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QUANTITATIVE EXPLORATIONS OF TEACHER SELF-EFFICACY TOWARDS STUDENTS WITH SPECIAL NEEDS

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Quantitative explorations of teacher self-efficacy towards students with special needs

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Abstract: Teacher self-efficacy has been linked to positive student outcomes. This quantitative research study aimed to examine the mindsets and behaviors of regular education teachers concerning their ability to educate students with special needs. The modified Teacher Self Efficacy Survey was administered to general education teachers. Data revealed that general education teachers feel less efficacious for educating students with special needs in the areas of engagement, instructional strategies, and classroom management. This study makes recommendations for the professional development, focused on educating students with special needs, provided to general education teachers. Particularly, the findings speak to the need for a more diverse, flexible and comprehensive approach to implement teacher professional development activities to improve the achievement of students with special needs.

Keywords: teacher self-efficacy; special need students; engagement; instructional strategies; classroom management.

Students with disabilities have the right to receive a free and appropriate public education. Before the passage of what is called the Education for All Handicapped Children Act in 1975, and now called the Individuals with Disabilities Education Act 2004 (IDEA 2004), students with disabilities were either taught in self-contained classes or simply excluded from the public education (Wood, 2002). After three decades, students with disabilities now have access to the general education classroom. With the inception of inclusion, general educators are expected to provide instruction to students who possess a wide array of learning, behavioral, and developmental differences (Heward, 2013). According to Blanton, Pugach, and Floran (2011), 57% of students with disabilities spend more than 80% of their day in general education classrooms. In other words, the general education teachers are accountable for the achievement of students with special needs more now than ever before. Moreover, it is essential that general education teachers have proper knowledge and skills to successfully educate students with special needs. Therefore, the purpose of this study is to examine the self-efficacy of regular education teachers concerning their ability to educate student with special needs.

Due to this increase in adding students with disabilities into the general education setting, general education teachers are often required to differentiate their instruction for students with disabilities (Allison, 2012). This inclusive setting, known as inclusion, is where special needs students are placed in the general education setting along with their general education peers. Inclusion requires teachers to co-plan and co-teach, to work together with special education teachers to directly instruct students with and without disabilities, assessing their learning in multiple ways, and finding a way to bank their strengths and weaknesses against each other (Blanton, Griffin, Winn, & Pugach, 1997).

Research has shown that for students with special needs, an important consideration for successful inclusion is whether teaching staff and school principals cultivate positive beliefs towards inclusive education (Forlin, Earle, Loremann, & Sharma, 2011). The literature suggests that individuals' perception of their preparedness to teach students with disabilities as well as their confidence may affect their efficacy (Eggan & Kauchak, 2006). A teacher's efficacy stems from a belief in his or her abilities to increase student achievement; this is also known as teacher efficacy. Teacher efficacy is "the extent to which the teacher believes he or she has the capacity to affect student performance" (Berman, McLaughlin, Bass, Pauly, & Zellman, 1977, p. 137). A lack of efficacy may be a factor that creates concerns for teachers regarding inclusive education because

of their lack of training and education on inclusion (Berry, Daughtrey, & Wieder, 2010). Therefore, policy makers and school leaders, who are held accountable for improved results, are responsible to improve the capacity of classroom teachers to teach students with special needs. Aligned with the purpose of the study, the literature review includes the following sessions (a) Special Education, (b) Historical Perspective, (c) Theoretical Framework, (d) Teacher Self-Efficacy, and (e) Teacher Self-Efficacy for Inclusion.

1. Literature Review

1.1. Status of special education

The Individuals with Disabilities Education Act (IDEA) is a federal law. IDEA is established to ensure that special needs students receive appropriate free public education in the least restrictive environment necessary to meet those students' needs (U.S. Department of Education, 2018). Therefore, it requires schools to serve the educational needs of eligible students with disabilities. Even though the federal law spells out what all states must do to meet the needs of students with disabilities, the recent federal data reveal that the United States educational system is far from closing the achievement gap between students with special needs and their general education peers. For instance, according to the U.S. Department of Education (2015), 4th graders who had disabilities earned a scale score of 186 on the 2015 reading exam. In contrast, students without disabilities posted a scale score of 227, a gap of more than 40 scale score points – almost four years' worth of learning.

1.2. Historical perspective

Public education is viewed as a birthright in the United States of America. Yet the nation's approach and accountability toward educating children with disabilities has drastically changed over the past five decades. The Civil Rights Movement of the 1960s brought about a pendulum shift in regard to disability rights. The pendulum was swinging from an era focused on the social and therapeutic services given to individuals with disabilities to a greater focus on the political and civil rights of these individuals (Longmore & Umansky, 2001).

