%	3,318	60%
2015-2016	6,263	2,259	36%	4,004	64%

The Learning Policy Institute estimated a 25% increase in overall teacher hires for the 2015–2016 academic school year (Sutcher et al., 2016). In contrast, Preliminary and Clear Credentials (fully prepared teachers) increased by less than 1%, with only a 3.8% enrollment increase in University of California and California State University teacher preparation programs (Sutcher et al., 2016). The disparity in these numbers is troubling. Table 2 illustrates that new, underprepared special education teachers in California outnumber those individuals who are

fully credentialed by a ratio of two to one (California Commission on Teacher Credentialing, 2016).

Table 2

*New, Underprepared Special Education Teachers in California*

Year	n	Substandard Permits	Percentage	Preliminary Credentials	Percentage
2013-2014	4,829	2,332	48%	2,497	52%
2014-2015	5,513	3,318	60%	2,195	40%
2015-2016	6,263	4,004	64%	2,259	36%

The Institute reports outcome studies that analyzed evidence of teacher shortages and regional and national trends in the supply and demand of teachers. Results showed school personnel were surprised at the difficulty of finding and hiring qualified teachers, especially in the fields of special education, science, mathematics, and bilingual education/English language development (Sutcher et al., 2016). With this shortage, districts scrambled to fill special education vacancies and had no choice but to hire unqualified teachers (Sutcher et al., 2016). The Learning Policy Institute (2016) reported that lowering the standards to become a teacher may fill empty classrooms but exacerbate the problem over time. They found much higher turnover rates for teachers hired without being fully prepared. These turnovers are not only financially costly; in high turn-over schools, student achievement decreases (Sutcher et al., 2016).

During the academic year of 2014–2015, the number of emergency credentials issued when a fully credentialed teacher could not be found nearly tripled, from approximately 850 to over 2,300 (Sutcher et al., 2016). Table 3 illustrates the increase of PIP(s) and STSP(s) from 2011-2016 in California.



Table 3

*Increase of PIP(s) and STSP(s) from 2011-2016 in California*

Year	n	Short-Term Staff Permit (STSP)	Provisional Internship Permit (PIP)
2011-2012	848	686	162
2012-2013	853	666	187
2013-2014	1,166	906	260
2014-2015	2,390	1,879	511
2015-2016	4,074	2,777	1,297
% of change 2015-2015	70.5%	47.8%	153.8%

Adding to the critical shortage of special education teachers is the high attrition rate of full-time special education teachers. Their attrition rate is 13%, twice the rate of general education teachers (Center on Personnel Studies in Special Education, 2004). To add to the overall attrition rate, teachers with little to no preparation leave the field at rates of two to three times those who have comprehensive preparation prior to entering the classroom (Sutcher et al., 2016).

California created alternate certifications: PIP, STSP, and Intern Credentials. Individuals may teach on these alternate credentials prior to obtaining a valid teaching credential. These three alternate certifications can be used during the first four years of teaching (PIP for a year, STSP for a year, and Intern Credential two years) before a teacher is required to have completed a Preliminary Education Specialist Credential in the specified type (M/M, M/S & ECSE). Teacher attrition and burnout are high during the first four years of teaching. Research has evidenced positive characteristics/outcomes when teachers have high self-efficacy ratings and

positively relates to their commitment to the teaching profession and the field (Chestnut & Cullen, 2014).

### **Purpose**

Little is known of the differences and relationships between pre-service and in-service special education teachers' self-efficacy ratings, particularly for California teachers on alternate permits (PIP, STSP, or Intern Credential), valid Preliminary and Clear credentials along with type of certification (Mild/Moderate, Moderate/Severe, and Early Childhood Special Education), and demographics (gender, age, previous experience in special education and, number of years teaching special education).

This research explored special education teachers' self-efficacy ratings based on certification status, type of credential, gender, age (categorical), previous experience in special education, and number of years teaching special education (categorical). Specifically, it determined whether there was a significant difference in special education teachers' self-efficacy ratings based on certification status, type of credential, gender, age (categorical), previous experience in special education, and number of years teaching special education (categorical).

RQ 1: Is there a difference in special education teachers' self-efficacy ratings by certification status?

RQ 2: Is there a difference in special education teachers' self-efficacy ratings by certification type?

RQ 3: Is there a difference in special education teachers' self-efficacy ratings by gender?

RQ 4: Is there a difference in special education teachers' self-efficacy ratings by age (categorical)?

RQ 5: Is there a difference in special education teachers' self-efficacy ratings by previous experience in special education?

RQ 6: Is there a difference in special education teachers' self-efficacy ratings by years taught (categorical)?

H<sub>1</sub>: Intern special education teachers will have higher self-efficacy ratings than those teaching on an emergency permit (PIP/STSP).

H<sub>1a</sub>: Credentialed (Preliminary and/or Clear) special education teachers will have higher self-efficacy ratings than those teaching on an Intern credential or a substandard permit (PIP/STSP).

H<sub>1b</sub>: There will be no difference in self-efficacy ratings based on certification type (Mild/Moderate, Moderate/Severe or Early Childhood Special Education).

H<sub>1c</sub>: Women special education teachers will have higher self-efficacy ratings than men who teach special education.

H<sub>1d</sub>: There will be no difference in special education teachers' self-efficacy ratings by age.

H<sub>1e</sub>: Special education teachers with previous experience working in special education, as a substitute or para-educator, will have higher self-efficacy ratings than those without previous experiences.

H<sub>1f</sub>: Special Education teachers with more years of experience teaching in special education will have higher self-efficacy ratings than those with fewer years teaching in special education.

**Significance**

This research study attempted to discover if a difference in special education teachers' self-efficacy ratings differ by certification status (PIP/STSP permit, Intern Credential, Preliminary Credential or Clear Credential), credential type (Mild/Moderate, Moderate/Severe or Early Childhood Special Education), and demographics of gender, age (categorical), previous experience in special education, and number of years teaching special education (categorical). Due to the recent implementation of the alternate permits (PIP/STSP), very little research is available. Teacher preparation programs are not required to provide a university mentor to individuals employed on PIP or STSP permits, only to individuals employed on an Intern Credential.

The study will share the findings of special education teachers' self-efficacy ratings, including those on alternate permits. The California Commission on Teacher Credentialing created the alternate permits and limited requirements to address the teacher shortage. Due to the newness of the alternate permits, little research is available as to their effectiveness or the unintended consequences of such a decision. Upon study completion, an informal letter will be written to the CCTC sharing the results.

**Key Terms**

*Self-Efficacy*: Teachers' beliefs in their abilities to organize and execute courses of action necessary to bring about desired results (Tschannen-Moran, Hoy, & Hoy, 1998).

*Provisional Intern Permit (PIP)*: Alternate Certification created by the California Commission on Teacher Credentialing (2005) under which individuals may teach prior to completing a valid Education Specialist credential. The PIP replaced the "Emergency" Credential, which was discontinued in 2003. It may be requested by an employment agency

when an anticipated need occurs. An “anticipated staffing need exists when a district is aware that an opening is going to occur and conducts a diligent search for a credentialed teacher but is unable to recruit one” (California Commission on Teacher Credentialing, 2015, p .20).

Requirements for individuals to qualify for a Provisional Internship Permit (PIP) or a Short-Term Staff Permit (STSP) in California is a passing score on the California Basic Education Skills Test (CBEST), which is designed to test basic mathematics, writing skills, and reading. In addition, the individual must be enrolled in a teacher preparation program and employed by a district (California Commission on Teacher Credentialing, 2015). The PIP is valid for one year.

*Short Term Staff Permit (STSP):* Alternate Certification created by the California Commission on Teacher Credentialing (2005) under which individuals may teach prior to completing a valid Education Specialist credential. A STSP may be requested by an employment agency when an acute need occurs. An “acute staffing need exists when an employer needs to fill a classroom immediately based on an unforeseen need. STSPs are restricted to service in the employing agency that requests issuance” (California Commission on Teacher Credentialing, 2015, p.20). The STSP is valid for a single academic year no matter when it is issued; it expires at the end of a given academic year.

*Intern Credential:* A credential for which an individual may apply after passing all state required tests (CBEST & CSET), completing 120 hours of fieldwork and coursework, and demonstrating a GPA of 3.0. They must be approved by a teacher preparation program designee and Credential Analyst.

*Mild/Moderate Education Specialist Credential:* Allows credential holders to serve individuals with “specific learning disabilities; mild to moderate intellectual disabilities; other health impairments; serious emotional disturbance; and authorizes service in grades K-12 and in

classes organized primarily for adults through age 22” (California Commission on Teacher Credentialing, 2015, p. 1).

*Moderate/Severe Disabilities (M/S) Educational Specialist Credential:* Allows credential holders to serve individuals with “autism; deaf blindness; moderate to severe intellectual disabilities; multiple disabilities; serious emotional disturbance; and authorizes service in grades K-12 and in classes organized primarily for adults through age 22” (California Commission on Teacher Credentialing, 2015, p. 1).

*Early Childhood Special Education (ECSE) Education Specialist Credential:* Allows credential holders to serve individuals with “the mild/moderate and moderate/severe disabilities and traumatic brain injury; authorizes service to children ages birth to prekindergarten only” (California Commission on Teacher Credentialing, 2015, p. 2).

*Teachers' Sense of Efficacy Scale (TSES):* The TSES (a.k.a. Ohio State Teacher Efficacy Scale) was created by Megan Tschannen-Moran of the College of William and Mary (VA), and Anita Woolfolk Hoy of The Ohio State University in 2001 to measure teachers' self-efficacy. The TSES, a survey, measures teachers' self-efficacy (self-reported) in three factors: instructional strategies, student engagement, and classroom management (Tschannen-Moran & Woolfolk Hoy, 2001).

*Pre-Service Teacher:* An individual enrolled in a teacher preparation program who is teaching without a valid teaching credential (Preliminary Credential).

*Preliminary Credential:* The first issued document after basic credential requirements have been met (California Commission on Teacher Credentialing, 2016). The basic credential requires the candidate to (a) hold a baccalaureate or higher degree from a regionally-accredited university or college, (b) satisfy the basic skill requirement, (c) provide verification of subject

matter competency, (d) pass the Reading Instruction Competence Assessment (RICA), (e) pass an exam or complete a course from a regionally accredited university or college on the principles and provisions of the U.S. Constitution, and (f) complete a Commission-approved teacher preparation program in a specialty area (credential type). The candidate may then receive a formal recommendation by the Commission-approved sponsor. The Preliminary credential is valid for five years and is not renewable (California Commission on Teacher Credentialing, 2016). It is important to note that individuals pursuing an Early Childhood Special Education Credential do not take the California Subjects Examination Test (CSETs) or the Reading Instruction Competence Assessment (RICA). These two assessments are required for individuals pursuing an Educational Specialist Credential in the specialty types of Mild/Moderate and/or Moderate/Severe.

*Clear Credential:* Issued once all credential requirements have been met. This includes completion of a clear credential program from a Commission-approved Induction Program. The program must be approved specifically for special education. The Clear Credential is renewable every five years (California Commission on Teacher Credentialing, 2016).

## **Summary**

The United States is experiencing a teacher shortage, and even more so among special education teachers. The shortage is evident in all states, California being among them (Sutcher et al., 2016; Darling-Hammond et al., 2016). Many factors contribute to the shortage, especially attrition, burnout, and stress (Wasburn-Moses, 2005). To help address the shortage in California, the CCTC has created alternate certifications (permits). These permits allow an individual to be employed as a teacher without a valid teaching credential. In 2015, in California, alternate credentials (permits) accounted for almost half of new special education teachers (48%) that

lacked full preparation for teaching (Sutcher, et al., 2016). Due to the shortage, districts scrambled to fill special education vacancies by hiring unqualified individuals (Sutcher et al., 2016). The Learning Policy Institute, in their report, stated that lowering the standards to become a teacher may fill empty classrooms, but exacerbates the problem over time as underprepared teachers have a much higher turn-over (Sutcher, et al., 2016). Teachers with little to no preparation leave the field at rates of two to three times higher than those who have completed comprehensive preparation prior to entering the classroom. This research has been conducted to examine relationships and differences in teachers' self-efficacy ratings between credential types and understand how they might interact with positive student and teacher outcomes, attrition, burnout, age, gender, years of experience, job stress commitment to the field, and certification status.



## Chapter Two: Literature Review

This literature review synthesizes the research on the construct of self-efficacy, especially as it pertains to teachers, compares competing ways of measuring self-efficacy and synthesizes the work comparing self-efficacy rating by teacher's certification status, type of teachers' credential, age, gender, job satisfaction, and years of experience.

### Self-Efficacy

There are multiple definitions for self-efficacy. For example, Bandura (1977), who provided the theoretical framework for studying teacher efficacy, defined self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3). Bandura thought efficacy was most malleable early in learning. Therefore, the early years of teaching influence long-term development of teacher efficacy (Woolfolk & Hoy, 1990). Bandura's definition of efficacy suggests exclusive reliance on self-perception and strong beliefs in one's capabilities, while still acknowledging the role of results. His definition focuses on the individual teachers and the assessment and analysis of an individual's self-efficacy.

In 1977, Berman et al. defined self-efficacy (general) as "teachers' belief or conviction that they can influence how well students learn, even those who may be difficult or unmotivated" (p.137). This definition includes an emphasis on measurable outcomes evident in one's students. The definition is more student-focused, specifically calling the role of students on assessment, who are affected by their teachers' self-efficacy. To compare the two definitions, Bandura's (1977) definition is focused on the teacher's self-efficacy whereas Berman et al.'s definition is focused on the outcome of others.

The construct of teacher efficacy was derived from Bandura's (1977) social cognitive theory and Rotter's (1966) theory of locus of control. The locus of control theory (Rotter), addresses the degree to which individuals perceive outcomes are within the realm of their control (beliefs about control over outcomes). There is a distinct difference between Rotter's (1966) locus of control theory (internal and external) and Bandura's concept of self-efficacy (beliefs one can produce actions). Bandura provided evidence that locus of control and self-efficacy are measured at different levels of generality as they are different phenomenon. Research found evidence that the two-self-efficacy and locus of control—show little to no relationship to one another (Tschannen-Moran et al., 1998). Bandura's data also evidenced that locus of control is a weak predictor of behavior, whereas self-efficacy is a strong predictor of behavior (Bandura, 1997). The significance of these ideas demonstrates that teachers with strong self-efficacy are not dependent on the concept of their locus of control.

Social Cognitive Theory “posits the importance of reciprocal determinism in human functioning” (Bandura, 1977, p.192), recognizing the conjoined forces of the person, behavior, and environment as interactive and interdependent influences on an individual. Factors related to the person include efficacy beliefs, which influence behaviors and develop through experiences with the world. Furthermore, behaviors and beliefs are influenced by the environment (Fives & Buehl, 2009). Self-efficacy is different from other self-concepts, such as self-worth, self-esteem, and self-concept. Gist and Mitchell (1992) also share that self-esteem can be considered a trait reflecting characteristics of an individual's affective self-evaluation. By contrast, a judgment about task capability that is not inherently evaluative is self-efficacy (Gist & Mitchell, 1992). Instead of others' perceived level of competence, self-efficacy deals with a self-perception of competence. This distinction, perception of competence, is significant since people often

underestimate or overestimate their actual abilities (Bandura, 1977). The effort individuals put forth in those pursuits may provide opportunities or have consequences. Underestimating or overestimating one's capabilities may influence thoughts of how well an individual can use the skills they have (Bandura, 1977, 1997).

### **Characteristics of Positive Self-Efficacy**

Research studies have indicated that teacher self-efficacy has been associated with many positive characteristics (Chestnut & Cullen, 2014; Coladarci, 1992; Goddard, Hoy, & Hoy, 2000; Hoy & Spero, 2005; Klassen et al., 2011; Meijer & Foster, 1988; Soodak & Podell, 1993). Some of the characteristics are adoption of innovations, classroom management strategies, student motivation, superintendent's ratings of teacher competence, teacher referrals of students to special education, and time spent teaching certain subjects (Chestnut & Cullen, 2014; Coladarci, 1992; Hoy, 2000; Hoy & Spero, 2005; Klassen & Durksen, 2014; Meijer & Foster, 1988; Podell & Soodak, 1993). Student outcomes have also been related to teacher self-efficacy (Ashton & Webb, 1986; Baker, 2004) and to their classroom behavior.

In 1992, Coladarci found that general and personal efficacy emerged as the two strongest predictors of teaching commitment, school-climate, and teacher-student ratio. Teachers with higher personal and general efficacy expressed greater commitment to teaching. Numerous studies have researched the importance of efficacy in pre-service teachers. Klassen et al. (2014) reported that pre-service teachers with higher self-efficacy had a higher commitment to teaching at the end of their teacher preparation programs. Research also found a positive association between pre-service teachers' teacher efficacy and commitment to the teaching profession (Chestnut & Cullen, 2014). Hoy and Spero (2005) found that teachers who reported more optimism and less stress stated they would remain in the teaching profession after their first year

of teaching. Teachers' willingness to work with students who are having challenges rather than make a referral to special education is also predicted by their self-efficacy (Coladarci, 1992). Findings suggest that teachers with higher self-efficacy were more likely to request that students experiencing challenges be appropriately placed in a general education setting instead of a special education setting (Meijer & Foster, 1988; Podell & Soodak, 1993).

Besides improving student achievement, teacher self-efficacy shapes the teacher, subject matter, and student attitudes. In 1990, Woolfolk and Hoy found that students perceived a higher interest in school and believed what they were learning was important when the teacher had higher general teacher efficacy (Woolfolk & Hoy, 1990).

Teachers' sense of self-efficacy is related to behavior in the classroom. Teachers with a strong efficacy are more willing to try new methods (Berman, McLaughlin, Bass, Pauly, & Zellman, 1977; Guskey, 1984) and they also show greater levels of organization and planning (Allinder, 1994). Zee and Koomen (2016) integrated 40 years of research on teachers' self-efficacy by conducting a meta-analysis from 162 articles. They found teachers with high self-efficacy cope effectively with a range of problem behaviors, use student-centered classroom behavior strategies, use student-centered classroom practices, are proactive, and establish relationships that are less conflictual with students. High teacher efficacy is directly related to numerous positive educational outcomes for both the student and teacher. Teachers' self-efficacy has been heavily researched.

In 2011, Klassen, Tze, Betts, and Gordon conducted a meta-analysis from 218 empirical articles that were published from 1998–2009, for key characteristics of research on teachers' self-efficacy. Results found an increase in teacher self-efficacy research. They found the problem

areas of prior self-efficacy research was a lack of attention to the sources of teacher efficacy and conceptual and measurement problems (Klassen, et al., 2011).

### **High Self-Efficacy and Commitment to the Field**

According to Zee and Koomen (2016), teachers' self-efficacy has shown positive links to academic adjustment; factors related to underlying teachers' psychological well-being; patterns of teacher behavior; and practices related to classroom quality, job satisfaction, burnout, and commitment to the field. Zee and Koomen found positive links between teacher self-efficacy and burnout (range = 1.17 to -.63; Mdn = -.36) with specific dimensions of burnout (range = -.09 to -.76; Mdn = -.25). They found these results to be fairly consistent across studies. For instructional strategies and classroom management, teachers with high self-efficacy were less likely to feel emotionally exhausted. These findings reported teachers' self-efficacy was both directly and indirectly related to the mental health of teachers as a result of teacher burnout (Zee & Koomen, 2016). In their study, Zee and Koomen found correlations between stress and teachers' self-efficacy ranged from .06 to .50. These results showed that teachers with higher self-efficacy ratings experienced less job-related stress. In reviewing 12 earlier studies, Zee and Koomen found teachers with high self-efficacy were more committed to the field, with the predictive associations between self-efficacy and teacher commitment, ranging from .10 to .36 (Mdn. = .26). For teacher attrition and retention, pre-service teachers with high self-efficacy intended to remain in the teaching profession longer (Bruinsma & Jansen, 2010).

In 2016, Skaalvik & Skaalvik researched seven potential stressors: (a) disruptive student behavior, (b) workload and time pressure, (c) student diversity, (d) lack of status, (e) lack of autonomy, (f) conflicts related to teamwork, and (g) lack of shared values and goals with experiences of teachers' self-efficacy, stress, engagement in teaching, emotional exhaustion, and

motivation to leave the field of teaching. The results showed value conflict was negatively associated with teacher self-efficacy ( $\beta = -.15$ ), low student motivation ( $\beta = -.31$ ), and supervisory support ( $\beta = -.19$ ). Emotional stress was positively associated with a feeling of exhaustion ( $\beta = .69$ ), but negatively associated with teacher self-efficacy ( $\beta = -.136$ ). Self-efficacy was positively related to engagement ( $\beta = .51$ ) and negatively related to exhaustion ( $\beta = -.33$ ). Engagement was negatively related to leaving the teaching profession ( $\beta = -.45$ ) and positively related to exhaustion ( $\beta = .33$ ). And overall, motivation to quit and teacher self-efficacy had a negative association ( $\beta = -.266$ ) (Skaalvik & Skaalvik, 2016).

In 1992, Coladarci found that general and personal efficacy emerged as the two strongest predictors of teaching commitment, school-climate, and teacher-student ratio. Teachers with higher personal and general efficacy expressed greater commitment to teaching. Canrinus, Helms-Lorenz, Beijaard, Butnik, and Hoofman (2012) researched the relationships of teachers' professional identity with self-efficacy, motivation, job satisfaction, and commitment. They found a significant relationship ( $p < 0.01$ ) between relationship satisfaction, level of teachers' motivation, and occupational commitment. They also found a significant ( $p < 0.01$ ) effect from affective occupational commitment and salary satisfaction, and a negative direct effect from salary satisfaction and self-efficacy ( $\beta = 0.08$ ). The factor of responsibility to remain in the teaching profession was related to affective occupational commitment ( $p < 0.01$ ), with the strongest relationship between occupational commitment and relationship satisfaction ( $r = 0.57$ ,  $p < 0.01$ ). Overall, their findings indicate that the higher a teachers' self-efficacy, the less satisfied they are with fringe benefits and salary than with positive relationships that reduce pressures to remain in the field (Canrinus et al., 2012).

Numerous studies have researched the importance of efficacy for pre-service teachers. Klassen et al. (2014) report that pre-service teachers with higher self-efficacy have a higher commitment to teaching at the end of their teacher preparation programs. Research has also found a positive association between pre-service teachers and teacher efficacy with commitment to the teaching profession (Chestnut & Cullen, 2014). Chestnut & Cullen found a significant and positive correlation with preservice teacher self-efficacy and commitment to the profession ( $r = 0.35, p < .01$ ). Hoy and Spero (2005) found teachers who reported more optimism and less stress stated they would remain in the teaching profession after their first year of teaching. These studies have evidenced that teachers with higher self-efficacy have a stronger commitment to stay in the teaching profession when teachers with significantly lower efficacy often leave the field (Wasburn-Moses, 2005).

### **Demographics and Teachers' Self-Efficacy**

Research has been conducted to determine if a relationship exists between teachers' self-efficacy ratings, gender, and commitment to the field (Coladarci, 1992; Karimvand, 2011; Sarfo, Amankwah, Sam, & Konin, 2015). The findings show a vast array of conflicted results. In 2015, Sarfo, Amankwah, Sam, and Konin used the Teachers' Sense of Efficacy Scale to find if a relationship exists between gender, self-efficacy, instructional strategies, student engagement, and classroom management. The teachers' ( $n = 437$ ) scored the highest on student engagement ( $\bar{x} = 35.05$ ;  $SD = 5.71$ ), followed by classroom management ( $\bar{x} = 33.82$ ;  $SD = 6.38$ ); they scored lowest in instructional strategies ( $\bar{x} = 30.51$ ;  $SD = 5.71$ ). Overall, relatively high self-efficacy was reported ( $\bar{x} = 33.13$ ;  $SD = 6.11$ ). For gender, the study found no significant differences in teachers' self-efficacy by gender ( $t(433) = -1.459$ ;  $p = .145$ ). According to the study's descriptive scores, female teachers had higher self-efficacy scores than male teachers ( $\bar{x} = 33.48$ ;

SD = 6.16). In the three subscales of the TSES, significant differences between female and male teachers were found in instructional strategies ( $t(433) = -2.374, p = .018$ ). For descriptive statistics, on average, female teachers had better self-efficacy in instructional strategies ( $\bar{x} = 31.32; SD = 5.61$ ) compared to male teachers ( $\bar{x} = 29.70; SD = 5.86$ ). In the subscales of classroom management and student engagement, no difference was found (Sarfo et al., 2015).

Theodore Coladarci (1992) researched teachers' self-efficacy and commitment to the field. He received 170 responses and found the average commitment to teaching by women surpassed the average man's commitment ( $r = .25$ ). On average, women were half a standard deviation higher than men in commitment to teaching (Coladarci). Multiple regressions found gender to significantly predict teaching commitment ( $b = .44, SE(b) = .20, \beta = .17$  and  $t = 2.19$ ), with women having higher commitment than men (Coladarci).

In 2011, Karimvand conducted research with 90 female and 90 male teachers, selected by convenience sampling, to determine if a difference existed between teachers' self-efficacy based on gender and teaching experience. For this study, they created their own questionnaire, the Teacher Efficacy Beliefs Scale-Self (TEBS-Self). The scale includes 31 items and is assessed by a four-point Likert Scale. Overall, the average mean scores on self-efficacy beliefs for male teachers and female teachers were 47.38 ( $sd = 23.12$ ) and 55.27 ( $sd = 22.39$ ) respectively (Karimvand). The teachers were divided into two groups: Group 1, comprised of individuals who had taught up to three years, and Group 2, comprised of individuals who taught at least three and a half years. The mean self-efficacy score for teachers in G1 was 28.93; for G2, it was 71.81. After a regression analysis, the researchers discovered that female teachers had higher self-efficacy (55.27) than male teachers (47.38). The difference is significant except in the areas of positive classroom climate and managing learning routines (Karimvand, 2011). However, they



also found no interaction effect based on teachers' gender. Caution is necessary with the results of this study as the women who participated had taught longer than the men who participated in the study. Research has shown teachers with more experience and longer time in the field have higher self-efficacy ratings (Putman, 2012).

In 2015, Sak investigated the Comparison of Self-Efficacy Between Male and Female Pre-service Early Childhood Teachers. The sample consisted of 451 pre-service teachers of which 220 were male and 231 were female. Although early education teachers are predominantly female, Sak (2015) found a large sample of male early education teachers. This study found a significant difference between the genders' overall sense of self-efficacy, and self-efficacy related to the sub-division of classroom management. However, no significant differences were found for self-efficacy across instructional strategies and student engagement (Sak, 2015). This suggests no difference in teachers' self-efficacy based on gender.

In 2016, Arbabisarjou, Zare, Shahrakipour, & Gholamreza found a significant relationship between gender and self-efficacy ( $p = 0.036$ ) with self-efficacy higher in females. However, the study found no significant relationship between gender and academic achievement ( $p = 0.28$ ) and no significant relationship between self-efficacy and age of students ( $p = 0.388$ ) (Arbabisarjou et al., 2016).

Additional studies have investigated if a relationship exists between self-efficacy and age (Arbabisarjou et al., 2016; Witt-Rose, 2003). Diane Witt-Rose (2003) investigated if a potential relationship existed between gender and self-efficacy, and age and self-efficacy. She found no significant relationship between gender and self-efficacy, with mean self-efficacy scores of 58.9 for women and 60.6 for men. The women's score was slightly lower than the men's score, but it failed to reach statistical significance ( $p = 0.19$ ). An ANOVA (ANOVA  $p = 0.21$ ; t-test  $p = 0.30$ )

showed no significant relationship of self-efficacy to age. The results of Witt-Rose's (2003) research showed individuals' self-efficacy ratings by age: ages 18-24 (58.88; SD 9.31), ages 25-30 (58.00; SD 12.61), ages 31-35 (59.22; SD 11.20), ages 36-40 (63.67; SD 7.54), ages 41-45 (58.80; SD 11.15), ages 46-50 (63.50; SD 5.69), and ages 50+ (61.25; SD 11.03). Overall, students aged 36-40 (category) and 46 years and older had the highest self-efficacy scores. However, this group only represented 10.7% of the sample.

In a more recent study by Zhang, Zhang, Zhang, Liu, Zhang, Wang, and Liu (2015) found higher self-efficacy in male nursing students ( $27.3 \pm 4.9$ ) than that of female nursing students ( $25.1 \pm 4.7$ ), but not a significant difference. In reviewing participants, 50 were male and 516 were female (Zhang et al., 2015).

As an elaboration on Bandura's (1977) definition of efficacy, teacher self-efficacy can also be defined as teachers' beliefs in their ability to organize and execute courses of action necessary to bring about desired results (M. Tschannen-Moran et al., 1998). Tschannen-Moran et al.'s definition elaborates on Bandura's since it measures the self-efficacy of teachers. Unlike Berman et al. (1977), this definition implies a focus on measurement, assessment, and analysis of the individual teacher who does or does not have high self-efficacy. Historically, Bandura studied self-efficacy through the lens of teachers while Berman et al.'s focus was analyzing self-efficacy through the lens of student outcomes and high stakes testing.

With the teacher shortage and high rates of burnout, there is a new gradation of teachers' due to alternate certifications. Because these alternate certifications are new, not much research has been conducted with pre-service teachers taking the alternative route. Just as there are different definitions of teacher efficacy, there are different instruments to measure teachers' self-efficacy. The initial instruments designed to measure teacher self-efficacy were developed to

learn the extent that teachers believed factors under their control had a greater impact on teaching outcomes than factors outside of their control; in other words, the locus of control theory (Tschannen-Moran & Woolfolk Hoy, 2001). Researchers wanted to know more about the locus of control theory, so instruments were created that focused on perceptions of external and internal control in relationship to the teaching outcomes. This new research area was different from the related measures of teacher efficacy research grounded in Bandura's (1977) social cognitive theory (Fives & Buehl, 2009; Tschannen-Moran & Hoy, 2001). Social cognitive theory is used in communication, education, and psychology. This theory suggests an individual's knowledge acquisition is within the context of social interactions, outside media influences, and experiences; these factors are directly related to observing others.

Bandura (1977) claimed behavior was the primary force behind an individual's actions. He identified four sources of self-efficacy beliefs: verbal persuasion, mastery experiences, vicarious experiences, and physiological cues. Many instruments have been developed to measure self-efficacy. Unfortunately, major problems exist with some existing measures, which cause researchers to question the validity and reliability of the instrument (Tschannen-Moran & Woolfolk Hoy, 2001).

### **Measurements of Self-Efficacy**

The next section explores measurements of self-efficacy. RAND researchers, using the work of Rotter (1966) as a theoretical base, studied teacher's self-conceptions of the control of reinforcements, which was either from themselves or from the environment. It came from the simple idea that the perception of one's own capabilities is extremely important (Tschannen-Moran et al., 1998). This developed instrument was scored on the responses of two questions. The score for each item on the assessment is totaled. With this instrument, respondents answered

both questions by responding to a 5-point Likert scale, ranging from “strongly agree” to “strongly disagree.” The first question was classified as a General Teaching Efficacy (GTE) and is internally controlled. The second question is classified as a Personal Teaching Efficacy (PTE), which is a belief that is more individual and specific and makes a statement regarding the efficacy of their individual teaching (Tschannen-Moran et al., 1998). Using the Rand Measure, in 1976 researchers for RAND examined various intervention and reading programs for success. The study found the two instrument questions strongly related to various reading achievement levels among minority students when the teacher’s beliefs in their own capabilities mattered (Tschannen-Moran & Woolfolk Hoy, 2001).

In their second study, RAND researchers found teacher efficacy a strong predictor of federally funded projects being continued after funding ended. Teacher self-efficacy had a strong positive effect on goals achieved (Tschannen-Moran & Woolfolk Hoy, 2001). Administering the same assessment, Glickman and Tamashiro (1982) found teachers who left in their first or fifth year of teaching had significantly lower teacher efficacy. However, researchers were concerned of the reliability with only a two-item scale, so attempts were made to develop more comprehensive and longer instruments (Tschannen-Moran et al., 1998). Due to the lack of reliability of a two-item scale, this instrument was not selected for the current study.

Rose and Medway (1981) created a 28-item measure, Teacher Locus of Control (TLC) instrument. It was developed as a forced-choice questionnaire with situations where half the items were described as student failures (I-) or student successes (I+). The questionnaire was developed from Bandura’s (1977) social cognitive theory and Rotter’s (1966) theory of locus of control. This measurement requested respondents (teachers) assign responsibilities for student failures or successes. The scores on this measurement have been significantly, although weakly,

related to the Rand Measurement items (Tschannen-Moran et al., 1998). Researchers found the TLC measurement as a better indicator than Rotter's internal-external scale when predicting teacher behaviors. This instrument is considered to be more learning specific. Due to the emphasis of student self-efficacy outcomes instead of teacher self-efficacy outcomes, this instrument is insufficient and was not selected for this study.

Guskey (1984) created a 30-item instrument that measures Responsibility for Student Achievement (RSA). This instrument requests participants to distribute 100 percentage points to two given alternatives. The alternatives are responding that an event occurred (a) due to factors outside the teacher's control, or (b) that the teacher caused the event. When used, scores measure the teacher's belief in their amount of assumed responsibility for student outcomes. The 100-point scale was found cumbersome and reduced to 10 points. Research findings found more positive attitudes about teaching when the teachers believed they had responsibility for student outcomes. In addition, high confidence (teaching ability) was related to higher efficacy with teachers who were less confident in their ability to influence and prevent negative outcomes, and more confident when they assumed greater responsibility for positive outcomes (Guskey, 1984).

The Web Efficacy Scale was developed to expand the Rand Measurement and increase its reliability (Ashton & Webb, 1986). This instrument attempted to maintain a narrow construct of conceptualization while extending the measurement of self-efficacy. The Web Scale used a forced-choice format. Researchers found higher scores on the Web Scale evidenced less negative effect. This instrument was widely accepted; however, beyond the original study, no published work has utilized the scale.

In 1984, Gibson and Dembo developed a 30-item scale to measure teacher efficacy (Gibson & Dembo, 1984). This measurement had inconsistencies as both factors of Personal

Teaching Efficacy and General Teaching Efficacy were loaded in several items when they were to be separate in order to measure the two factors. There is a shortened version, consisting of 16 items. However, Soodak and Podell (1993) found an item of GTE on the PTE factor with an additional item not having enough of either factor to be acceptable.

Overall, Gibson and Dembo (1984) found that teachers who scored high on both Personal Teaching Efficacy and General Teaching Efficacy persisted longer, exhibited different types of feedback, were assured in their responses to students, and provided greater focus on academics in the classroom. In addition, teachers who scored low on both Personal Teaching Efficacy and General Teaching Efficacy gave up easily when given their expected results (Tschannen-Moran et al., 1998). Gibson and Dembo also found teachers with high scores on Personal Teaching Efficacy and General Teaching Efficacy (high efficacy) were more likely to persist with a student in a failure predicament, and when given an incorrect response from a student less likely to criticize them. Teacher efficacy, when measured with the Gibson and Dembo instrument, has been related to attitudes towards teaching, their openness to new ideas, and their classroom behaviors. Teacher efficacy also appears to influence attitude, student achievement, and affective growth (Tschannen-Moran et al., 1998). However, Gibson and Dembo's definition of self-efficacy is viewed as a teachers' belief in their own capacity to accomplish a teacher-related task, whereas Bandura (1977) proposed self-efficacy as a persons' belief in their capacity to accomplish a task (Bandura, 1977; Tschannen-Moran et al., 1998). Tschannen-Moran and Hoy (2001) state because of the lack of clarity between GTE and PTE in this measurement, problems remain both conceptually and statistically. This makes the use of the Gibson & Dembo instrument problematic (Tschannen-Moran & Woolfolk Hoy, 2000).

Instruments to measure subject-specific data have been developed. In 1997, Breton and Coladarci created a 30-item scale, modified from Gibson and Dembo (1984), which explored efficacy in special education. The questions were reworded to specifically apply to special education personnel in the Netherlands regarding special education referrals. They found higher efficacy among women and older individuals who were highly satisfied (Tschannen-Moran & Hoy, 2001).

Meijer and Foster (1988) developed an instrument called Dutch Teacher Self-Efficacy Scales. The instrument contained 11 items. Teachers were to respond to questions using a 4-point Likert scale. The researchers found teachers with high efficacy were more likely to feel that students who displayed challenges were placed appropriately in a regular (general education) classroom (Tschannen-Moran & Woolfolk Hoy, 2001).

Raudenbush, Rowden, and Cheong (1993) created a measure of efficacy that was brief. To measure teacher's self-efficacy, individuals responded to a single question. The response was measured using a 4-point Likert scale (Raudenbush, Rowan, & Cheong, 1993). They found that teachers who taught honors and academic-track classes had higher efficacy than non-academic classes. Teachers who instructed in secondary education, when they perceived they had higher control over school policy (including student behavior codes) and the classroom, had significantly higher self-efficacy (Raudenbush, Rowan, & Cheong, 1993; Tschannen-Moran et al., 1998). Pre-service and student teachers' beliefs of efficacy have been linked to attitudes towards control and children (Woolfolk & Hoy, 1990).

The TSES (a.k.a. Ohio State Teacher Efficacy Scale) was created by Megan Tschannen-Moran of the College of William and Mary (VA), and Anita Woolfolk Hoy of The Ohio State University in 2001. The TSES instrument was first created as a 52-item scale. Subsequent

analysis of the tool reduced the number of items to a 32-item scale, which was later refined to 18 items with three sub-scales. The three factors were labeled: Efficacy for Instructional Strategies (7 items), Efficacy for Classroom Management (3 items), and Efficacy for Student Engagement (8 items) (Tschannen-Moran & Hoy, 2001). Further study refined the TSES by adding six items, bringing the total number of items on this subscale to nine (Tschannen-Moran, Woolfolk Hoy, 2001). The final instrument included a total of 36 items, broken down into a short scale and full scale. The short scale contains 12 items and the full scale contains 24 items. The developers recommend using the full form with pre-service teachers (Tschannen-Moran & Woolfolk Hoy, 2001).

The TSES has “become the predominant measure of teacher efficacy throughout the world” (Duffin, French, & Patrick, 2012, p. 827). Multiple research studies have utilized the TSES as a tool for measuring pre-service teachers’ self-efficacy (Duffin et al., 2012). The TSES validity and reliability has been evidenced (Duffin, French, & Patrick, 2012; Klassen et al., 2011; Tschannen-Moran & Woolfolk Hoy, 2001). Tschannen-Moran and Hoy (2001) found evidence of the internal consistency of the TSES as both a three-factor (mean scores on each of the subscales) and a one-factor (total score) measure. Reliabilities for the TSES subscales were 0.91 for instruction, 0.87 for engagement, and 0.90 for management. On the 24-item TSES scale, the Cronbach’s alpha score was 0.94. The TSES measures a larger range of self-efficacy of teaching tasks compared to other measures of teacher efficacy. The TSES also provides specificity of tasks for comparison of teachers across contexts, subjects, and levels (Hoy & Spero, 2005).

Table 4 illustrates a comparison of the self-efficacy instruments discussed above.



Table 4

*Instruments to Measure Teachers' Self-Efficacy*

Measurements of Efficacy	Year	Items	Assessment	Reliability
RAND Measurement	1966	2	5 Point Likert Scale	Low
Responsibility of Student Achievement (RSA)	1984	30	10 Point Percentage	Unknown
Web Efficacy Scale	1986	7	Force Choice Format	Unknown
Gibson Dembo Instrument	1984	30	6 Point Likert Scale	Unknown
Coladarci & Breton	1997	30	Scale	Unknown
Dutch Teacher Self-Efficacy Scales	1992	11	4 Point Likert Scale	Unknown
Teachers' Sense of Efficacy Scale (TSES)	2001	24	9 Point Likert Scale	High

Table 4 was created based on the research and descriptions of the reviewed measurements reviewed above by Ashton et al. (1982), Guskey (1984), Gibson and Dembo (1984), Tschannen-Moran et al. (1998), Tschannen and Woolfolk Hoy (2001), Tschannen, Hoy, & Hoy (1998), and Glickman and Tamashirol (1982). The Rand Measurement instrument measures teacher-efficacy; teachers self-report with in-service teachers (Tschannen-Moran et al., 1998). It is not of appropriate length (Glickman & Tamashiro, 1982) and researchers were concerned about reliability with only a two-item scale (Tschannen-Moran et al., 1998). The Responsibility of Student Achievement (RSA) instrument measures teacher-efficacy and teachers' self-report, has been used with in-service teachers, and could be considered of appropriate length. The Web Efficacy instrument measures teacher efficacy and teacher-self reports, has been used with pre-service teachers, and is considered of appropriate length. The

Gibson and Dembo (1984) instrument measures teacher efficacy and self-reports, has been used to measure in-service teachers, and is of appropriate length. The Coladarci and Breton (1992) instrument measures teacher efficacy and self-reports, has been used to measure in-service teachers, and is considered of appropriate length. The Meijer and Foster measures teacher efficacy and self-reports, has been used to measure in-service teachers, and is considered of appropriate length. The Teachers' Sense of Self-Efficacy scale instrument measures teacher efficacy and self-reports, has been used to measure both in-service and pre-service teachers, has been used to measure both general education and special education teachers, and is considered of appropriate length.