The historical perspective of special education reform demonstrates a shift in accountability for students with disabilities Legislation began holding public schools accountable for the education of students with disabilities. Amendments to the Individuals with Disabilities Education Act (IDEA) in 1997 included the nation's first attempts to hold public schools responsible for demonstrating measurable progress towards meeting individualized education program goals. Most recent legislation, IDEA 2004 and No Child Left Behind (2002), require increased participation on statewide achievement tests from students with disabilities. Most importantly, IDEA represents the first emphasis of research-based best practices for providing instruction and intervention for students with disabilities. The instructional focus has shifted from providing pull out methods to classroom-based practices that have been proven to enhance student achievement.

While the nation's educational mindset has changed, the classroom-based practices that help teachers achieve the new accountability standards set forth by NCLB (2002) and IDEA (2004) have not. Little emphasis has been made on a systemic approach to changing classroom practices to the training, PD, mentorship, and coaching of the general education teachers who will teach and deliver interventions to the students with special needs in their classrooms.

1.3. Theoretical framework: social cognitive theory

Since the purpose of this study is to examine the self-efficacy of regular education teachers concerning their ability to educate student with special needs, as a framework, the researchers utilized Bandura's Social Cognitive Theory. In this study, Social Cognitive Theory is selected as a theoretical framework because Bandura (1977) stated that self-efficacy is "the conviction that one can successfully execute the behavior required to produce the outcomes" (p. 193). It is derived from Bandura's psychological concept of self-efficacy. Bandura's (1977) research related to self-efficacy indicates that persons with higher levels of self-efficacy will persist, sustain, and maintain motivation to perform regardless of the perceived environmental or contextual challenges before them. Bandura noted that people assimilate information regarding the needs of others and measure their capability in relation to context to determine how they will react and how much effort they will expend. Therefore, this study focused on exploring the self-efficacy of classroom teachers related to educating student with special needs. Expanding on this research, Tschannen-Moran and Hoy (2001) found that teachers' sense of self-efficacy will differ based on the context of the situation or perceived level of challenge.

Bandura (1977) believed that self-efficacy is derived from four sources: mastery experiences, vicarious experiences, verbal persuasion, and emotional arousal. Mastery experiences, as achieved through skill mastery and competent

performance of that skill, appears to be most related to increased levels of self-efficacy. Furthermore, Bandura's (1977, 1997) extensive research on self-efficacy showed that teachers' self-reported levels of self-efficacy directly matched their performance and the achievement of their students (i.e., low self-efficacy resulted in low teacher and student performance and vice versa). Subsequently, Bandura's self-efficacy research also showed that when one's mastery and skill is reinforced, self-efficacy and persistence increases.

According to Bandura (1977, 1997), self-efficacy is context and situation specific; thus, it is necessary to explore the different perceptions of teachers in different settings. Self-efficacy, and specifically teacher efficacy, is directly linked to the level of persistence they will exert despite the trials perceived as associated with the task or make-up of the students taught (Bandura, 1997; Tschannen-Moran & Hoy, 2001). Given the compounded needs of student with special needs and the need for quality professional development to support teacher growth and ability, the use of self-efficacy theory for this research supports Bandura's premise that when one's mastery and skill is reinforced, self-efficacy and persistence increases.

The theory of self-efficacy relates to how an individual will perceive a task, such as teaching, and determine how successful she or he may be based on experience, background, and supports provided (or not provided). General education teachers face many challenges related to the learning needs of students with special needs within the general education classroom. Despite considerable research related to teacher self-efficacy, there is an extremely limited amount of research related to self-efficacy of general education teachers towards educating students with special needs. For this reason, in this research study, the instrument used was the Teachers' Sense of Self-Efficacy Scale (TSES) short form questionnaire (Tschannen-Moran & Hoy, 2001), to obtain a depth of information regarding how general education feel about their ability to educate students with special needs The information derived from this study can assist education leaders in fully understanding the self-reported levels of self-efficacy of general education teachers who work directly with students with special needs in the general education classroom.

1.4. Teacher self-efficacy

Bandura (1997) suggests that self-efficacy should be conceptualized in a situation-specific manner. Therefore, an individual can have high self-efficacy in one situation but have low self-efficacy in a completely alternate situation. When discussing an individual teacher's belief in his or her ability to educate students (teacher efficacy), it is considered a sub-concept of self-efficacy because it is specific to the teaching profession. Teacher efficacy is "the extent to which the teacher believes he or she has the capacity to affect student performance" (Berman et al., 1977).

The concept of teacher self-efficacy was originally thought to be a holistic concept that applied to every aspect of teaching. For instance, if a teacher had high efficacy, she or he had high efficacy for every subject and every student. Tschannen-Moran et al. (1998) stated, "Teachers do not feel equally efficacious for all teaching situations. Teacher efficacy is content specific" (p. 228). Moreover, when making an efficacy judgment, the teaching task required (whole group, small group, talented and gifted students, special education students) and the content for instruction must be considered (science, reading, math, music, etc.). There are limited quantitative studies that explores the self-efficacy of general classroom teachers related to educating special education students. Therefore, the findings of this study are crucial to understand needs and priorities of general education teachers.