### **Comparisons of Teachers Self-Efficacy**

Teacher efficacy impacts instructional choice, effort, and persistence. Not many studies have been conducted comparing differences in teacher's efficacy based on certification status and varying levels of experience. In 2012, Putman investigated self-efficacy among teachers with varying levels of experience, comparing pre-service teachers (currently enrolled in a teacher preparation program) and in-service teachers (Putman, 2012). His work examined how teacher efficacy beliefs differed between novice, experienced, and pre-service teachers. In addition, based on levels of experience, it explored to what extent practicing and pre-service teachers judge their teaching efficacy for classroom management, student engagement, and instructional strategies.

Putman (2012) measured the differences in the groups utilizing the instrument created by Tschannen-Moran and Woolfolk Hoy (2000), the Teachers' Sense of Efficacy Scale (TSES). This instrument was selected by Putman due to its recognized acceptance in the field and validation with pre-service and in-service teachers. The study administered the TSES, long form.

Putman's (2012) study consisted of 484 participants drawn from a convenience sample of graduate and undergraduate candidates enrolled in teacher preparation programs. All participants were enrolled in a university located in the Midwestern part of the United States. Of this sample, 39 (8%) were male and 445 (92%) were female. The sample was divided into four groups: preservice teachers prior, post and in-service teachers, novice teachers, and experienced teachers. The pre-service group consisted of 240 undergraduate candidates with majors in early childhood education or elementary education that had not enrolled in student teaching. The pre-service post group consisted of 64 undergraduate candidates who had completed student teaching. The experienced and novice group consisted of graduate students in elementary education and Master of Arts programs, and were differentiated by their years of service (teaching). Experienced teachers had taught for three years or more while novice teachers had fewer than three years of teaching experience (Putman, 2012).

Data resulting from Putman's (2012) domain-specific subscales of student engagement, classroom management, and instructional strategies showed that all groups of pre-service teachers and novice teachers were significantly lower in teacher efficacy than the group of teachers with experience. However, the groups did not differ significantly in their beliefs. These findings are consistent with previous research that the longer a teacher remains in the field, the greater the likelihood they will demonstrate positive efficacy and the more experience they have, the higher the efficacy (Bet & Erg, 2015; Putman, 2012; Sak, 2015; Woolfolk & Hoy, 1990). With the lack of consistent results from previous research, Putman suggested there is more to be learned of teacher efficacy.

In 2015, Bet and Erg compared teacher self-efficacy beliefs between pre-service preschool teachers and in-service preschool teachers. The study consisted of 161 pre-service

preschool teachers, enrolled in their second semester of teacher preparation at the university and 177 working preschool teachers. Bet and Erg found statistically significant high self-efficacy beliefs in all sub-factors for preschool teachers except one, family participation. Pre-service preschool teachers scored lower than preschool teachers. The self-efficacy beliefs of preschool teachers are significantly higher than those of in-service preschool teachers (Bet & Erg). Bet and Erg's findings are consistent with other comparative studies, as in-service teachers have higher self-efficacy than pre-service teachers (Bet & Erg, 2015; Hoy, 2000; Putman, 2012; Sak, 2015). These studies comparing in-service and pre-service teachers' self-efficacy are significant. To add to the research, this study will compare two groups of in-service teachers, interns and those holding an emergency credential.

In a comparison study of American teachers' and Scottish teachers' sense of efficacy, there was no difference between the groups (Campbell, 1996), suggesting that both countries foster the self-efficacy needs of teachers within their preparation programs. In his study, Campbell concludes a need for additional direct comparisons of teacher efficacy between in-service and pre-service teachers. He questions if enthusiasm, exuberance, or naiveté of pre-service teachers causes higher efficacy scores than obtained by in-service teachers. Or, if the maturity of in-service teachers produces the same results. He also recommends further research comparing pre-service and in-service teachers' efficacy from different countries (Campbell, 1996).

Bandura's (1977) theory of self-efficacy suggests efficacy is most influenced in the early years of experience. Therefore, the early years of teaching could be critical in the development of long-term efficacy. Not many longitudinal studies have been conducted that track teacher's efficacy throughout their early years of teaching. One exception is Hoy's (2000) research where

she noted changes in teacher efficacy from the beginning of the teacher preparation program through their year of induction. For measurement, Hoy administered multiple quantitative assessments of efficacy. She found significant increases in teacher efficacy during student teaching, with significant declines of teacher efficacy during the first year of teaching. Hoy noted the decline in efficacy during the first year was related to amount of support received. Her research also found teacher efficacy impacts persistence, effort, and instructional choice (Hoy, 2000).

The teaching of self-efficacy is correlated to multiple areas of learning and teaching (Winters, 2012). Winters conducted a study of mixed-methods to investigate pre-service teacher's perceptions of general and personal teaching efficacy prior and following the student teaching experience. The study consisted of 80 pre-service teachers attending teacher preparation programs in North Carolina in the United States. To compare pre-service teacher efficacy before and after training, Winters administered multiple assessment tools. These tools included the Teachers' Sense of Efficacy Scale (TSES) short form, a demographic survey and a 2-item open ended questionnaire. He found a significant relationship between pre- and post-data for personal teaching efficacy, but not for general teaching efficacy. Teacher efficacy improved at a statistically significant level for personal efficacy.

In 2015, Swan researched changes in teacher efficacy from student teaching to the third year of the teaching experience. He also explored changes in efficacy from the three domains of the Teachers' Sense of Efficacy Scale (TSES) which are: instructional strategies, classroom management, and student engagement. The participants attended The Ohio State University teacher preparation program. Swan administered the Teachers' Sense of Efficacy Scale (TSES) to measure comparisons in individual's teaching efficacy. No research exists that tracks teacher

candidates at the end of their first year, second year, and third year of teaching in the field of Agricultural education. He found participants reported the highest levels of efficacy after their student teaching experience, with the lowest levels of efficacy after their first-year teaching experience. This research supports previous research studies with teacher candidates. After the study, 34 individuals completed student teaching. Of the 34 individuals, 17 entered the teaching profession. Swan recommends further studies be conducted in this area (Swan, 2015).

In 2010, Klassen and Chiu researched the effects of self-efficacy and job satisfaction, years of experience, job stress, and teacher gender. They found a nonlinear relationship between teachers' self-efficacy and years of teaching ( $n = 1,430$ ), and also that self-efficacy ratings vary with years of teaching experience. Teachers' self-efficacy was influenced by years of teaching, increased with early experience and in mid-career, and declined in later career stages. Teachers' self-efficacy increased from 0-23 years and after 23 years declined. For stress, female teachers had higher levels of both workload and classroom stress, and teachers with greater classroom stress had lower self-efficacy. The study also reinforced findings that job satisfaction is linked to self-efficacy. Teachers with higher levels of overall stress reported lower job satisfaction.

### **Summary**

Numerous research studies have been conducted with a variety of instruments to measure teachers' sense of efficacy. Researchers have explored relationships between teacher efficacy and years of experience, pre-service and in-service teachers, prior to and after student teaching, and prior to and after induction (Bet & Erg, 2015; Campell, 1996; Hoy, 2000; Putman, 2012; Swan, 2015). Researchers have also explored the relationship between teachers' efficacy and stress levels, willingness to implement innovation, and willingness to stay in the field even with teacher shortages and gender inequities (Coladarci, 1992; Darling-Hammond, Furger, Shields, &

Sutche, 2016; Fall, 2010; Miller et al., 1999). Findings are consistent, indicating that teachers' self-efficacy is higher after student teaching, declines the first year of teaching, and increases with more experience (Bet & Erg, 2015; Campbell, 1996; Hoy, 2000; Swan, 2015; Winters, 2012). The theory of self-efficacy suggests efficacy is most influenced in the early years. This theory makes the early years of teaching critical in the development of long-term efficacy (Bandura, 1997). Teachers with significantly lower efficacy have left the field when their self-efficacy was lower than that of teachers in their first or fifth teaching year (Glickman & Tamashiro, 1982).

Teacher self-efficacy has been associated with many positive characteristics/outcomes and a predictor of commitment to the field of teaching (Carrinus et al., 2012; Chestnut & Cullen, 2014; Coladarci, 1992; Hoy, 2000; Klassen et al., 2011; Meijer & Foster, 1988; Podell & Soodak, 1993; Skaalvik & Skaalvik, 2016; Zee & Koomen, 2016). Teachers with higher self-efficacy have a higher commitment to teaching at the end of their teacher preparation programs (Klassen & Durksen, 2014), and a significant positive correlation has been found with preservice teacher self-efficacy and commitment to the profession.

Research studies disagree about whether there is a relationship between self-efficacy and gender, and self-efficacy and age. A majority of studies found no significant difference, whereas some find women have higher self-efficacy and a few that men have higher self-efficacy. With age, no significant relationship with self-efficacy was found; however, of the studies reviewed, people who were older had higher self-efficacy ratings. High teacher self-efficacy has numerous positive characteristics.

Considering the number of research studies on teacher self-efficacy conducted in general, few studies, if any, have been conducted to measure pre-service special education teachers'

working on alternate credentials in California. A gap exists in the research for California teacher educators to understand the relationship between self-efficacy ratings and special education credential type (Mild/Moderate, Moderate/Severe and Early Childhood Special Education). Therefore, since the current literature is limited, this study will address these gaps and knowledge of those relationships and their demographics.



### Chapter Three: Methods

The following chapter explains the methodology used to examine whether there is a difference in special education teachers' self-efficacy ratings based on certification status, certification type, gender, age, previous experience in special education and number of years teaching special education. This research study utilized the Teachers' Sense of Efficacy Scale (TSES) to provide data in answer to the research questions.

#### Research Questions

RQ 1: Is there a difference in special education teachers' self-efficacy ratings by certification status?

RQ 2: Is there a difference in special education teachers' self-efficacy ratings by certification type?

RQ 3: Is there a difference in special education teachers' self-efficacy ratings by gender?

RQ 4: Is there a difference in special education teachers' self-efficacy ratings by age (categorical)?

RQ 5: Is there a difference in special education teachers' self-efficacy ratings by previous experience in special education?

RQ 6: Is there a difference in special education teachers' self-efficacy ratings by years taught (categorical)?

H<sub>1</sub>: Intern special education teachers will have higher self-efficacy ratings than those teaching on an emergency permit (PIP/STSP).

H<sub>1a</sub>: Credentialed (Preliminary and/or Clear) special education teachers' will have higher self-efficacy ratings than those teaching on an Intern credential or a substandard permit (PIP/STSP).

H<sub>1b</sub>: There will be no difference in self-efficacy ratings based on certification type (Mild/Moderate, Moderate/Severe or Early Childhood Special Education).

H<sub>1c</sub>: Women special education teachers' will have higher self-efficacy ratings than men who teach special education.

H<sub>1d</sub>: There will be no difference in special education teachers' self-efficacy ratings by age.

H<sub>1e</sub>: Special education teachers with previous experience working in special education, as a substitute or para-educator, will have higher self-efficacy ratings than those without previous experiences.

H<sub>1f</sub>: Special Education teachers with more years of experience teaching in special education will have higher self-efficacy ratings than those with fewer years teaching in special education.

### **Design and Methodology**

This study used a quantitative non-experimental correlational survey design. The selected instrument of measurement was the Teachers' Sense of Efficacy Scale (TSES). The TSES (a.k.a. Ohio State Teacher Efficacy Scale) was created in 2001 by Megan Tschannen-Moran of the College of William and Mary (VA), and Anita Woolfolk Hoy of The Ohio State University.

The TSES instrument was first created as a 52-item scale. Subsequent analysis of the tool reduced the number of items to a 32-item scale, and then refined it to 18 items with three sub-scales. The three factors were labeled: Efficacy for Instructional Strategies (7 items), Efficacy for Classroom Management (3 items), and Efficacy for Student Engagement (8 items) (Tschannen-Moran & Hoy, 2001). The short scale contains 12 items and the full scale contains 24 items. The

developers recommend using the full scale with pre-service teachers (Tschannen-Moran & Woolfolk Hoy, 2001) (see Appendix A).

The TSES measurement instructs respondents to rate their own efficacy in each of three areas of teaching: student engagement, instructional practices, and classroom management. Participants answer on a 9-point Likert-type scale, ranging from 1 (nothing) to 9 (a great deal) (Fives & Buehl, 2009). Table 5 illustrates what item number the TSES measures correlating to the three factors of student engagement, instructional strategies, and classroom management.

Table 5

*TSES Item Number*

	Long Scale Item Number	Short Scale Item Number
Efficacy in Student Engagement	1, 2, 4, 6, 9, 12, 14, 22	2, 3, 4, 11
Efficacy in Instructional Strategies	7, 10, 11, 17, 18, 20, 23, 24	5, 9, 10, 12
Efficacy in Classroom Management	3, 5, 8, 13, 15, 16, 19, 21	1, 6, 7, 8

The TSES has “become the predominant measure of teacher efficacy throughout the world” (Duffin, French, & Patrick, 2012, p. 827). Multiple research studies have utilized the TSES as a tool for measuring pre-service teachers’ self-efficacy (Duffin et al., 2012). The TSES tool’s validity and reliability has been evidenced (Duffin et al., 2012; Klassen et al., 2011; Tschannen-Moran & Hoy, 2001). Tschannen-Moran and Hoy found evidence of the internal consistency of the TSES as both a three-factor (mean scores on each of the subscales) and a one-factor (total score) measure. Reliabilities for the TSES subscales were 0.91 for instruction, 0.87 for engagement, and 0.90 for management. On the 24-item TSES scale, the Cronbach’s alpha

score was 0.94. The TSES measures a larger range of self-efficacy of teaching tasks compared to other measures of teacher efficacy (Tschannen-Moran & Hoy, 2001). The TSES also provides specificity of tasks for comparison of teachers across contexts, subjects, and levels (Hoy & Spero, 2005). Table 6 illustrates the reliabilities of the Teachers' Sense of Efficacy Scale.

Table 6

*Teachers' Sense of Efficacy Scale Reliability & Validity Table*

	Long Scale			Short Scale		
	Mean	Standard Deviation	Alpha	Mean	Standard Deviation	Alpha
OSTES	7.1	.94	.94	7.1	.98	.90
Engagement	7.3	1.1	.87	7.2	1.2	.81
Instruction	7.3	1.1	.91	7.3	1.2	.86
Management	6.7	1.1	.90	6.7	1.2	.86

**Sampling Plan**

Convenience sampling was used for this quantitative research study. This sampling method was chosen by the researcher due to existing relationships and partnerships within the chosen local educational agencies. The setting was the Central Valley of California, involving participants employed as special education teachers on a PIP/STSP, Intern, Preliminary or Clear Credential. Participants were employed in one of two large school districts, Central Valley A or Central Valley B. The study had 99 participants. The specialty type of permits and/or credentials were Mild to Moderate, Moderate to Severe, and/or Early Childhood Special Education. Participants in the categories of PIP/STSP and Intern had taught four years or less. This is confirmed as the PIP is valid for one year, the STSP is valid for one year, and the Intern

Credential is valid for two years. Each alternate credential may be used once. After four years on a substandard permit, the individual must have completed the Preliminary Education Specialist Credential to continue teaching. Data were also collected for individuals who hold a Preliminary or Clear Education Specialist credential, in order to compare pre-service and in-service special education teachers' self-efficacy ratings.

The Central Valley A school district and the Central Valley B school district granted permission to conduct the research in their districts (see Appendices B and C). These two districts were selected as they cover a large area of the Central Valley. The survey (TSES) was emailed to all special education teachers employed in the two participating school districts. To identify and separate demographic information, two pages were added to the end of the TSES. These two pages contain 10 multiple choice questions. These 10 questions asked: credential status, certification type, gender, age, prior experience, prior certification(s) and years taught. The survey also requested participants to indicate if they were ever employed as a para-educator, substitute teacher, or previously employed on any of the substandard permits during their educational career (see Appendix D).

The survey was administered electronically, through SurveyMonkey. This program also captured and collected the data. The electronic administration of the TSES was in alignment with current research that supports the reliability and validity of the TSES (Duffin et al., 2012; Klassen et al., 2011; Tschannen-Moran & Hoy, 2001). Results were compared to those of previous research studies. Permission was granted (October 2017) to use the TSES from the creators, Tschannen-Moran & Hoy (see Appendices E and F). Data were analyzed using the Statistical Packages for Social Sciences (SPSS). The analysis included procedures for descriptive and inferential statistics.

**Timeline**

Table 7 illustrates the timeline for completion of the dissertation.

Table 7

*Timeline to Complete Dissertation*

Date	Task Completed
August 2017	Requested permission to use the TSES (see Appendices E and F)
November 2017	Defended Proposal at George Fox University with dissertation committee.
November 2017	Successful defense of proposal and granted to move forward, submitted Institutional Review Board (IRB) form to George Fox University (see Appendix G).
December 2017	-Created link through SurveyMonkey Received IRB Approval 12/19/18. -Added an additional page for Credential status, previous Credential(s) held, Credential type, previous work experience in field (i.e. sub or para-educator) gender, age, and years taught.
January 2017	Emailed TSES survey to participants. One week after opening of TSES, emailed a reminder to participants.
January 2017	Two weeks after opening of TSES, emailed a reminder to participants.
January 2017	The TSES window closed at midnight
February 2017	Began data analysis. Transferred data from SurveyMonkey to Excel
February 2017	Transferred data from Excel to the Statistical Package for the Social Sciences (SPSS) for analysis
February 2018	Analyzed data
February 2018	Completed draft of Chapter 4 of Dissertation
March 2018	Completed draft of Chapter 5 of Dissertation
March 2018	Sent final draft of Dissertation for editing
April 2018	Successfully defended Dissertation at George Fox University
April 2018	Attended Graduation at George Fox University

## Data Analysis

Data were used to determine if a mean difference existed in the dependent variable (self-efficacy) between the different categories/groups. Data were analyzed with an independent t-test and One-way ANOVAs. The original plan of conducting standard multiple regressions was altered. The independent t-test provided evidence to show if a difference existed between the two independent groups and if any identified difference between the two independent groups was statistically significant. The study design met the criteria for the independent t-test with the necessity of assumption of normality. An alpha set of .0125 determined the significance of each independent t-test.

The analysis tested for homogeneity of variances, which states “that the population variances for each group of your independent variable is the same” (Leard Statistics, 2015, p.7).

Additional independent t-tests were conducted comparing the additional demographic information, gender, age, credential area, previous experience, previous employment and years taught. Differences in the three factors of the TSES: student engagement, instructional strategies, and classroom management were also run from the dependent variable of self-efficacy.

A boxplot was created to detect outliers (even though the assumption of normality was made). With an outlier, the researcher checked for errors in data entry, measurement errors, and/or unusual data points. One individual responded with extremely high ratings throughout the survey and constituted an outlier. This constituted a threat to the integrity of the data analysis as it was an outlier on all scale scores; its inclusion would unnecessarily skew the data. Therefore, it was excluded. Currently there is no field standard for keeping or removing outliers.

The researcher originally planned to run standard multiple regression as the method for data analysis to predict a continuous dependent variable (self-efficacy) against multiple

independent variables (credential status, credential type, age, gender, previous experience in special education, and years taught). It also extended to simple linear regression since the study has one continuous variable (self-efficacy). Leard Statistics (2015) states the multiple regression will also “allow you to determine the overall fit (variance explained) of the model and the relative contribution of each of the predictors to the total variance explained” (p.1). It also allowed for a relationship between a single dependent variable between multiple independent variables, with the independent variables predicting the dependent variable (Leard Statistics, 2015). In this study, the standard multiple regression helped understand whether special education teachers' self-efficacy can be predicted based on credential status, credential type, age, gender, previous experience in special education, and years taught. The standard multiple regression was used to determine how much of the variance in special education teachers' self-efficacy ratings can be explained by credential status, credential type, age, gender, previous experience in special education, and years taught.

As a first step, assumption checking was completed to evidence its appropriateness to see if the data meets any of the eight assumptions (additional two below). The six assumptions (related to the nature of the data) were: (a) there was a linear relationship; (b) there was homoscedasticity of residuals (equal error variances); (c) there was independence of errors (residuals); (d) the errors (residuals) were approximately normally distributed; (e) there was one significant outliers, high leverage points, or highly influential points; and (f) there was no multicollinearity (Leard Statistics, 2015).

The six assumptions above have unique roles, as described below:

(a) Assumption of a linear relationship -- determines if a linear relationship exists between the independent and dependent variables. This can be accomplished by creating



a scatterplot of the predicted values against the studentized residuals. There also needs to be an established relationship between each of the independent variables and the dependent variable. This can be established by using partial regression plots between each dependent and independent variable.

(b) Assumption of homoscedasticity (equal error variances) – shows that variances along the line of best fit remain similar along the line. Residuals are equal, of all values, from the predicted variable. This is evidenced by a scatterplot, plotting the unstandardized predicted values against the studentized residuals (Leard Statistics, 2015).

(c) Assumption of independence of errors (independence of residuals) - is designed to test for 1<sup>st</sup> order autocorrelation. This means errors (adjacent observations) are not independent (correlated) (Leard Statistics, 2015).

(d) Assumption that the errors (residuals) should be approximately normally distributed. This is required for inferential statistics to be determined and is evidenced by creating the studentized residuals in a Normal Q-Q Plot or creating a histogram. The histogram evidences a superimposed normal curve.

(e) Assumption that no significant outliers, highly influential points or high leverage points, reflect the different impact of unusual points on the regression line. This can change the calculations and output of the statistical significance, as well as accuracy of the results (Leard Statistics, 2015).

(f) Assumption of multicollinearity (not showing) - occurs when independent variables (two or more) are highly correlated to each other. This leads to a misunderstanding or to uncertainty in figuring out which independent variable contributes to the dependent

variable (by variance). It can also cause technical issues in calculations (Leard Statistics, 2015).

Basic requirements of a standard multiple regression include a total of eight assumptions. The additional two assumptions (assumptions g and h) relate to study design and measurements.

(g) The study had two or more independent variables, variables were nominal or ordinal (certification status, certification type, gender, age, previous experience in special education, and years taught).

(h) The study had one dependent variable that was continuous, interval, or ratio (special education teachers' self-efficacy ratings) (Leard Statistics, 2015).

The assumptions of a standard multiple regression: (a) determine the variation in the dependent variable, which is explained by the independent variable; (b) provide information on the accuracy of the predictions; and (c) test how well the regression model fits the data (Leard Statistics, 2015).

To test for a lack of or a particular type of independence between variables (independence of observations) or first-order autocorrelation (errors are not independent, or errors are correlated), a Durbin-Watson test was run. The Durbin-Watson tests detects possible autocorrelation, a common problem when running a standard multiple aggression (Leard Statistics, 2015).

To test for linearity, or establish if a linear relationship exists between the independent and dependent variables, a scatterplot was created using the predicted values against the studentized residuals. To test if a linear relationship exists between each independent variable and the dependent variable, a partial regression plot was created. There was no nonlinear

relationship. To test for homoscedasticity, a scatterplot was created to check for linearity. There was no case of heteroscedastic residuals. To check for normality, a histogram could be created.

After confirmation that the data did not meet the assumptions for running a standard multiple regression, One-way ANOVAs were conducted. Data with tables created by the SPSS Statistics system from the One-way ANOVAs were displayed. All results were reported in Chapter 4. Table 8 illustrates the variables, measurement tools and statistical tests per research question for this study.

Table 8

*Variables, Measurement Tools and Statistical Tests*

Research Question	Dependent Variable	Operationalization	Independent Variable(s)	Operationalization	Statistical Test
RQ 1	Perceived differences in special education teachers' self-efficacy ratings	24 single questions with 9 ordinal options on a Likert Scale. Scale will be treated as approximate interval data	Certification status (PIP/STSP, Intern, Preliminary or Clear)	Single - question with 4 ordinal options.	ANOVA
RQ 2	Perceived differences between special education teachers' self-efficacy ratings	24 single questions with 9 ordinal options on a Likert Scale. Scale will be treated as approximate interval data	Certification type (M/M, M/S, or ECSE)	Single question with 3 ordinal options	ANOVA
RQ 3	Perceived differences between special education teachers' self-efficacy ratings	24 single questions with 9 ordinal options on a Likert Scale. Scale will be treated as approximate interval data	Gender Male/Female	Single question with 2 ordinal responses	Independent t-test
RQ 4	Perceived differences between special education teachers' self-efficacy ratings	24 single questions with 9 ordinal options on a Likert Scale. Scale will be treated as approximate interval data	Age 20-29 30-39 40-49 50-59 60+	Single question with 5 ordinal category options	ANOVA
RQ 5	Perceived differences between special education teachers' self-efficacy ratings	24 single questions with 9 ordinal options on a Likert Scale. Scale will be treated as approximate interval data	Previous Experience in Sped Substitute Para-Educator	Single question with 2 ordinal category options	Independent t-test
RQ 6	Perceived differences between special education teachers' self-efficacy ratings	24 single questions with 9 ordinal options on a Likert Scale. Scale will be treated as approximate interval data	Years Taught in Sped <1 Year 1 Year 2 Years 3 Years 4 Years 5-9 Years 10-14 Years 15-19 years 20+ Years	Single question with 9 ordinal category options	ANOVA

**Ethics**

Institutional Review Board was requested for approval from George Fox University. Participation was voluntary, and participants could discontinue the survey at any time. All responses were anonymous (see Appendix G and H).

I worked at the Central Valley A school district for 14 years as a special education teacher, an Adapted Physical Education specialist, consulting teacher, secretary and chair of the Peer Assistance and Review Board. In addition, I was selected as the teacher of the year (2011) and coordinated an after-school fitness grant. Over these 14 years, some of my co-workers became good friends. We speak often; some serve on our University Special Education Advisory Board. Due to anonymity and confidentiality for study participants, there is no way to determine if any friends employed in the Central Valley A school district participated in this research study.

In my current position (2014-present) as Assistant Professor and Program Director for the Moderate/Severe, Early Childhood Special Education and Adapted Physical Education Added Authorization, I work closely with administrators and teachers who are employed by this district. This is one of many districts that provides placements for our student teachers. A few candidates are currently employed in this district. Teachers and administrators employed in this district also serve as mentors and adjunct instructors. The Central Valley A school district covers a large area; its programs and classrooms stretch into 38 districts across the Central Valley. This district has opened additional programs and classrooms, which they hired many new special education teachers since my departure in 2014. I am not familiar with many of the new teachers. No identifying information was asked on the survey and the district did not have access to the results. Participants were asked to answer honestly, whether they have high or low self-efficacy

ratings, with confidence, as the school district will not have access to the results nor will information outside of the published dissertation be shared.

For the Central Valley B school district, my current co-worker served on the Board of Education for 13 years. She provided the district contact. An additional co-worker knows the superintendent and surveyed their special education teachers last year for their dissertation on teacher dispositions. I have never worked in this district and am not familiar with the administration and teachers. The University I am employed at has a Regional Campus in this area. I oversee all candidates in the Moderate/Severe, Adapted Physical Education Added Authorization and Early Childhood Special Education programs, with a Director of Special Education at the Regional Campus.

All respondents have anonymity and confidentiality. For the Central Valley A school district, the Director of Special Education emailed the survey to their special education teachers. I did not have access to email addresses, names or any identifying information. Data results and individual survey responses will not be shared. The published dissertation is available to view.

For the Central Valley B school district, I emailed the survey to all special education teachers. Central Valley B granted permission to conduct research in their district. They did not email special education teachers nor share the special education teachers' email addresses. Instead, I had the opportunity to locate this information from each individual school site in the district, online.

## **Chapter Four: Results**

This chapter provides a thorough analysis of the statistical tests conducted as part of this research study. Research was conducted on the differences in teacher self-efficacy between pre-service and in-service special education teachers in California on alternate permits (PIP/STSP, or Intern Credential), valid Preliminary, and Clear credentials. Differences in self-efficacy scores were also assessed based on the type of certification Mild/Moderate (M/M), Moderate/Severe (M/S), and Early Childhood Special Education (ECSE), and demographics (gender, age, previous experience in special education, and number of years teaching special education) teachers indicated. This chapter begins by highlighting basic demographic information as well as basic descriptive statistics for each variable. These are followed by inferential results for each research question in the study. Independent t-tests and One-way ANOVAs were conducted to determine if differences existed.

### **Demographics**

The Teachers' Sense of Efficacy Scale (TSES) survey (Tschannen-Moran & Hoy, 2001) along with a request for additional demographic information was emailed on January 9, 2018 to a total of 211 special education teachers employed in two different school districts in the Central Valley. The survey was emailed to 103 special education teachers in Central Valley A, and 108 special education teachers in Central Valley B. Survey reminders were emailed at the end of week one (1/16/18 and 1/17/18) and again at the end of week two (1/23/18). The survey closed on January 25, 2018 at midnight. Of the 211 emailed surveys, the study received 107 responses, a 51% response rate. Of the 107 responses, six responses were incomplete; these six respondents stopped at number 10 of the TSES. Another respondent did not complete the demographics portion, a crucial piece of the data. All seven incomplete responses were removed from the data

set. Of the 100 responses, one individual responded with extremely high ratings throughout the survey and constituted an outlier. This constituted a threat to the integrity of the data analysis as it was an outlier on all scale scores; its inclusion would unnecessarily skew the data. Therefore, it was also excluded. Of the 99 responses, three respondents scored low, but due to the variance in responses, these three were kept for analytical purposes. Overall, the study analyzed data from 99 respondents.

Of the 99 respondents, a majority of participants were employed under a Clear Credential (59.6%), followed by a Preliminary Credential (17.2%), to an Intern Credential (12.1%), with the smallest respondents employed under a PIP/STSP permit (11.1%). For the variable of credential type, the same number of participants were employed under M/S (n = 44) and M/M (n = 44). A small number of participants were employed under ECSE (n = 11). For the variable of gender, 10 responded as male and 89 as female. No participants responded to the gender category of "other." Within the sample, 28.3% were in the age category between 30-39, closely followed by the age category of 40-49 (25.3%). Results showed 21.2% responded they were in the age category of 20-29, and 19.2% in the age category of 50-59. The smallest age category of respondents was 60+ years of age (6.1%). For the variable of previous experience as a substitute in special education, 39.4% of respondents answered "yes," they had worked as a substitute in special education with 67% of respondents answered "no", they had never worked as a substitute in special education. For the variable of previous experience in special education as a para-educator, 33.3% of respondents answered "yes", they had worked as a para-educator with 66.7% of respondents answered "no", they had never worked as a para-educator in special education. The largest group of respondents had taught special education for 15-19 years (19.2%), followed by 20+ years (16.2%). Two groups--those who had taught 3 years and 5-9 years--each had a



response rate of 14.1%. The smallest group of respondents had taught special education for 2 years (5.1%).

A summary of demographic statistics is illustrated in Table 9.

Table 9

*Overall Demographics Table (N=99)*

Demographics	Frequency	Percent	Cumulative Percent
<b>Credential Status</b>			
PIP/STSP	11	11.1	11.1
Intern Credential	12	12.1	12.1
Preliminary Credential	17	17.2	40.4
Clear Credential	59	59.6	100.0
<b>Credential Type</b>			
Moderate/Severe	44	44.4	44.4
Mild/Moderate	44	44.4	88.9
Early Childhood Special Education	11	11.1	100.0
<b>Gender</b>			
Male	10	10.1	10.1
Female	89	89.9	100.0
<b>Age Categories</b>			
20-29	21	21.2	21.2
30-39	28	28.3	49.5
40-49	25	25.3	74.7
50-59	19	19.2	93.9
60+	6	6.1	100.0
<b>Previous Experience (SPED)</b>			
<b>Substitute</b>			
No	60	60.6	60.6
Yes	39	39.4	100.0
<b>Para-Educator</b>			
No	66	66.7	66.7
Yes	33	33.3	100.0
<b>Years Taught (SPED) Categories</b>			
<1 Year	7	7.1	7.1
1 Year	8	8.1	15.2
2 Years	5	5.1	15.2
3 Years	14	14.1	34.3
4 Years	6	6.1	40.4
5-9 Years	14	14.1	54.5
10-14 Years	10	10.1	64.6
15-19 Years	19	19.2	83.8
20+ Years	16	16.2	
<b>Total</b>	<b>99</b>	<b>100.0</b>	<b>100.0</b>

## Research Questions

To answer the six research questions, the researcher collected responses to the Teacher Sense of Efficacy Scale (TSES). The following sections discuss data analyses as they pertain to each question.

### Research Question 1

RQ 1: Is there a difference in special education teachers' self-efficacy ratings by certification status?

A One-way ANOVA was conducted to test the differences in special education teachers' self-efficacy ratings by credential status (PIP/STSP, Intern, Preliminary, and Clear) to determine if a statistical difference existed. Results from the One-way ANOVA are evidenced in Table 10. In the area of teachers' self-efficacy ratings by credential status, there was homogeneity of variances. The homogeneity of variances, also known as the equality of variances, is an important assumption of the One-way ANOVA. The assumption is that the groups' variances is assessed by Levene's test for equality of variances. The Levene's test for research question one: Student Engagement (Levene = 1.77,  $p = 0.157$ ), Instructional Strategies (Levene = 1.04,  $p = 0.375$ ), and Classroom Management (Levene = 1.30,  $p = 0.276$ ). The homogeneity of variances indicates the groups in research question one's variances are equal to the population.

Table 10

#### *Test of Homogeneity of Variances for TSES scales x Certification Status*

TSES Factors	Levene Statistic	df1	df2	Sig.
Student Engagement	1.77	3	95	0.157
Instructional Strategies	1.04	3	95	0.375
Classroom Management	1.30	3	95	0.276

Results for the One-way ANOVA varied between groups. Specifically, for the Student Engagement Scale (TSES), ratings for special-education teachers' self-efficacy ratings by Credential types varied significantly between groups,  $F(3,95) = 6.93, p < 0.001$ , as did ratings from the Instructional Strategies Scale,  $F(3,95) = 9.204, p < 0.000$  and Classroom Management Scale,  $F(3,95) = 4.403, p < 0.006$ . Table 11 illustrates the One-way ANOVA results for special education teachers' self-efficacy ratings by Credential types.

The One-way ANOVA found no differences between special education teachers' self-efficacy ratings by certification type for the groups of PIP/STSP ( $44.81 \pm 9.99$ ) and Interns ( $48.88 \pm 7.93$ ), as well as no differences between the groups of Interns ( $48.88 \pm 7.93$ ) and Preliminary Credential holders ( $56.64 \pm 5.62$ ). Differences were found for special education teachers' self-efficacy ratings by certification status for the Student Engagement Scale between the PIP/STSP group ( $44.81 \pm 9.99$ ) and the Preliminary Credential group ( $56.64 \pm 5.62$ ). Differences also emerged between the groups of PIP/STSP ( $44.81 \pm 9.99$ ) and Clear Credential holders ( $54.89 \pm 9.17$ ).

For the scale of Instructional Strategies (TSES), differences between special education teachers' self-efficacy ratings by certification status occurred amongst groups. Differences were found between the groups of PIP/STSP ( $47.45 \pm 11.12$ ) and Preliminary Credential holders ( $57.58 \pm 5.95$ ), as well as differences between the groups of PIP/STSP ( $47.45 \pm 11.12$ ) and Clear Credential holders ( $59.72 \pm 8.96$ ). Additional differences occurred between the groups of Clear Credential holders ( $59.72 \pm 8.96$ ) and Interns ( $49.91 \pm 7.19$ ). No differences were discovered in special education teachers' self-efficacy ratings by certification status for the TSES scale of Classroom Management ( $56.76 \pm 9.71$ ). It is important to note that if a higher alpha of 0.5 had

been used instead of a conservative alpha of 0.125, (used for this study), the null hypothesis could have been rejected.

Table 11

*ANOVA Results for TSES scales x Credential Status*

	Sum of Squares	df	Mean Square	F	Sig.
<b>Student Engagement</b>					
Between Groups	1428.50	3	476.16	6.39	0.0001
Within Groups	7075.57	95	74.48		
Total	8504.08	98			
<b>Instructional Strategies</b>					
Between Groups	2045.93	3	681.97	9.20	0.000
Within Groups	6039.42	95	74.09		
Total	9085.35	98			
<b>Classroom Management</b>					
Between Groups	1128.69	3	376.23	4.40	0.0006
Within Groups	8116.96	95	85.44		
Total	9425.65	98			

The Tukey's results for special education teachers' self-efficacy ratings and Credential status for the Classroom Management Scale is illustrated in Table 12. This table indicates that no statistically significant results were found in answer to question 1.

Table 12

*Tukey Results for TSES Classroom Management Scale x Credential Status*

	Comparison	Mean Diff.	Std. Error	Sig.	95% Confidence	
					Lower	Upper
Classroom Management						
PIP/STSP	Intern	-1.07	3.85	0.992	-11.16	9.01
PIP/STSP	Preliminary	-8.26	3.57	0.103	-17.61	1.09
PIP/STSP	Clear	-8.60	3.57	0.103	-17.61	1.09
Intern	Preliminary	-7.18	3.48	0.173	-16.30	1.92
Intern	Clear	-7.52	2.92	0.056	-15.18	0.120
Preliminary	Clear	0.34	2.54	0.999	-6.31	6.99

The Post-Hoc results from the Games-Howell in Table 13 explains where the significant differences for special education teachers' self-efficacy ratings by credential status were found. The One-way ANOVA test shows if there is an overall difference between groups but does not show which specific groups differed. Post hoc tests, such as the Games-Howell and Tukey tests are run when ANOVA results showed an overall statistically significant difference in group means. The post hoc test confirms where the differences occurred between groups (Leard Statistics, 2015). The Games-Howell test results are used to compare all possible combinations of group differences once the homogeneity of variances is violated. The Games-Howell test provides confidence intervals for any differences between the means of the groups, and if there are differences, whether they are statistically significant (Leard Statistics, 2015). Significant differences occur when  $p > .05$ . This information is found in the Significance column (Sig.). Significant differences were found between the PIP/STSP group and Preliminary Credential group ( $p = 0.014$ ); between the PIP/STSP group and Clear Credential group ( $p = 0.036$ ); and between the Intern Credential group and Preliminary Credential group ( $p = 0.027$ ).

Table 13

*Games-Howell for TSES scales x Credential Status*

	Comparison	Mean Diff.	Std. Error	Sig.	95% Confidence Lower Upper	
<b>Student Engagement</b>						
PIP/STSP	Intern	-3.51	3.78	0.790	-14.15	7.12
PIP/STSP	Preliminary	-11.82	3.30	0.014	-21.43	-2.22
PIP/STSP	Clear	-10.08	3.24	0.036	-19.56	-0.59
Intern	Preliminary	-8.31	2.66	0.027	-15.82	-0.80
Intern	Clear	-6.56	2.58	0.088	-13.88	0.75
Preliminary	Clear	1.74	1.81	0.770	-3.09	6.59
<b>Instructional Strategies</b>						
PIP/STSP	Intern	-2.46	3.94	0.0923	-13.68	8.76
PIP/STSP	Preliminary	-10.13	3.65	0.064	-20.77	0.50
PIP/STSP	Clear	-12.27	3.55	0.020	-22.77	-1.79
Intern	Preliminary	-7.67	2.52	0.030	-14.72	-0.61
Intern	Clear	-9.81	2.38	0.003	-16.51	-3.10
Preliminary	Clear	-2.14	1.85	0.660	-7.12	2.84

Overall, evidenced from the TSES, special education teachers' self-efficacy ratings by certification status, findings showed the highest mean on the Instructional Strategies Scale (n=99,  $56.80 \pm 9.62$ ), with a slightly smaller mean exhibited on the Classroom Management Scale (n=99,  $56.76 \pm 9.71$ ), with the lowest mean exhibited in the Student Engagement Scale (n=99,  $53.28 \pm 9.31$ ). Descriptive analysis for special education teachers' self-efficacy ratings by certification status are illustrated in Table 14, with data presented as mean  $\pm$  the standard deviation.