Prior teacher efficacy research guided Woolfolk, Rosoff, and Hoy (1990) to assert that teacher efficacy behavior was one of the few factors consistently related to the improvement of the teaching and learning process. When a teacher has the belief that all students can learn, then the teacher's instructional styles will create the types of learning environments that motivate and engage students to succeed (Bryant & Yan, 2010). Moreover, teachers who are convinced that all children are capable of learning will set high academic expectations for their students. Such teachers have high teacher efficacy and can have success teaching students despite any student socio-economic differences.

Much research has been done to determine if a teacher's years of experience, grade level taught, or educational background affect her or his self-efficacy. One of the most researched factors is years of experience in the teaching profession. Of the studies that have been conducted on the relationship between teaching experience and teachers' self-efficacy results have been varied and remain inconclusive. Results have shown that a teacher's sense of self-efficacy increases with experience (Hoy & Woolfolk, 1993). On the other hand, Ghaith and Yaghi (1997) found negative correlations between years of experience and teacher self-efficacy. Wolters and Daugherty (2007) showed a modest effect of years of teaching experience on self-efficacy for instructional strategies and for classroom management, but no effect was found of years of

teaching experience on self-efficacy for classroom management. More recently, Klassen and Chiu (2010) discovered that teachers' self-efficacy was influenced by years of experience. Teacher self-efficacy increased with experience from pre-service to mid-career teachers and declined for teachers in later career stages.

Other factors have been found to influence teacher self-efficacy as well. Research focusing on grade levels taught found that elementary school teachers report higher levels of self-efficacy for student engagement than teachers in middle or high schools (Wolters & Daugherty, 2007). Klassen and Chiu (2010) reported that teaching in elementary schools and teaching kindergarten were linked with higher levels of self-efficacy for classroom management and student engagement. Regarding elementary school teachers, those who taught the youngest students had higher levels of self-efficacy than teachers of older students within elementary schools. Regarding educational background, teachers with a graduate degree are more likely to have higher teacher self-efficacy than those who do not (Hoy & Woolfolk, 1993). Other research (Gur, Cakiroglu, & Aydin, 2012) observed no significant predictability of teachers' efficacy based on gender.

1.5. Teacher self-efficacy for inclusion

Research has shown that a teacher's self-efficacy can have a significant impact on the instructional core of teaching and learning. A plethora of research has been focused on teacher efficacy towards students in general; not as much attention has been given towards students with special needs within the inclusive classroom. In 2012, de Boer, Pijl, and Minnaert reviewed 26 studies and found that teachers held neutral or low efficacy in their ability to educate students with special needs into the regular education classroom. As stated previously in this literature review, a teacher's self-efficacy has an impact on her or his actions or beliefs in the classroom.

When students do not achieve the desired outcomes, teachers with high self-efficacy participate in self-reflection about their role in the failure to inform future practice. They feel good about teaching and about themselves and are confident they can influence the student's learning (Brown, Welsh, Hill, & Cipko, 2008). Brown et al. developed and examined a self-report survey designed to assess knowledge and beliefs towards teaching learning-disabled students. The results revealed that embedded instruction regarding inclusion served to increase teacher candidates' knowledge and assessment adaptations with regard to inclusion, improving confidence levels with regard to meeting the needs of students with disabilities. Deemer (2004) noted that teachers with a low sense of efficacy may have trouble working with students with disabilities because they do not believe in their abilities; whereas, the teacher with a high sense of efficacy will find ways to teach all children. According to Troia and Maddox (2004), if teachers have high expectations and personal efficacy for their students, the students will expect more from themselves.

Teachers who have had training or experience in special education, thus increasing their efficacy, demonstrate more positive beliefs and lower levels of concern about inclusion programs (Bradshaw & Mundia, 2005; Subban & Sharma, 2006). Those teachers with previous training or experience were more confident in their roles as inclusive teachers (Bradshaw & Mundia, 2005); Subban & Sharma, 2006). Yehuda, Leyser, and Last (2010) found that teachers who were successful with the inclusion of students with special needs in the regular education classroom attributed the social and academic progress to their own skills and abilities. Furthermore, the successful inclusion of students with special needs into the regular education classroom appears dependent upon the knowledge, skills, and beliefs of the general education teachers (Friend & Bursuck, 2006).

Conversely, the teachers who were unsuccessful believed that the student's progress was dependent upon external factors, not from their own teaching and support. Though many teachers are open to different learners in the classroom, many have low teacher efficacy regarding their ability to work with the diverse needs of the inclusive classroom (Bradshaw & Mundia, 2005). Croll (2001) and Van Reusen, Shoho, and Barker (2000/2001) reported that teachers do not appear to like inclusion. Regardless of a teacher's beliefs about inclusion, many teachers have concerns about their ability to instruct students with special needs in the regular education classroom. Due to these concerns, teachers often develop negative feelings towards inclusion (Lambe & Bones, 2006).