On the Student Engagement Scale, special education teachers' self-efficacy ratings by certification status exhibited the highest mean within the group of Preliminary Credential holders ( $n=17, 56.6 \pm 5.62$ ); a smaller mean was exhibited by the group of Clear Credential holders ( $n=59, 54.89 \pm 9.17$ ). Continued decrease in mean scores occurred for Intern Credential holders ( $n=12, 48.33 \pm 7.93$ ); with the lowest mean exhibited by the PIP/STSP permit holders ( $n=11, 44.81 \pm 9.99$ ). In the TSES scale of Instructional Strategies, special education teachers' self-efficacy ratings by certification status showed the highest mean among the Clear Credential holders ( $n=59, 59.72 \pm 8.96$ ); a smaller mean was exhibited by the group of Preliminary Credential holders ( $n=17, 57.58 \pm 5.95$ ). Decreases also followed for Intern Credential holders ( $n=12, 48.33 \pm 7.93$ ); with the lowest mean exhibited by the PIP/STSP permit holders ( $n=11, 44.81 \pm 9.99$ ). For the TSES scale of Classroom Management, special education teachers' self-efficacy ratings by certification status exhibited the highest mean within the group of Clear Credential holders ( $n=59, 58.69 \pm 9.28$ ); a smaller mean was exhibited by the group of Preliminary Credential holders ( $n=17, 58.35 \pm 6.20$ ). Decreases also followed for Intern Credential holders ( $n=12, 51.16 \pm 9.41$ ); with the lowest mean exhibited by the PIP/STSP permit holders ( $n=11, 50.09 \pm 12.34$ ).



Table 14

*Descriptive Statistics for TSES scales x PIP/STSP, Intern, Preliminary or Clear*

	N	Mean	Std. Deviation	Std. Error	95% Confidence	
					Lower	Upper
<b>Student Engagement</b>						
PIP/STSP	11	44.81	9.99	3.01	38.10	51.53
Intern	12	48.33	7.93	2.29	43.29	53.37
Preliminary	17	56.64	5.62	1.36	53.75	59.53
Clear	59	54.89	9.17	1.19	52.50	57.28
Total	99	53.28	9.31	0.93	51.42	55.14
<b>Instructional Strategies</b>						
PIP/STSP	11	47.45	11.12	3.35	39.97	54.93
Intern	12	49.91	7.19	2.07	45.34	54.48
Preliminary	17	57.58	5.95	1.44	54.52	60.65
Clear	59	59.72	8.96	1.16	57.39	62.06
Total	99	56.80	9.62	0.96	54.88	58.72
<b>Classroom Management</b>						
PIP/STSP	11	50.09	12.34	3.72	41.80	58.38
Intern	12	51.16	9.41	2.71	45.18	57.15
Preliminary	17	58.35	6.20	1.50	55.16	61.54
Clear	59	58.69	9.28	1.20	56.27	61.11
Total	99	56.76	9.71	0.97	54.83	58.70

**Research Question 2**

RQ 2: Is there a difference in special education teachers' self-efficacy ratings by certification type?

A One-way ANOVA was conducted to test the differences in special education teachers' self-efficacy ratings by credential type (M/S, M/M, and ECSE) to determine if a statistical difference existed. Results from the One-way ANOVA for special education teachers' self-

efficacy ratings by credential type are evidenced in Table 15. In the area of teachers' self-efficacy ratings by credential type, there was a homogeneity of variances. The Levene's results for research question two: Student Engagement Scale (Levene = 2.56,  $p = 0.082$ ), Instructional Strategies Scale (Levene = 2.53,  $p = 0.084$ ), and Classroom Management Scale (Levene = 2.53,  $p = 0.097$ ). The homogeneity of variances indicates the groups in research question two's variances are equal to the population

Table 15

*Test of Homogeneity of Variances for TSES scales x Credential Type*

TSES Factors	Levene Statistic	df1	df2	Sig.
Student Engagement	2.56	2	96	0.037
Instructional Strategies	2.53	2	96	0.084
Classroom Management	2.38	2	96	0.097

A One-way ANOVA found no significant differences between groups of special education teachers' self-efficacy ratings by credential type. For the three scales of the TSES, results found: Student Engagement,  $F(2, 96) = 3.407$ ,  $p > .0005$  ( $p = 0.157$ ); Instructional Strategies,  $F(2, 96) = 1.992$ ,  $p > .0005$  ( $p = 0.142$ ); and Classroom Management  $F(2, 96) = 1.741$ ,  $p > .005$  ( $p = 0.181$ ). The Tukey revealed a difference between special education teachers' self-efficacy ratings by credential type between groups of M/M and ECSE ( $p = 0.035$ ), yet the difference was not significant. Therefore, the null hypothesis is accepted. The null hypothesis states that there are no differences in the population means between the groups. Or, the group population means are equal (Leard Statistics, 2015). The ANOVA results for TSES scales by Credential Types (M/M, M/S, and ECSE) is illustrated in Table 16.

Table 16

*ANOVA Results for TSES scales x Credential Types (M/M, M/S, & ECSE)*

	Sum of Squares	df	Mean Square	F	Sig.
<b>Student Engagement</b>					
Between Groups	563.64	2	281.82	3.40	0.037
Within Groups	7940.43	96	82.71		
Total	8504.08	98			
<b>Instructional Strategies</b>					
Between Groups	361.99	2	180.95	1.99	0.142
Within Groups	8723.36	96	90.86		
Total	9085.35	98			
<b>Classroom Management</b>					
Between Groups	323.58	2	161.79	1.74	0.181
Within Groups	8922.06	96	92.93		
Total	9245.65	98			

Descriptive analysis for special education teachers' self-efficacy ratings by certification type are demonstrated in Table 17, with data presented as mean  $\pm$  the standard deviation.

Overall, for special education teachers' self-efficacy ratings by credential type, findings showed the highest mean in the TSES scale of Instructional Strategies ( $n = 99, 56.80 \pm 9.62$ ); a smaller mean was exhibited in the Classroom Management Scale ( $n = 99, 56.76 \pm 9.71$ ); with the lowest mean exhibited in the Student Engagement Scale ( $n = 99, 53.28 \pm 9.31$ ). For the TSES scale of Student Engagement, special education teachers' self-efficacy ratings by certification type showed the highest mean among the group of ECSE ( $n = 11, 58.90 \pm 8.58$ ); a smaller mean exhibited by the M/S group ( $n = 44, 53.97 \pm 10.71$ ); with the lowest mean exhibited by the M/M group ( $n = 44, 51.18 \pm 7.26$ ). For the TSES scale of Instructional Strategies, special education teachers' self-efficacy ratings by credential type showed the highest mean among the group of

ECSE ( $n = 11, 62.00 \pm 7.37$ ); a smaller mean exhibited by the M/S group ( $n = 44, 56.72 \pm 11.49$ ); with the smallest mean exhibited by the by M/M group ( $n = 44, 55.59 \pm 7.61$ ). For the TSES scale of Classroom Management, special education teachers' self-efficacy ratings by credential type showed the highest mean among the group of ECSE ( $n = 11, 60.81 \pm 10.29$ ); a smaller mean exhibited by the M/S group ( $n = 44, 57.43 \pm 11.19$ ); with the lowest mean exhibited by the M/M group ( $n = 44, 55.09 \pm 7.58$ ).

Table 17

*Descriptive Statistics for TSES scales x Credential Type (M/M, M/S, & ECSE)*

	N	Mean	Std. Deviation	Std. Error	95% Confidence Lower	Upper
<b>Student Engagement</b>						
M/S	44	53.9	10.71	1.61	50.72	57.23
M/M	44	51.18	7.26	1.09	48.97	53.39
ECSE	11	58.90	8.58	2.58	53.14	64.67
Total	99	53.28	9.31	0.93	51.42	55.14
<b>Instructional Strategies</b>						
M/S	44	56.72	11.49	1.73	53.23	60.22
M/M	44	55.59	7.61	1.14	53.27	57.90
ECSE	11	62.00	7.37	2.22	57.04	66.95
Total	99	56.80	9.62	0.96	54.88	58.72
<b>Classroom Management</b>						
M/S	44	57.43	11.19	1.68	54.02	60.83
M/M	44	55.09	7.58	1.14	52.78	57.39
ECSE	11	60.81	10.29	3.10	53.90	67.73
Total	99	56.76	9.71	0.97	54.83	58.70

### Research Question 3

RQ 3: Is there a difference in special education teachers' self-efficacy ratings by gender?

An independent t-test was run to determine if a significant difference or relationship existed between special education teachers' self-efficacy ratings and gender. There were no outliers in the data, as assessed by inspection of a boxplot (see Appendix J). Gender scores were normally distributed, as assessed by Shapiro-Wilk's test ( $p > .05$ ). Data are mean  $\pm$  standard deviation. T-test results indicate a significant difference was not present between mean scores of special education teachers' self-efficacy ratings by gender in all three scales of the TSES. Means  $\pm$  Standard Deviation are as follows: TSES scale of Student Engagement, male ( $51.20 \pm 12.73$ ), females ( $53.51 \pm 8.91$ ); Instructional Strategies Scale, male ( $55.60 \pm 13.39$ ), female ( $56.94 \pm 9.20$ ); and lastly the scale of Classroom Management, male ( $56.50 \pm 14.49$ ), female ( $56.79 \pm 9.14$ ). The Levene's test was violated for special education teachers' self-efficacy ratings by gender and for the TSES scale of Student Engagement. Results showed no statistically significant differences were found ( $t(97) = -0.74$ ,  $p = 0.45$ ). Results also showed no statistically significant differences for special education teachers' self-efficacy ratings by gender: Instructional Strategies Scale,  $t(97) = -0.41$ ,  $p = 0.67$ ; Classroom Management Scale  $t(98) = -0.06$ ,  $p = 0.95$ . Since no significant differences were found, the null hypothesis is accepted. The independent t-test, Levene's Test for Equality of Variances, for special education teachers' self-efficacy ratings by gender are demonstrated in Table 18.

Table 18

*Independent t-test: Levene's Test for Equality of Variances for TSES scales x Gender*

	F	Sig.	T	df	Sig. 2-Tail	Mean Diff.	Std. Error	95% Confidence Lower	Upper
Student Engagement	1.20	0.27	-0.74	97	0.45	-2.31	3.11	-8.49	3.86
Instructional Strategies	0.12	0.27	-0.74	97	0.67	-1.34	3.22	-7.74	5.05
Classroom Management			-0.06	98	0.95	-0.29	4.68	-10.76	10.16

Positive and negative numbers in results are an indication of which variable, male or female, was subtracted first.

#### **Research Question 4**

RQ 4: Is there a difference in special education teachers' self-efficacy ratings by age (categorical)?

Multiple One-way ANOVAs were conducted to test the differences in special education teachers' self-efficacy ratings by age (categorical, 20-29, 30-39, 40-49, 50-59, and 60+) to determine if a statistical difference existed. Results from the One-way ANOVA are evidenced in Table 19. For Research Question 4, special education teachers' self-efficacy ratings by age (categorical), there was homogeneity of variances, as assessed by Levene's test for equality of variances for the TSES scales of Instructional Strategies (Levene = 1.05,  $p = 0.383$ ), and Classroom Management (Levene = 1.62,  $p = 0.174$ ). The assumptions of homogeneity of variances were violated for the TSES scale of student engagement as evidenced by Levene's test for equality of variances (Levene = 2.70,  $p = 0.35$ ).

Table 19

*Test of Homogeneity of Variances for TSES scales x Age (Categorical)*

TSES Factors	Levene Statistic	df1	df2	Sig.
Student Engagement	2.70	4	94	0.35
Instructional Strategies	1.05	4	94	0.383
Classroom Management	1.62	4	94	0.174

One-way ANOVA results revealed differences among groups of special education teachers' self-efficacy ratings by age. Results for the Student Engagement scale were read from the Welch test and Games-Howell test due to the homogeneity for this factor to be violated. In this study, significant differences occurred for special education teachers' self-efficacy ratings in the age categories of 20-29 and 50-59. Results from the Post-Hoc Games-Howell test are illustrated in Table 20.

Table 20

*Games-Howell Results for TSES scales x Age (Categorical)*

	Age	Mean Difference	Std. Error	Sig.	95% Confidence Lower Upper	
<b>Student Engagement</b>						
20-29	30-39	-6.20	2.27	0.068	-12.70	0.30
20-29	40-49	-7.86	3.03	0.089	-16.47	0.75
20-29	50-59	-8.01	2.66	0.03	-15.64	-0.38
20-29	60+	-6.38	3.09	0.29	-16.34	3.58
<b>Instructional Strategies</b>						
20-29	30-39	-7.92	2.54	0.026	-15.18	-0.67
20-29	40-49	-9.38	2.99	0.024	-17.89	-0.88
20-29	50-59	-9.63	2.63	0.007	-17.18	-2.09
20-29	60+	-12.76	2.78	0.002	-21.24	-4.27
<b>Classroom Management</b>						
20-29	30-39	-7.44	2.51	0.041	-14.67	0.20
30-39	40-49	-9.10	3.16	0.047	-18.11	-0.09
40-49	50-59	-8.85	2.74	0.020	-16.70	-0.099
50-59	60+	-9.40	4.02	0.216	-22.86	4.05

Differences on the Instructional Strategies Scale were found between special education teachers' self-efficacy ratings by age (categorical) for 20-29 ( $49.57 \pm 9.21$ ), 30-39 (57.5) and 40-49 ( $58.96 \pm 11.06$ ). Differences were also found between the age categories of 20-29 ( $49.57 \pm 9.21$ ) and 50-59 ( $59.21 \pm 7.42$ ). Technically speaking, differences occurred between the groups



with the conservative alpha of .125. If using a conventional alpha, not the conservative alpha, technically speaking, differences in the Student Engagement Scale for special education teachers' self-efficacy ratings by age (categorical) would have also occurred between the age groups of 20-29 ( $47.61 \pm 8.51$ ) and 60+ ( $54 \pm 6.06$ ). Overall findings:  $F(4,94) = 4.728$ ,  $p > .005$  ( $p = 0.002$ ).

The Tukey results for special education teachers' self-efficacy ratings by age (categorical) for the TSES scale of Classroom Management showed differences at both alpha levels of .125 and 0.5. Differences for classroom management found at the .125 conservative alpha were between the age categories of 20-29 ( $50.09 \pm 9.69$ ) and 40-49 ( $58.96 \pm 11.06$ ). Table 21 illustrates the Post-Hoc results of the Tukey for special education teachers' self-efficacy ratings by age (categorical).

Table 21

*Post-Hoc Results: Tukey for TSES scales x Age (Categorical)*

	Age	Mean Difference	Std. Error	Sig.	95% Confidence Lower	Upper
<b>Student Engagement</b>						
20-29	30-39	-6.20	2.59	0.127	-13.41	1.01
20-29	40-49	-7.86	2.66	0.032	-15.26	-0.46
20-29	50-59	-8.01	2.84	0.046	-15.92	-0.09
20-29	60+	-6.38	4.16	0.54	-17.95	5.19
<b>Instructional Strategies</b>						
20-29	30-39	-7.92	2.58	0.023	-15.13	-0.72
20-29	40-49	-9.38	2.65	0.006	-16.77	-2.00
20-29	50-59	-9.36	2.84	0.009	-17.53	-1.73
20-29	60+	-12.76	4.15	0.023	-24.31	-1.21
<b>Classroom Management</b>						
20-29	30-39	-7.44	2.66	0.049	-14.85	-0.02
20-29	40-49	-9.10	2.73	0.011	-16.98	-0.72
20-29	50-59	-8.85	2.92	0.026	-16.98	-0.72
20-29	60+	-9.40	4.27	0.18	-21.29	2.48

Differences for special education teachers' self-efficacy ratings by age (categorical) with the 0.5 conventional alpha were found between the age categories of 20-29 ( $50.09 \pm 9.69$ ) and 50-59 ( $58.94 \pm 7.59$ ). Additional differences were also found between the age categories of 20-29 ( $50.09 \pm 9.69$ ) and 30-39 ( $57.53 \pm 7.21$ ). Overall, for the scale of Classroom Management,

$F(4,94) = 3.62, p < .005$  ( $p = 0.009$ ). The differences for special education teachers' self-efficacy ratings by age (categorical) were significant as  $p > .05$ . Therefore, the null hypothesis was rejected. ANOVA results for special education teachers' self-efficacy ratings by age (categorical) are illustrated in Table 22.

Table 22

*ANOVA Results for TSES x Age (Categorical)*

	Sum of Squares	df	Mean Square	F	Sig.
<b>Student Engagement</b>					
Between Groups	910.36	4	227.59	2.81	0.029
Within Groups	7593.72	94	80.78		
Total	8504.08	98			
<b>Instructional Strategies</b>					
Between Groups	1521.75	4	380.44	4.72	0.002
Within Groups	7563.59	94	80.46		
Total	9085.35	98			
<b>Classroom Management</b>					
Between Groups	1234.43	4	308.60	3.62	0.009
Within Groups	8011.22	94	85.22		
Total	9245.65	98			

Descriptive analysis for special education teachers' self-efficacy ratings by age (categorical) are demonstrated in Table 23, with data presented as mean  $\pm$  the standard deviation. Overall, for special education teachers' self-efficacy ratings based on age (categorical), findings showed the highest mean in the TSES scale of Instructional Strategies ( $n = 99, 56.80 \pm 9.62$ ); a smaller mean was exhibited in the Classroom Management Scale ( $n = 99, 56.76 \pm 9.71$ ); with the lowest mean exhibited in the Student Engagement Scale ( $n = 99, 53.28 \pm 9.31$ ).

For the TSES scale of Student Engagement, special education teachers' self-efficacy ratings by age (categorical) showed the highest mean among the age category of 50-59 ( $n=19$ ,  $55.63 \pm 8.32$ ); a smaller mean was exhibited by the age category of 40-49 ( $n = 25$ ,  $55.48 \pm 11.94$ ). Mean decreases also followed for the age category of 60+ ( $n = 6$ ,  $54.00 \pm 6.06$ ). Following those three categories, a smaller mean was exhibited for the age category of 30-39 ( $n = 25$ ,  $51.48 \pm 11.94$ ); with the lowest mean exhibited by the age category of 20-29 ( $n = 21$ ,  $47.61 \pm 8.51$ ).

For the TSES scale of Instructional Strategies, special education teachers' self-efficacy ratings by age (categorical) showed the highest mean among the age category of 60+ ( $n = 6$ ,  $62.33 \pm 4.71$ ); a smaller mean was exhibited by the age category of 50-59 ( $n = 19$ ,  $59.21 \pm 7.42$ ). Mean decreases also followed for the age category of 40-49 ( $n = 25$ ,  $58.96 \pm 11.06$ ). Closely following those three categories, a smaller mean was exhibited for the age category of 30-39 ( $n = 28$ ,  $57.50 \pm 8.22$ ); with the lowest mean exhibited by the age category of 20-29 ( $n = 21$ ,  $49.57 \pm 9.21$ ).

For the TSES scale of Classroom Management, special education teachers' self-efficacy ratings by age (categorical) showed the highest mean among the age category of 60+ ( $n = 6$ ,  $59.50 \pm 8.38$ ); a smaller mean was exhibited by the age category of 40-49 ( $n = 25$ ,  $59.20 \pm 11.78$ ). Decreases in mean also followed for the age category of 50-59 ( $n = 19$ ,  $58.94 \pm 7.59$ ). Following those three groups, a smaller mean was exhibited for the age category of 30-39 ( $n = 28$ ,  $57.53 \pm 7.21$ ); with the lowest mean exhibited by the age category of 20-29 ( $n = 21$ ,  $50.09 \pm 9.69$ ).

Table 23

*Descriptive Statistics for TSES scales x Age (Categorical)*

	N	Mean	Std. Deviation	Std. Error	95% Confidence	
					Lower	Upper
<b>Student Engagement</b>						
20-29	21	47.61	8.51	1.85	43.74	51.49
30-39	28	53.821	6.91	1.30	51.14	56.50
40-49	25	55.48	11.94	2.38	50.55	60.40
50-59	19	55.63	8.32	1.91	51.61	59.64
60+	6	54	6.06	2.47	47.63	60.36
Total	99	53.28	9.31	0.93	51.42	55.14
<b>Instructional Strategies</b>						
20-29	21	49.57	9.21	2.01	45.37	53.76
30-39	28	57.5	8.22	1.55	54.31	60.68
40-49	25	58.96	11.06	2.21	54.39	63.52
50-59	19	59.21	7.42	1.70	55.63	62.78
60+	6	62.33	4.71	1.92	57.38	67.28
Total	99	56.80	9.62	0.96	54.88	58.72
<b>Classroom Management</b>						
20-29	21	50.09	9.69	2.11	45.68	54.50
30-39	28	57.53	7.21	1.36	54.73	60.33
40-49	25	59.2	11.78	2.35	54.33	64.06
50-59	19	58.94	7.59	1.74	55.28	62.60
60+	6	59.5	8.38	3.42	50.70	68.29
Total	99	56.76	9.71	0.97	54.83	58.70

**Research Question 5**

RQ 5: Is there a difference in special education teachers' self-efficacy ratings by previous experience in special education?

A two-sample t-test was run to determine if a significant difference or relationship exists between special education teachers' self-efficacy ratings and previous experience in special education (either as a substitute or para-educator). There were no outliers in the data as assessed by inspection of a boxplot (see Appendix K) and scores were normally distributed, as assessed by Shapiro-Wilk's test ( $p > .05$ ). Data are mean  $\pm$  standard deviation. For special education teachers' self-efficacy ratings by previous experience as a substitute in special education, the Levene's test was violated for the TSES scale of Student Engagement. For the TSES scale of Student Engagement ( $t(70.297) = 0.083$ ,  $p = 0.380$ ), no statistically significant differences were found for special education teachers' self-efficacy ratings by previous experience as a substitute in special education.

For the TSES scale of Instructional Strategies and Classroom Management, the Levene's test was not violated for special education teachers' self-efficacy ratings by gender. Results showed no statistically significant differences for special education teachers' self-efficacy ratings by previous experience as a substitute in the TSES scales of Instructional Strategies,  $t(97) = 1.873$ ,  $p = 0.866$ , or Classroom Management  $t(97) = 0.425$ ,  $p = 0.684$ .

There was not a statistical difference between means of special education teachers' self-efficacy ratings by previous experience in special education as a substitute ( $p < .05$ ); therefore, the null hypothesis was accepted. Results for the independent t-test, Levene's Test for Equality of Variances for special education teachers' self-efficacy ratings by previous experience in special education as a substitute are demonstrated in Table 24.

Table 24

*Independent t-test: Levene's Test for Equality of Variances for TSES scales x Substitute*

	F	Sig.	T	df	Sig. 2-Tail	Mean Diff.	Std. Error	95% Confidence Lower	Upper
Student Engagement	6.62	.012	.39	.97	.69	0.76	1.92	-3.05	4.58
Instructional Strategies	.32	.570	-.28	97	.77	-0.57	1.98	4.51	3.37
Classroom Management	.77	.380	.18	97	.85	0.37	2.00	-3.60	4.36

A two-sample t-test was run to determine if a significant difference or relationship exists between special education teachers' self-efficacy ratings and previous experience in special education as a para-educator. There were no outliers in the data, as assessed by inspection of a boxplot (see Appendix L), and scores were normally distributed, as assessed by Shapiro-Wilk's test ( $p > .05$ ). Data are mean  $\pm$  standard deviation. For special education teachers' self-efficacy ratings by previous experience as a para-educator in special education, no scales of the TSES were violated. No statistically significant differences were found for special education teachers' self-efficacy ratings by previous experience as a para-educator in special education in any of the three scales of the TSES: Student Engagement,  $t(97) = 0.85$ ,  $p = 0.396$ ; Instructional Strategies,  $t(97) = 0.16$ ,  $p = 0.866$ ; or Classroom Management  $t(97) = -0.40$ ,  $p = 0.684$ .

There was no statistical difference between means of special education teachers' self-efficacy ratings by previous experience in special education as a para-educator ( $p < .05$ ); therefore, the null hypothesis was accepted. Results for the independent t-test, Levene's Test for Equality of Variances for special education teachers' self-efficacy ratings by previous experience in special education as a paraeducator are demonstrated in Table 25.

Table 25

*Independent t-test: Levene's Test for Equality of Variances for TSES scales x Para-educator*

	F	Sig.	T	df	Sig. 2-Tail	Mean Diff.	Std. Error	95% Confidence Lower Upper	
Student Engagement	.082	.775	.85	97	.39	1.69	1.98	-2.25	5.64
Instructional Strategies	1.87	.174	.16	97	.86	0.34	2.06	-3.74	4.44
Classroom Management	.42	.516	-.40	97	.68	-0.84	2.07	-4.97	4.44

### Research Question 6

RQ 6: Is there a difference in special education teachers' self-efficacy ratings by years taught (categorical)?

A One-way ANOVA was conducted to test the differences in special education teachers' self-efficacy ratings by years taught in special education (categorical, <1 Year, 1 Year, 2 Years, 3 Years, 4 Years, 5-9 Years, 10-14 Years, 15-19 Years, and 20+ Years) to determine if a statistical difference existed. Results from the One-way ANOVA are evidenced in Table 26.

There was homogeneity of variances, as assessed by Levene's test for equality of variances. The Levene's test for research question six: Student Engagement (Levene = 1.00,  $p = 0.435$ ), Instructional Strategies (Levene = 1.51,  $p = 0.163$ ), and Classroom Management (Levene = 1.19,  $p = 0.313$ ). This variable, special education teachers' self-efficacy ratings by previous years taught in special education (categorical), resulted in many categories with small numbers in each of them. Therefore, the means were not violated.



Table 26

*Test of Homogeneity of Variances for TSES scales x Years Taught (Categorical)*

TSES Factors	Levene Statistic	df1	df2	Sig.
Student Engagement	1.00	8	90	0.435
Instructional Strategies	1.52	8	90	0.163
Classroom Management	1.19	8	90	0.313

A One-way ANOVA found significant differences for the scale of Student Engagement between special education teachers' self-efficacy ratings by years taught in the groups of 1 year ( $48.14 \pm 9.99$ ) and 15-19 years ( $58.63 \pm 7.15$ ), at the 0.5 level. Statistically significant differences were also found for the group of 5-9 years ( $49.00 \pm 5.54$ ) and 15-19 years ( $58.63 \pm 7.15$ ) (.05 level). And lastly, statistically significant differences were found between the groups of 2 years taught ( $45.00 \pm 11.93$ ) and 15-19 years ( $58.63 \pm 7.15$ ), at the 0.5 level. Results of significant differences from the multiple comparisons for special education teachers' self-efficacy ratings by years taught from the Games-Howell test are illustrated in Table 27.

Table 27

*Games-Howell for TSES Student Engagement Scale x Years Taught*

Student Engagement	Comparison	Mean Diff.	Std. Error	Sig.	95% Confidence Interval	
					Lower	Upper
1 year	15-19 years	-13.50	2.90	0.008	-24.07	-2.94
5-9 years	15-19 years	-9.63	2.93	0.037	-18.94	-0.31
2 years	15-19 years	-13.63	4.18	0.040	-26.92	-0.33

Significant differences were found for special education teachers' self-efficacy ratings for years taught; at the 0.5 level, the Instructional Strategies Scale revealed between the groups of <1 year ( $49.71 \pm 9.51$ ) and 15-19 years ( $62.31 \pm 6.65$ ). Additional significant differences were found between the groups of <1 year ( $49.71 \pm 9.51$ ) and 20+ years ( $62.12 \pm 6.54$ ); between one year ( $45.50 \pm 4.50$ ) and 4 years ( $59.66 \pm 5.46$ ); and between the groups of 2 years ( $47.00 \pm 12.76$ ) and 15-19 years ( $62.31 \pm 5.65$ ). In addition, differences in ratings were found between the groups of 2 years ( $47.00 \pm 12.76$ ) and 20+ years ( $62.12 \pm 6.54$ ). Statistically significant differences at the .125 level for the TSES scale of Instructional Strategies for special education teachers' self-efficacy ratings by years taught were found between the groups of 1 year ( $45.50 \pm 4.50$ ) and 15-19 years ( $62.31 \pm 5.65$ ), and between the groups of 1 year and 20+ years). The Games-Howell test results that show significant differences from the multiple comparisons of special education teachers' self-efficacy ratings by years taught for the Instructional Strategies Scale are illustrated in Table 28.

Table 28

*Games-Howell for TSES Instructional Strategies Scale x Years Taught*

Instructional Strategies	Comparison	Mean Diff.	Std. Error	Sig.	95% Confidence	
					Lower	Upper
< 1 year	15-19 years	-12.60	3.64	0.023	-24.20	-1.00
<1 year	20+ years	-12.41	3.74	0.034	-24.30	-0.52
1 year	4 years	-14.16	4.45	0.050	-28.53	0.00
2 years	15-19 years	-15.31	4.14	0.011	-28.50	-2.12
2 years	20+ years	-15.12	4.22	0.016	-28.56	-1.68
1 year	15-19 years	-16.81	3.47	0.000	-27.87	-5.75
1 year	20+ years	-16.62	3.57	0.000	-27.98	-5.26

Statistically significant differences in the scale of Classroom Management for special education teachers' self-efficacy ratings by years taught were found between the groups of 1 year ( $45.50 \pm 4.50$ ) and 15-19 years ( $62.31 \pm 5.65$ ). The Games-Howell test results that show significant differences from the multiple comparisons of special education teachers' self-efficacy ratings by years taught for the Classroom Management Scale are illustrated in Table 29.

Table 29

*Games-Howell for TSES Classroom Management Scale x Years Taught*

Instructional Strategies	Comparison	Mean Diff.	Std. Error	Sig.	95% Confidence Lower	Upper
1 year	<1 year	-5.28	5.01	0.970	-24.32	13.75
1 year	2 years	2.00	7.54	1.00	-33.25	37.32
1 year	3 years	-6.28	3.29	0.621	-18.53	5.96
1 year	5-9 years	-6.50	3.54	0.335	-19.26	6.26
1 year	10-14 years	-10.00	5.33	0.639	-29.24	9.24
1 year	15-19 years	-12.63	3.24	0.039	-24.77	-0.48
1 year	20+ years	-10.00	3.51	0.182	-22.66	2.65

For the three scales of the TSES, results indicated Student Engagement,  $F(8,90) = 4.10$ ,  $p = 0.00$ , Instructional Strategies,  $F(8,90) = 5.41$ ,  $p = 0.00$ , and Classroom Management  $F(8, 90) = 2.49$ ,  $p = 0.017$ . Statistically significant results were found amongst all three scales of the TSES; the group means were statistically significantly different ( $p < .05$ ) and, therefore, the null hypothesis was rejected. ANOVA results for special education teachers' self-efficacy ratings by years taught are illustrated in Table 30.

Table 30

*ANOVA Results for TSES scales x Years Taught in Special Education (Categorical)*

	Sum of Squares	df	Mean Square	F	Sig.
<b>Student Engagement</b>					
Between Groups	2272.54	8	284.06	4.10	0.000
Within Groups	6231.53	90	69.23		
Total	8504.08	98			
<b>Instructional Strategies</b>					
Between Groups	2953.06	8	369.13	5.41	0.000
Within Groups	6132.28	90	68.13		
Total	9085.35	98			
<b>Classroom Management</b>					
Between Groups	1670.95	8	209.99	2.49	0.017
Within Groups	7565.70	90	84.06		
Total	9245.65	98			

Descriptive analysis for special education teachers' self-efficacy ratings by years taught in special education (categorical) are demonstrated in Table 31, with data presented as mean  $\pm$  the standard deviation. Overall, for special education teachers' self-efficacy ratings by years taught in special education (categorical), findings showed the highest mean in the in the TSES scale of Instructional Strategies ( $n = 99, 56.80 \pm 9.62$ ); a smaller mean was exhibited in the Classroom Management Scale ( $n = 99, 56.76 \pm 56.76$ ); with the lowest mean exhibited in the Student Engagement Scale ( $n = 99, 53.28 \pm 9.31$ ).

For the TSES scale of Student Engagement, special education teachers' self-efficacy ratings by years taught in special education (categorical) showed the highest mean among the years taught category of 4 years ( $n = 6, 59.16 \pm 5.67$ ); a smaller mean was exhibited by the years taught category of 15-19 years ( $n = 19, 58.63 \pm 7.15$ ). Mean decreases also followed for the years taught category of 20+ years ( $n = 16, 56.81 \pm 8.15$ ). Closely following those three groups, a smaller mean was exhibited for the years taught category of 3 years ( $n = 14, 53.85 \pm 6.89$ ); with a smaller mean exhibited by the years taught category of 10-14 years ( $n = 10, 53.40 \pm 13.50$ ); followed by a lower mean for the years taught category of < 1 year ( $n = 7, 48.14 \pm 9.99$ ); the second smallest mean found in the years taught category of 1 year ( $n = 8, 45.12 \pm 6.79$ ); with the lowest mean exhibited by the years taught category of 2 years ( $n = 5, 45.00 \pm 11.93$ ).

For the TSES scale of Instructional Strategies, special education teachers' self-efficacy ratings by years taught in special education (categorical), showed the highest mean among the years taught category of 15-19 years ( $n = 19, 62.31 \pm 5.64$ ); a smaller mean was exhibited by the years taught category of 20+ years ( $n = 16, 62.12 \pm 6.54$ ). Mean decreases also followed for the years taught category of 4 years ( $n = 6, 59.66 \pm 5.46$ ). Following these three groups, a smaller mean was exhibited for the years taught category of 5-9 years: ( $n = 14, 56.78 \pm 7.19$ ); with a smaller mean exhibited by the years taught category of 3 years ( $n = 14, 55.64 \pm 8.44$ ); followed by a lower mean for the years taught category of <1 year ( $n = 7, 49.71 \pm 9.51$ ); the second smallest mean found in the years taught category of 2 years ( $n = 5, 47.00 \pm 12.76$ ); with the lowest mean exhibited by the years taught category of 1 year ( $n = 8, 45.50 \pm 4.50$ ).

For the TSES scale of Classroom Management, special education teachers' self-efficacy ratings by years taught in special education (categorical), showed the highest mean among the years taught category of 15-19 years ( $n = 19, 61.63 \pm 6.96$ ); a smaller mean was exhibited by the

years taught category of 4 years ( $n = 6, 59.50 \pm 7.76$ ). Mean decreases also followed for the years taught category of 20+ years ( $n = 16, 59.00 \pm 8.36$ ) and 10-14 years ( $n = 10, 59.00 \pm 14.31$ ), these two groups had the same mean. Following these four groups, a smaller mean was exhibited for the years taught category of 5-9 years ( $n = 14, 55.50 \pm 7.99$ ); with a smaller mean exhibited by the years taught category of 3 years ( $n = 14, 55.28 \pm 6.30$ ); followed by a lower mean for the years taught category of <1 year ( $n = 7, 54.28 \pm 10.96$ ); the second smallest mean found in the years taught category of 1 year ( $n = 8, 49.00 \pm 8.00$ ); with the lowest mean exhibited by the years taught category of 2 years ( $n = 5, 47.00 \pm 15.65$ ).

Table 31

*Descriptive Statistics for TSES scales x Years Taught (Categorical)*

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval	
					Lower	Upper
<b>Student Engagement</b>						
<1 Year	7	48.14	9.99	3.77	38.90	57.38
1 year	8	45.12	6.79	2.40	39.44	50.80
2 Years	5	45.00	11.93	5.33	30.17	59.82
3 Years	14	53.85	6.89	1.84	49.87	57.83
4 Years	6	59.16	5.67	2.31	53.21	65.11
5-9 Years	14	49.00	5.54	1.48	45.79	52.20
10-14 Years	10	53.40	13.50	4.27	43.73	63.06
15-19 Years	19	58.63	7.15	1.64	55.18	62.08
20+ Years	16	56.81	8.15	2.03	52.46	61.15
Total	99	53.28	9.31	0.93	51.42	55.14
<b>Instructional Strategies</b>						
<1 Year	7	49.71	9.51	3.59	40.91	58.51
1 year	8	45.50	4.50	1.59	41.73	49.26
2 Years	5	47.00	12.76	5.70	31.14	62.85
3 Years	14	55.64	8.44	2.25	50.76	60.51
4 Years	6	59.66	5.46	2.23	53.93	65.40
5-9 Years	14	56.78	7.19	1.92	52.63	60.93
10-14 Years	10	56.70	14.25	4.50	46.49	66.90
15-19 Years	19	62.31	5.65	1.29	59.59	65.03
20+ Years	16	62.12	6.54	1.63	58.63	65.61
Total	99	56.80	9.62	0.96	54.88	58.72
<b>Classroom Management</b>						
<1 Year	7	54.28	10.96	4.14	44.14	64.42
1 year	8	49.00	8.00	2.82	42.31	55.68
2 Years	5	47.00	15.65	7.00	27.56	66.43
3 Years	14	55.28	6.30	1.68	51.64	58.92
4 Years	6	59.50	7.76	3.17	51.35	67.64
5-9 Years	14	55.50	7.99	2.31	50.88	60.11
10-14 Years	10	59.00	14.31	4.52	48.76	69.23
15-19 Years	19	61.63	6.96	1.59	58.27	64.98
20+ Years	16	59.00	8.36	2.09	54.54	63.45
Total	99	56.76	9.71	0.97	54.83	58.70

**Summary**

This chapter provided a thorough analysis of the statistical tests conducted as part of this study. Research was conducted on the differences in teacher self-efficacy between pre-service and in-service teachers in California on alternate permits (PIP/STSP, or Intern Credential), valid Preliminary, and Clear Credentials. Differences were also assessed for the type of certification Mild/Moderate (M/M), Moderate/Severe (M/S), and Early Childhood Special Education (ECSE), and demographics (gender, age, previous experience in special education, and years taught). The chapter highlighted basic demographic information as well as basic descriptive statistics for each variable and the inferential results for each research question in the study.

Analytics of the associations between the defined independent and dependent variables revealed interesting findings. Significant differences were found in special education teachers' self-efficacy by credential classifications including teachers with Preliminary and Clear credentials and those with substandard permits (PIP/STSP). Significant differences were found in special education teachers' self-efficacy ratings and age between the age categories of 20-29 years and 50-59 years. Significant differences were also found in special education teachers' self-efficacy ratings and years taught in several categories assessed.

No statistically significant differences were found between special education teachers' self-efficacy ratings and credential type, gender, and previous experience in special education. This indicates that special education teachers that have persisted in the field longer, are valuable assets and more efficacious.



## **Chapter 5: Conclusion**

This study used independent t-tests and ANOVAs to answer the research questions. Specifically, research was conducted on the differences in teacher self-efficacy between pre-service and in-service special education teachers in California on alternate permits (PIP/STSP, or Intern Credential), valid Preliminary, and Clear credentials. Differences were also assessed for the type of certification Mild/Moderate (M/M), Moderate/Severe (M/S), and Early Childhood Special Education (ECSE), and demographics (gender, age, previous experience in special education, and number of years teaching special education). This chapter begins with a summary of the findings for each research question, explains the study's limitations, and makes suggestions for future research.

### **Discussion of Findings**

Overall results of this study found significant differences in special education teachers' self-efficacy by credential classifications including teachers with Preliminary and Clear credentials and those with substandard permits (PIP/STSP). Significant differences were found in special education teachers' self-efficacy ratings and age between the age categories of 20-29 years and 50-59 years. Significant differences were also found in special education teachers' self-efficacy ratings and years taught in several categories assessed.

No statistically significant differences were found between special education teachers' self-efficacy ratings and credential type, gender, and previous experience in special education.

### **Research Question 1**

RQ 1: Is there a difference in special education teachers' self-efficacy ratings by certification status?

In this study, a One-way ANOVA found significant differences between special education teachers' self-efficacy ratings by certification status between the PIP/STSP group and Preliminary Credential group, as well as the PIP/STSP group and the Clear Credential group. These differences suggest that PIP/STSP teachers had lower self-efficacy ratings than those with Preliminary Credentials. Clear Credential teachers scored even higher, in comparison to PIP/STSP. These differences were evident across all three TSES scales, and are to be expected, given the level of experience represented by the various credentials. Individuals employed under substandard permits have taught between 1-3 years, whereas individuals working under a valid credential (Preliminary or Clear) have taught 4 years or more and completed a teacher education credential program. In alignment with results of the current study, in 2015, within California, 48% of new special education teachers lacked full preparation for teaching (Sutcher et al., 2016) thus impacting their perception of self-efficacy. A PIP allows an employment agency to hire an individual for an immediate staffing need when the individual has not met subject matter competence requirements required to enter an Intern program (California Commission on Teacher Credentialing, 2015). A STSP allows an employing agency to hire for an acute staffing need, which occurs when an employing agency must immediately fill a position for an unforeseen need and a diligent search was made without a credentialed teacher found (California Commission on Teacher Credentialing, 2015). Bet and Erg (2015) and other comparative studies noted in-service teachers have higher self-efficacy than pre-service teachers (Bet & Erg, 2015; Sak, 2015). Results of this study, as supported by previous research, indicated differences in special education self-efficacy ratings by certification status.

**Research Question 2**

RQ2: Is there a difference in special education teachers' self-efficacy ratings by certification type?

In this study, a One-way ANOVA found no significant differences in special education teachers' self-efficacy ratings by credential type. The three credential types, M/M, M/S, and ECSE require similar preparation and duties. The difference in credential type is dependent on age taught and classification of disabling condition. Although each credential type maintains slight differences in age range of student served, the general duties of special education teachers are similar across credentials. Special education teachers maintain similar responsibilities of teaching, assessment, case management, and collaboration regardless of credential type.

It was interesting that the exact number of participants responded working under a M/M Credential (n=44) as a M/S Credential (n=44). These results could suggest generalizability of results across Mild/Moderate and Moderate/Severe credential types. The sample size for individuals working under an ECSE credential was small (n=11). Unfortunately, no current research investigating the difference of special education teachers' self-efficacy ratings by credential type was found with which to compare results.

**Research Question 3**

RQ3: Is there a difference in special education teachers' self-efficacy ratings by gender?

In this study, an independent t-test found no significant differences for special education teachers' self-efficacy ratings by gender. As with Coladarci's (1992) research, women tend to have a higher commitment to the field than male teachers; however, he found no significant differences in self-efficacy ratings (Coladarci, 1992). The results of Sarfo, Amankwah, Sam, and Konin (2015) also found no significant differences in teachers' self-efficacy ratings by gender. It

is noteworthy although statistical significance not present based upon gender, findings suggested slightly elevated self-efficacy ratings by female participants (Sarfo et al., 2015).

Additional studies found women teachers to have higher self-efficacy than male teachers, (Arbabisarjou, Zare, Shahrakipour, & Ghoreishinia, 2016), yet a significant difference was not found. Results are consistent with this study, indicating gender is a factor worthy of consideration at a minimal level. Gender is not an essential characteristic in determining a special education teachers' perception of self-efficacy. Zhang et al. (2014) and Sak (2015) also found no significant differences for teacher self-efficacy ratings by gender.

#### **Research Question 4**

RQ 4: Is there a difference in special education teachers' self-efficacy ratings by age (categorical)?

In this study, multiple ANOVAs found significant differences between special education teachers' self-efficacy ratings across the age variable. The most significant differences were found between the age categories of 20-29 and 50-59 ( $p = 0.036$ ). Higher self-efficacy ratings reported by special education teachers ages 50-59 than those of ages 20-29 suggests there is value in investing in the retention of older special education teachers. Lower self-efficacy ratings reported by special education teachers ages 20-29 indicates a need for intentional focus on self-efficacy development through the specific age range. Individuals in their 20's are at the beginning of their teaching career, whereas individuals in their 50's may have taught numerous years. However, many individuals are beginning a teaching career in their 30s, 40s and/or 50's, making it their second or third career.

Diane Witt-Rose (2003) investigated if a potential relationship existed between age and self-efficacy between college students, and between traditional and nontraditional college

students.. Her study found no significant relationship of self-efficacy to age. Arbabisarjou, Zare, Shahrakipour, & Gholamreza's (2016) findings are consistent with Witt-Rode's in that no significant relationship existed between self-efficacy and age of students ( $P=0.388$ ) (Arbabisarjou et al., 2016). This study's findings are consistent with these other studies, that there were no differences in special education teachers' self-efficacy ratings by age in the categories of 30-39, 40-49, and 60+. This suggests a special education teacher's self-efficacy is lower at entry-level ages (20-29 years), stable during mid-career (30-39 and 40-49 years) and end of career (60+ years) with the caveat of maintaining the chosen career throughout a lifespan.

### **Research Question 5**

RQ 5: Is there a difference in special education teachers' self-efficacy ratings by previous experience in special education?

In this study, independent t-tests found no significant differences between special education teachers' self-efficacy ratings and previous experience in special education, suggesting that regardless of their previous experiences prior to teaching, all groups felt similarly efficacious. This result is surprising as I thought in alignment with research, a significant difference would have been found. Research has shown teachers with more experience and longer time in the field have higher self-efficacy ratings (Putman, 2012).

Attrition and burnout has become an epidemic in special education (Wasburn-Moses, 2005). Thornton, Peltier, and Medina (2007) found high attrition levels, new demands placed on special education teachers, and high turnover has created a crisis for education (Fall, 2010; Thornton et al., 2007). Research shows that special education teacher burnout and their resulting departure from the profession are a result of many factors, with the main factor being stress. Stress could be a factor in a teacher's perception of their self-efficacy. Stress experienced by

special education teachers leads to chronic burnout, which can include feelings of powerlessness, depersonalization, and exhaustion (Maslach, 1982). I thought a significant difference would be found as special education is profession which relies on experience, hands on learning and pedagogy. The more experience, the more knowledge, the less stress, and less emotional exhaustion leads to a greater sense of self-efficacy.

### **Research Question 6**

RQ 6: Is there a difference in special education teachers' self-efficacy ratings by years taught (categorical)?

In this study, a One-way ANOVA found significant differences between special education teachers' self-efficacy ratings and years taught between the groups of 1 year and 15-19 years ( $p = 0.007$ ); 5-9 years and 15-19 years ( $p = 0.037$ ); and 2 years and 15-19 years ( $p = 0.040$ ). These findings indicate higher self-efficacy reported by special education teachers with more years devoted to the career. The results are in alignment with current research, which has shown teachers with more experience and longer time in the field have higher self-efficacy ratings (Putman, 2012). Data resulting from Putman's domain-specific subscales of Student Engagement, Classroom Management, and Instructional Strategies showed that all groups of pre-service teachers and novice teachers had significantly lower self-efficacy than the group of teachers with experience. These findings are consistent with previous research that the longer a teacher remains in the field, the greater the likelihood they will demonstrate positive efficacy, and the more experience they have, the higher the efficacy (Bet & Erg, 2015; Putman, 2012; Sak, 2015; Woolfolk & Hoy, 1990). Also, in 2010, Klassen and Chiu researched the relationship between self-efficacy and job satisfaction, years of experience, job stress, and teacher gender. They found a nonlinear relationship between teachers' self-efficacy and years of teaching

(n=1,430). A nonlinear relationship is a relationship between two entities, which change in one entity does not correspond with constant change in the other entity (Leard Statistics, 2015).

Klassen and Chiu (2010) also found that self-efficacy ratings vary with years of teaching experience. Teachers' self-efficacy was influenced by years of teaching, increased with early experience and in mid-career, and then declined in later career stages. Teachers' self-efficacy increased when teaching from 0-23 years, and after 23 years it declined.

What was unexpected to me is no significant differences were found between special education teachers' self-efficacy ratings for teachers who taught less than one year and other groups. I thought teachers who had taught a year or less would have significantly lower self-efficacy than teachers who taught 5 years or more due to their lack of experience as a teacher.

Another unexpected find, was the largest group of respondents had taught the greatest number of years. I assumed a larger number of respondents would have less years of experience perhaps exhibiting an early-career desire to participate in emerging research. Nineteen respondents reported having taught for 15-19 years and 16 respondents reported have taught 20+ years. This aligns with results from certification status, that a majority of respondents were employed under Clear Credentials instead of the substandard permits. Research found up to 20% of new teachers leave the profession within three years, and 50% of teachers from urban school districts leave the profession within the initial five years of teaching (California Commission on Teacher Credentialing, 2015). The California Teachers Association (CTA) reported a 13% attrition rate of new teachers at the conclusion of their second year of teaching, and one third of new teachers leave the field of teaching within the first seven years (California Commission on Teacher Credentialing, 2015). In their report, the Learning Policy Institute stated that lowering the standards to become a teacher may fill empty classrooms but exacerbates the problem over

time as underprepared teachers have a much higher turn-over rate (Sutcher et al., 2016).

Teachers with little to no preparation leave the field at rates of two to three times higher than those who have completed comprehensive preparation prior to entering the classroom. The results from this study are in alignment with research which teachers' with more years of experience reported greater self-efficacy and remained in the field.

### **Limitations**

This research study had notable limitations: (a) the smallest number of respondents were working under substandard permits; (b) a majority of respondents were female; (c) there was a small sample size; (d) the survey window was minimal; (e) categories were used instead of exact numbers for age and years taught; and limitation (f): one of the participating school districts employed only M/M and ECSE special education teachers.

#### **Limitation (a).**

Limitation (a) was, the smallest number of respondents were working under substandard permits. A surprising result and a contradiction to current reports, in this study, the Substandard permits group (PIP/STSP) had the smallest number of respondents (n=11), with the Clear Credential having the largest number of respondents (n=59). Since the 2011-2012 academic year, the number of Preliminary Credentials issued by the California Commission on Teacher Credentials decreased while the number of Substandard Authorizations increased. In the 2015-2016 academic year, special education teachers employed on a Preliminary Credential decreased in numbers to 36%. In the same time period, individuals employed under Substandard Authorizations increased to 64% with underprepared special education teachers in California outnumbering those individuals who were fully credentialed by a ratio of two to one (California Commission on Teacher Credentialing, 2016). And, during the academic year of 2014–2015,



Substandard Permits issued nearly tripled, from approximately 850 to over 2,300, when a fully credentialed teacher could not be found (Sutcher et al., 2016). Based on these reports, the Substandard permits group (PIP/STSP) should have been the largest group of respondents, with the Clear Credential group being the smallest group of respondents. In fact, number of respondents with the Substandard permits were anticipated to be twice the number of respondents with a Preliminary or Clear credential. Results of this study in regard to participation by credential status did not align proportionately to the number of teachers serving within these credential status'. It may be asserted that one justification for the low response rates of special education teachers working with a substandard permit was a lack of available time in their work day to participate in an elective survey. Also, as a new teacher the perception of self-efficacy may be low leading to non-participation.

**Limitation (b).**

Limitation (b) was, a majority of respondents were female. Females were overrepresented in the sample, totaling 89 of the 99 participants. In this research study, females comprised 90% of respondents. For the academic year of 2015-2016 in California, 73% (nearly three-fourths) of the current teaching force were female (California Commission on Teacher Credentialing, 2016). The 90% female composition of all respondents is higher than the State percentage of female teachers in the field compared to male teachers. A more diverse population sample with an equal (to close) number of both male and female respondents would have resulted in a more meaningful analysis of special education teachers' self-efficacy ratings by gender.

**Limitation (c).**

Limitation (c) was, there was a small sample size. This research study had an average response rate. The survey was emailed to 211 individuals in two different school districts. A total

of 107 individuals participated (51% response rate). The two participating districts were selected by convenience sampling due to existing relationships and partnerships within the chosen local educational agencies. Central Valley A school district is located in a County in the Central Valley that houses 48 school districts. Central Valley B school district is a County Office in the Central Valley that provides special education services to 33 school districts. Therefore, with the small sample size, external validity using the two convenient school districts may be compromised. While the response rate to survey invitation was at or above the average anticipated response, the study was not intended to be a large-scale study in regard to sample size. The findings above should be treated with caution. Due to the small sample size selected through convenience sampling, results are not generalizable to the population.

**Limitation (d).**

Limitation (d) was, the survey administration window was minimal. Due to the time of year and delay in IRB approval, the survey window was decreased. IRB approval was received the second day the surveyed teachers were on their three-week winter break. The survey was open for two weeks and two days with the invitation sent to teachers on the teachers' second day back to work following vacation. This constituted an overall delay of seven weeks between IRB approval and the survey being opened. Due to time restraints, the survey closed after being open for two weeks and two days. The short survey administration window could suggest a possible higher response rate if the survey administration window was not adjacent to a lengthy vacation.

**Limitation (e).**

Limitation (e) was, categories were used instead of exact numbers for age and years taught. This study used categories for age and years taught and not actual intervals. Age range categories were used intentionally in the research design due to a perception that obtaining

responses for each individual age could make analysis more difficult. Due to this, the study had to do employ different analytics. Using categories instead of exact numbers was a design flaw understood by the researcher during the analysis process. At the time of survey creation, it was thought more people would respond to age if choices were offered in a category instead of requesting an exact number. The research study would have had more accurate results with exact numbers. A multiple regression could have been conducted, but due to the categorical design of age, a regression would likely have led to uncertain results.

#### **Limitation (f).**

Limitation (f) was, one of the participating school districts employed only Mild/Moderate and Early Childhood special education teachers. After completion of the study, the researcher learned the Central Valley B school district only employed special education teachers under a M/M or ECSE Credential. The district did not employ any M/S special education teachers. The district contracted all of their M/S positions to their County Office due to the need for specialized services. M/S special day classes were still located in schools within the district, but their teachers were employed by the County Office. The M/S special education teachers employed by the County Office located in the district did not participate in this study. The Central Valley A school district employed all special education credential types, M/M, M/S, and ECSE. With the composition of the Central Valley B school district lacking M/S teachers, there was a possible inequitable distribution of credential types within the sample.

#### **Suggestions for Future Research**

Were the research to be repeated, the researcher would revise research methodology to address a number of areas of the research process. First, more school districts in the Central Valley would be included in the sample size, which might lead to results being considered more

statistically significant. When selecting school districts, the previous school years' reports regarding the number of teachers on substandard permits and valid credentials would be reviewed to obtain current data which was not available for this study. The survey window would remain open for a longer period of time and not be sent close to school holidays, breaks, or the beginning or the end of an academic year. Hopefully this would increase the response rate.

School districts, policy makers, and teacher preparation programs would benefit from additional studies of special education teachers' self-efficacy ratings by certification status. By offering substandard permits, teacher vacancies are being filled with unprepared teachers, who exhibit lower self-efficacy as compared to credential teachers. Future research on special education teachers' self-efficacy ratings by certification status can inform the status of pre-service special education teachers' self-efficacy. Research studies have indicated that higher teacher self-efficacy has been associated with many positive characteristics (Chestnut & Cullen, 2014; Coladarci, 1992; Goddard, Hoy, & Hoy, 2000; Hoy & Spero, 2005; Klassen et al., 2011; Meijer & Foster, 1988; Soodak & Podell, 1993). In review, positive characteristics of teachers with higher self-efficacy are adoption of innovations, classroom management strategies, student motivation, higher superintendent ratings of teacher competence, teacher referrals of students to special education, and time spent teaching certain subjects (Chestnut & Cullen, 2014; Coladarci, 1992; Hoy, 2000; Hoy & Spero, 2005; Klassen & Durksen, 2014; Meijer & Foster, 1988; Podell & Soodak, 1993). Teacher self-efficacy is positively related to motivation in both students and teachers (Scherer, Jansen, Areepattamannil, & Marsh, 2016). Positive student outcomes have been related to higher teacher self-efficacy (Ashton & Webb, 1986; Baker, 2004) and to positive student classroom behavior. Continuing to research special education teachers' self-efficacy ratings could potentially inform professional practice in a manner that may increase attrition

rates, therefore providing children with special needs equitable access to veteran teachers and teachers with higher self-efficacy.

### **Conclusion**

I initially began this study seeking to determine if a difference existed between special education teachers' self-efficacy ratings and certification status for pre-service teachers. Along the way, in-service teachers were added. I am grateful the study moved in this direction. The analyses revealed significant differences existed in special education teachers' self-efficacy ratings by certification status, age, and years taught in special education. Data analyses also found no significant differences between special education teachers' self-efficacy ratings by credential type, gender, and previous experience in special education. While it is unknown if the lack of in-service teachers within the initial research design would have impacted the significance of the outcomes of the study, the addition of this population was beneficial to gain a well-rounded view of special education teacher self-efficacy.

Through this study, I learned many valuable lessons for conducting research. Conducting research is complex. It is important to be flexible and be prepared for any unexpected bumps along the way. With survey research, collecting data is more than obtaining answers to the survey questions. It involves coding, accurately transcribing data, and the language of statistics. The entire process was challenging and humbling. I really enjoyed the data analysis. This study involved a deeper understanding of statistics than I thought and really realized the complexity of data analysis.

Future research may explore special education teachers' self-efficacy ratings by certification status after substandard permits have been around longer. Policy suggestions based upon this research, are to require all special education teachers teaching on substandard permits

be required to enroll in a credential program prior to obtaining employment in a classroom and to require a mentor be assigned to such teachers to support in increasing self-efficacy, instructional practices, and case management abilities. Currently, the CCTC does not require credential program enrollment nor mentoring for individuals teaching on a PIP/STSP.

I believe being a special education teacher is a calling. Matthew 25:40 (NIV) “Truly I tell you, whatever you did for one of the least of these brothers and sisters of mine, you did for me.” This biblical interpretation of disability guides my personal, professional, and academic development. The current study allowed me to increase my depth of knowledge in turn better understanding special education teachers' self-efficacy ratings by certification status, credential type, gender, age, previous experience in special education, and years taught.

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**Appendices**



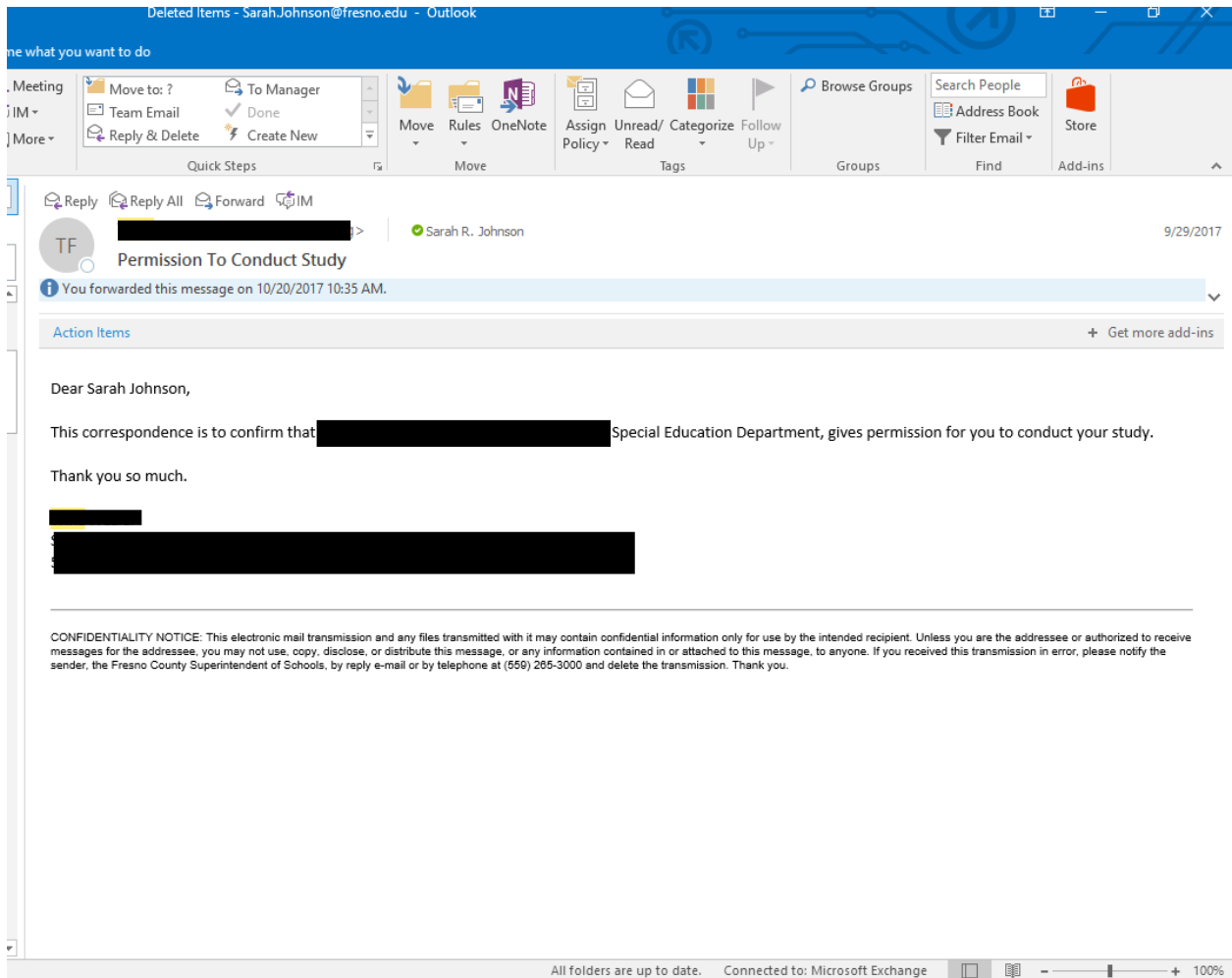






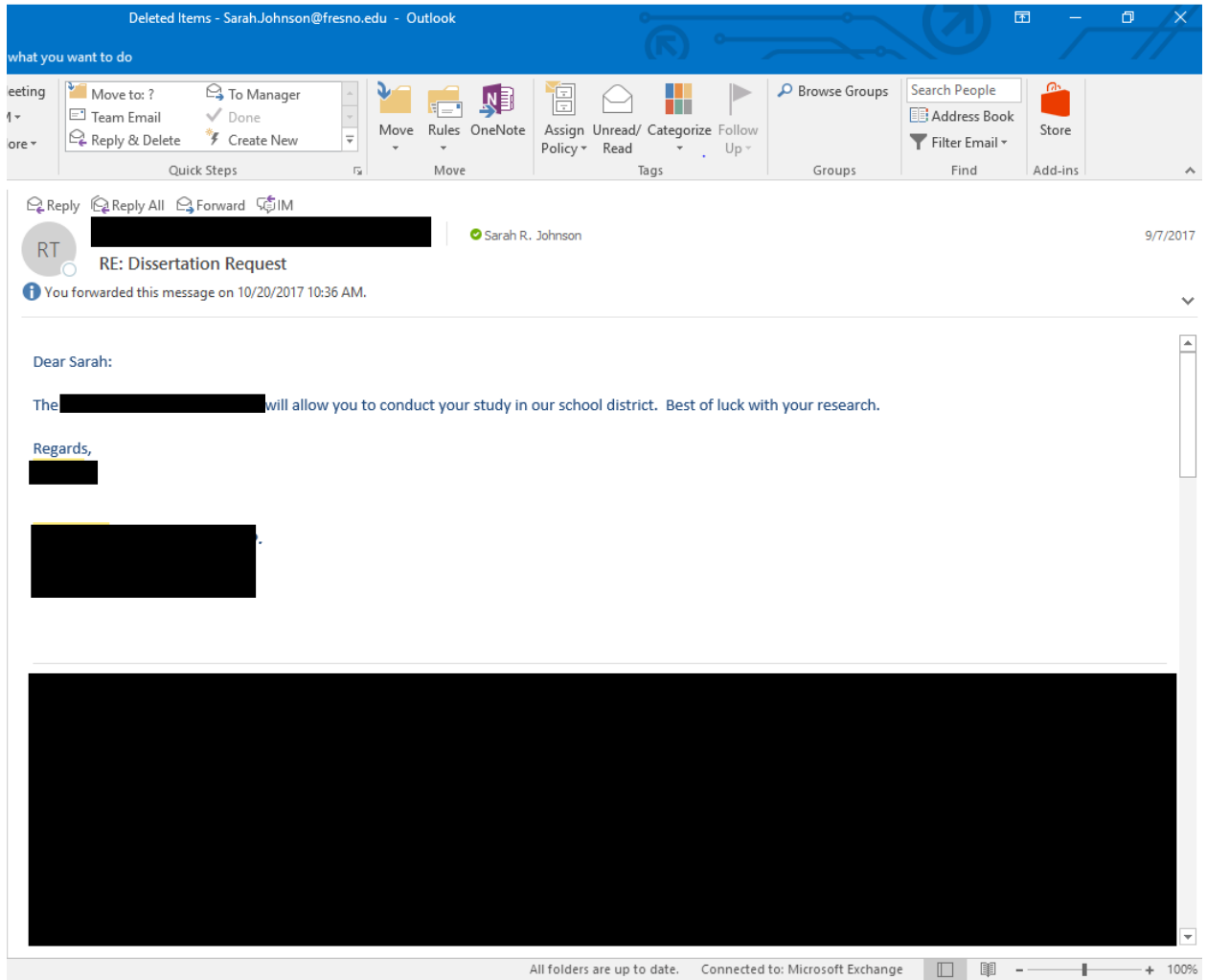
### Appendix B

#### Central Valley A School District – Approval for Research



### Appendix C

### Central Valley B School District Approval for Research



**Appendix D**

## Demographics (After TSES Survey)

**TSES - Dissertation - Sarah Johnson**

1. What Educational Specialist permit or credential are you currently employed under?

- Provisional Intern Permit (PIP)                       Preliminary Credential  
 Short-Term Staff Permit (STSP)                       Clear Credential  
 Intern Credential

2. What Educational Specialist credential area are you employed under?

- Mild/Moderate  
 Moderate/Severe  
 Early Childhood Special Education

3. Have you ever been employed as a substitute in special education?

- Yes  
 No

4. Have you ever been employed in a special education setting as a para-educator or teachers assistant?

- Yes  
 No

5. In the past, have you ever been employed under a Provisional Intern Permit (PIP)?

- Yes  
 No

6. In the past, have you ever been employed under a Short-Term Staff Permit (STSP)?

- Yes  
 No

7. In the past, have you ever been employed under an Intern Credential?

Yes

No

8. What is your gender?

Male

Female

Other

9. What is your age?

20-29

50-59

30-39

60+

40-49

10. How many years have you been a teacher in special education?

1

5-9

2

10-14

3

15-19

4

20+

## Appendix E

### Approval (email) from Anita Woolfolk Hoy to use the TSES instrument

Deleted Items - Sarah.Johnson@fresno.edu - Outlook

What do you want to do

Meeting  
M  
More

Quick Steps  
Move to: ?  
Team Email  
Reply & Delete

To Manager  
Done  
Create New

Move  
Rules  
OneNote

Assign Policy  
Unread/Read  
Categorize  
Follow Up

Browse Groups  
Search People  
Address Book  
Filter Email

Store  
Add-ins

Reply  
Reply All  
Forward  
IM

AW Anita Woolfolk Hoy <anitahoy@mac.com> Sarah R. Johnson 10/20/2017

Re: Teachers' Sense of Efficacy Scale Dissertation Request

You replied to this message on 10/20/2017 3:33 PM.

You are welcome to use the TSES in your research. This website might be helpful to you:

<http://u.osu.edu/hoy.17/research/instruments/>

Best wishes in your work.

*Anita*

Anita Woolfolk Hoy, PhD  
Professor Emerita  
The ohio state university  
7655 Pebble Creek Circle, Unit 301  
Naples, FL 34108

[anitahoy@mac.com](mailto:anitahoy@mac.com)  
415-640-2017

<http://u.osu.edu/hoy.17/>

On Oct 20, 2017, at 1:45 PM, Sarah R. Johnson <Sarah.Johnson@fresno.edu> wrote:

Dear Dr. Anita Woolfolk,

I hope this message finds you well. My name is Sarah Johnson. I am a doctoral student from George Fox University. My proposed dissertation research will explore the relationship between pre-service special education teachers self-efficacy and credential certification status. I would like to use the Teachers' Sense of Efficacy Scale developed by you to identify the relationship between these two variables.

I am requesting your permission to use the Teachers' Sense of Efficacy Scale instrument and would appreciate a written electronic response indicating such

## Appendix F



ANITA WOOLFOLK HOY, Ph.D.

PROFESSOR  
PSYCHOLOGICAL STUDIES IN EDUCATION

Dear Sarah Johnson,

You have my permission to use the *Teachers' Sense of Efficacy Scale* in your research. A copy the scoring instructions can be found at:

<http://u.osu.edu/hoy.17/research/instruments/>

Best wishes in your work.

A handwritten signature in cursive script that reads 'Anita Woolfolk Hoy'.

Anita Woolfolk Hoy, Ph.D.  
Professor Emeritus



**Appendix G**

## IRB Application

**George Fox University  
Institutional Review Board****Protection of Human Subjects  
Initial Review Questionnaire**

**Date Submitted:** November 21, 2017

**Title of Proposed Research:** An Inquiry into Special Education Teachers' Self-Efficacy Ratings: A Quantitative Study

**Principal Researcher(s):** Sarah Johnson

**Degree Program:** Doctor of Education (Ed.D.)

**Rank/Academic Standing:** Doctoral Student

**Other Responsible Parties:** Dr. Dane Joseph (committee chair), Dr. Susanna Thornhill (committee member), Dr. Scot Headley (committee member)

- IRB Application Includes:
- Teachers' Sense of Efficacy Scale – Long Scale
- Approval from Central Valley A School District
- Approval from Central Valley B School District
- Demographics (Administered after TSES Survey)
- Approval (email) from Anita Woolfolk Hoy to use the TSES instrument
- Approval letter from Anita Woolfolk Hoy to use the TSES instrument
- Participant Informed Consent

**(1) Characteristics of Subjects (including age range, status, how obtained)**

Participants for this study are adults, all ages. The adults currently teach special education in public schools, K-13 (age 22). Subjects are employed under a Provisional Intern Permit (PIP), Short Term Staff Permit (STSP), an Intern Credential, Preliminary Credential or Clear Credential. The subjects teach special education and employed in the Central Valley, in California. Two school districts, Central Valley A and Central Valley B, have granted permission to conduct the research in their districts, by email, with their special education teachers.

**(2) Describe Any Risks to the Subjects (physical, psychological, social, economic, or discomfort/inconvenience)**

Participation will incur no greater psychological stress than that experienced taking tests or surveys.

**(3) Are the risks to subjects minimized by (i) using procedures which are consistent with sound research design and which do not unnecessarily expose subjects to risk, and (ii) whenever appropriate, by using procedures already being performed on the subjects for diagnostic or treatment purposes? Yes**

**Degree of Risk:**         1        2        3        4        5  
                                  low                                        high

**(4) Briefly describe the objectives, methods, and procedures used:**

Objectives: This research attempts to discover if a difference in special education teachers' self-efficacy ratings differ by certification status, certification type, age, gender, previous experience in special education and years taught. Due to the recent implementation of the alternate permits, not much research is available.

Methods: This study will use a non-experimental correlational survey that employs a quantitative methodology and utilizes a cross-sectional survey.

Procedures: The survey and demographics page will be administered electronically, through SurveyMonkey. The link to the survey is <https://www.surveymonkey.com/r/3MTWVB8>. Potential participants will receive the survey through their district email. The Director of Special Education at Central Valley A school district will email survey and reminders to their special education teachers. I will email the Central Valley B school district special education teachers the survey and reminders. All potential subjects will receive a reminder after one week and after two weeks. The survey will conclude at the end of week three.

**Briefly describe any instruments used in the study (attach a copy of each).**

The selected instrument of measurement selected is the Teachers' Sense of Efficacy Scale (TSES). The TSES (a.k.a. Ohio State Teacher Efficacy Scale) was created by Megan Tschannen-Moran of the College of William and Mary (VA), and Anita Woolfolk Hoy of The Ohio State University in 2001. The TSES contains two versions, a short scale and a full (long) scale. The short scale contains 12 items and the full scale contains 24 items. The developers recommend using the full scale with pre-service teachers. For this study, the full scale (24-item) survey will be administered. The TSES measurement instructs respondents to rate their own efficacy in each of three areas of teaching; student engagement, instructional practices, and classroom management. Participants answer on a 9-point Likert-type scale, ranging from 1 (nothing) to 9 (a great deal).

The TSES validity and reliability has been evidenced, with the internal consistency as both a three-factor (mean scores on each of the subscales) and a one-factor (total score) measure. Reliabilities for the TSES subscales were 0.91 for instruction, 0.87 for engagement, and 0.90 for

management. On the 24-item TSES scale, the Cronbach's alpha score was 0.94. The TSES measures a larger range of self-efficacy of teaching tasks compared to other measures of teacher efficacy. The TSES also provides specificity of tasks for comparison of teachers across contexts, subjects, and levels.

The TSES within this study will be administered via electronic means (SurveyMonkey) in alignment with current research that supports the reliability and validity of the TSES. Results will be compared to those of previous research studies. Permission to use the TSES has been granted.

**(5) How does the research plan make adequate provision for monitoring the data collected so as to insure the safety, privacy, and confidentiality of subjects?**

Once IRB approval is received, potential participants will receive information that explains the purpose of the study, requests their participation, process of conducting the study, and their role.

All subjects have anonymity. The only information requested includes what certification permit or credential they are currently employed under (PIP/STSP/Intern/Preliminary or Clear), special education specialty teaching type (Mild/Moderate disabilities, Moderate/Severe disabilities or Early Childhood Special Education, children with special needs ages 0-5), age (by category), gender, previous experience in special education (substitute, para-educator or teacher's aide), and years taught. No physical risks will occur during this study since the survey is administered electronically, by SurveyMonkey, through district email addresses.

No identifying information is asked on the survey and the district(s) will not have access to the results. I will securely store the results for five years, as required by law. Participants are asked to answer honestly, whether they have high or low self-efficacy ratings, with confidence, as the school district(s) will not have access to the results nor will information outside of the published dissertation be shared.

**(6) Briefly describe the benefits that may be reasonably expected from the proposed study, both to the subject and to the advancement of scientific knowledge--are the risks reasonable in relation to the anticipated benefits?**

School Districts will receive aggregated results of self-efficacy ratings of special education teachers by different categories that could help in the creation of professional development.

The California Commission on Teacher Credentialing will receive aggregated results of special education teachers' self-efficacy ratings by different categories, including those on alternate permits. Due to the recent implementation of the alternate permits, little research is available.

Risks to participants is minimal as data is anonymous and the identity of participants is protected as no identifying information is requested. The collected data is not shared with the school districts.

**(7) Where some or all of the subjects are likely to be vulnerable to coercion or undue influence (such as children, persons with acute or severe physical or mental illness, or persons who are economically or educationally disadvantaged), what appropriate additional safeguards are included in the study to protect the rights and welfare of these individuals?**

No, none of the subjects are children, persons with acute or severe physical or mental illness, or economically or educationally disadvantaged.

**(8) Does the research place participants "at risk"? No. If so, describe the procedures employed for obtaining informed consent. (attach form or letter used).**

## **Appendix H**

### **Participant Informed Consent**

#### **Purpose**

I am a doctoral student at George Fox University and my dissertation involves research designed to explore if there is a difference in special education teachers' self-efficacy ratings based on certification status, type of credential, gender, age, previous experience in special education, and number of years teaching special education.

#### **Procedure**

If you are willing to participate, please complete the Teachers' Sense of Efficacy Scale survey as well as the demographic items. The survey will take 10-15 minutes.

#### **Risks and Benefits**

Participation will incur no greater psychological stress than that experienced in taking most tests or surveys.

#### **Anonymity**

No identifying information is asked on the survey and the district will not have access to the results. I will securely store the results for five years, as required by law. The school district(s) will not have access to the results nor will information outside of the published dissertation be shared. This study will be/has been approved by GFU Institutional Review Board, dated 12/19/18. Please contact me at [sjohnson14@georgefox.edu](mailto:sjohnson14@georgefox.edu) if you have any questions, concerns, or additional needs with respect to this survey study.

#### **Voluntary Participation**

Your participation in this study is completely voluntary and you may choose to end your participation at any time.

### Appendix I

### IRB Approval

IRB APPLICATION – SARAH R. JOHNSON – GEORGE FOX UNIVERISTY

**For Committee Use Only**  
**GEORGE FOX UNIERSITY**  
**HSRC INITIAL REVIEW QUSTIONNAIRE**

Title: An Inquiry into Special Education Teachers' Self-Efficacy Ratings: A quantitative study

Principal Researcher(s): Sarah Johnson

Date Application Completed: November 21, 2017

(The researcher needs to complete the above information on this page)

**COMMITTEE FINDING:**

(1) The proposed research makes adequate provision for safeguarding the health and dignity of the subjects and is therefore approved.

(2) Due to the assessment of risk being questionable or being subject to change, the research must be periodically reviewed by the HSRC on a \_\_\_\_\_ basis throughout the course of the research or until otherwise notified. This requires resubmission of this form, with updated information, for each periodic review.

(3) The proposed research evidences some unnecessary risk to participants and therefore must be revised to remedy the following specific area(s) on non-compliance:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(4) The proposed research contains serious and potentially damaging risks to subjects and is therefore not approved.

Winston Lee

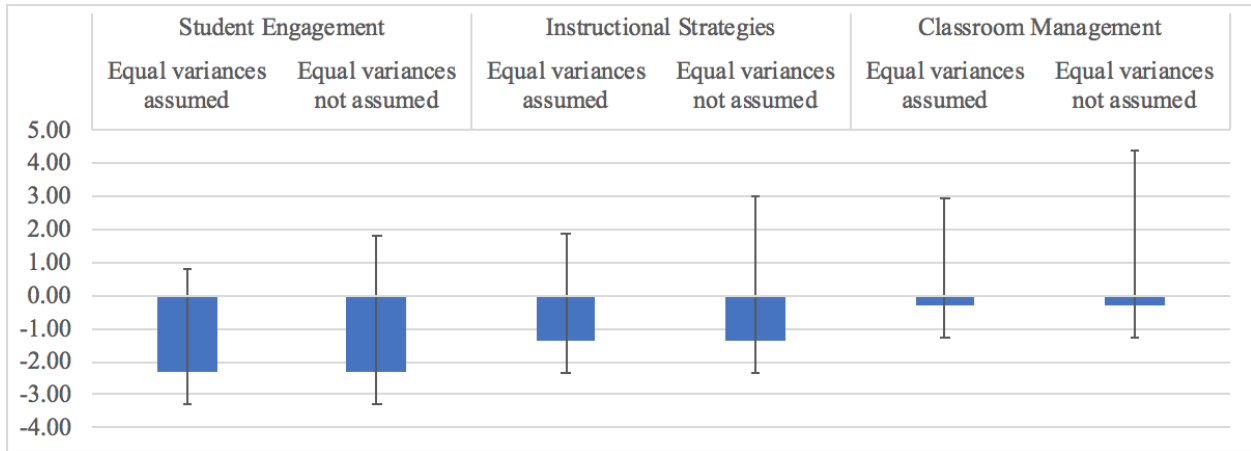
12/19/2017

Chair or designated member

Date

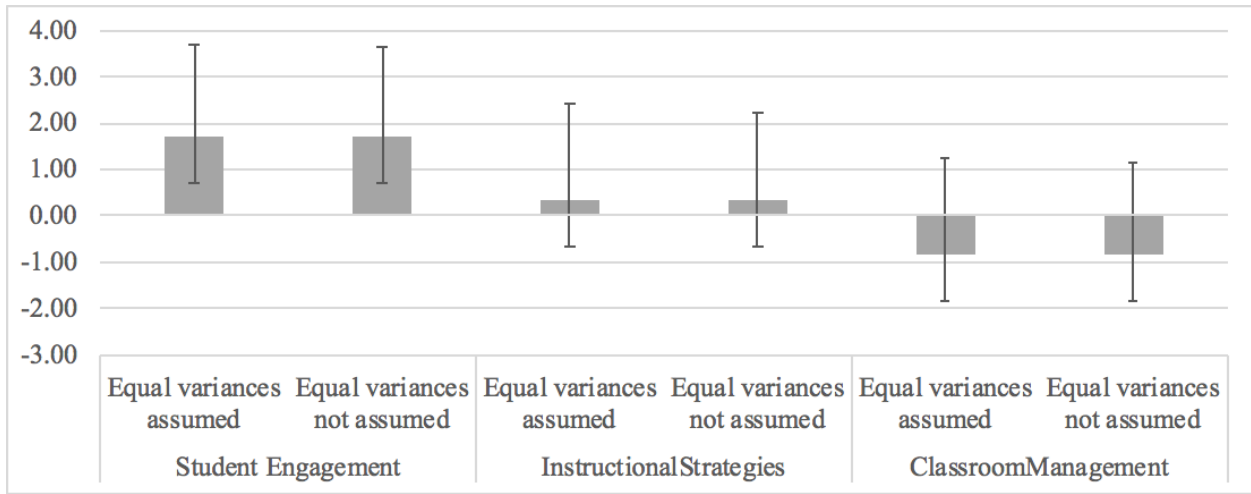
**Appendix J**

Box Plot for Special Education Teachers' Self-Efficacy Ratings x Gender



**Appendix K**

Box Plot for Special Education Teachers' Self-Efficacy Ratings x Para-educator





**Appendix L**

Box Plot for Special Education Teachers' Self-Efficacy Ratings x Substitute