In terms of teaching, self-efficacy is a teacher's belief in his or her ability to succeed in a educating a whole child in every particular situation. Since the self-efficacy plays an important role on both teaching and learning. This study focused on quantitative explorations of teacher self-efficacy towards students with special needs. Particularly, two research question will guide the study: (a) What is the difference between a teacher's sense of self-efficacy for educating students with special

needs and his or her self-efficacy for educating general education students? (b) How do various factors impact a general education teacher's level of self-efficacy for educating students with special needs?

2. Methodology

This quantitative study utilized a quantitative method approach to examine the self-efficacy of regular education teachers concerning their ability to educate student with special needs. In this study a quantitative method was employed through the administration of the modified Teachers' Sense of Efficacy Scale (TSES). The surveys can be considered an effective method for collecting information and data as reported by the participating classroom teachers. The Teachers' Sense of Efficacy Scale was administered to research participants who answered the questions themselves. Moreover, the following research method section includes the following parts (a) population and sampling selection, (b) instrumentation, (c) research procedure, and (d) Data Analysis.

2.1. Population and sampling selection

The target population for this study consisted of general education teachers who were teaching special needs children in the general education classroom. Special education teachers were excluded from this study because they teach only special education students. Furthermore, these teachers were employed in high achieving school districts with a high socioeconomic status as measured by the District Reference Group (DRG). DRG is a classification system by which districts that have public school students with similar socioeconomic status (SES) and need are grouped together. The state of Connecticut recognizes nine district reference groups (A–I). This study utilized a district from DRG B. The rationale for conducting this study in a more affluent district (DRG B) was to reduce the external factors that are often used as a reason for why lower socioeconomic communities (DRG G and H) have lower student achievement in comparison with districts in DRG A or B. DRG A and B districts are the most affluent school districts with high socio economic parent profile. Research has shown that income and class status have become increasingly determined by educational success (Crist, 1991; Johnson, 2000; Tournaki & Podell, 2005).

Participants from this study came from 2 elementary schools in a DRG B district located in south-central Connecticut. School A employs 36 teachers; 32 teachers took the modified TSES. School B employs 31 teachers; 24 teachers took the modified TSES. In total, 56 teachers took the modified TSES. The participation rate in the modified TSES was 85%. During the quantitative data analysis portion of this study, 5 teachers were removed from the data because they were special education teachers and only taught the special needs population, not the general education population. Therefore, the data from 51 general education teachers was used in this study.

Table 1. Participant demographics

Gender	Number of participants
Male	5
Female	46
Grade level currently teaching	
K-1	10
2-3	9
4-5	9
6	9
Specials (PE, Music, etc.)	9
Curriculum	5
Total years teaching	
1-3	6
4-8	7
9-12	8
13-16	11
17-20	8
21-25	5
More than 26 Years	6

The schools that participated in the study are considered a purposive sample. Maxwell (1997) defines purposive sampling as a type of sampling in which, "particular settings, persons, or events are deliberately selected for the important information they can provide that cannot be gotten as well from other choices" (p. 87). The sample for the first phase of the study was purposive because the 51 participants are general education teachers who teach in the same district that was classified as District Reference Group B.

2.2. Instrumentation

The instrument used to collect data for this study was a modified version of the Teachers' Sense of Efficacy Scale (TSES) created by Tschannen-Moran and Hoy (2001). The TSES was modified and used to assess the general education teacher's level of teacher self-efficacy. There are two versions of the TSES: a 12-question (short) or 24-question (long) format. Both scales are considered valid and reliable (Tschannen-Moran & Hoy, 2001); therefore, the 12-item scale was administered to be conscious of the participants' time.

The TSES (Tshannen-Moran & Hoy, 2001) has demonstrated strong construct validity across various populations. Klassen et al. (2009) tested the construct validity of the TSES with 1,211 teachers across 5 countries. The TSES showed strong measurement invariance in groups of teachers from similar geographical regions, languages, cultural dimensions, and school systems. The measure also showed strong invariance when all teacher participants were compared across all 5 countries. Klassen et al. (2009) concluded that the TSES displays a strong conceptual and theoretical foundation for assessing the construct of teacher efficacy. The formative validity of the TSES is demonstrated by the instrument's ability to measure four constructs of teacher efficacy: the teacher's total efficacy level and their efficacy level for specific teaching tasks (classroom management, instructional strategies, and student engagement). The data provided from this instrument allowed the researchers to see the areas in which the teacher's self-efficacy was stronger or weaker. The face value validity of the TSES allows the participant to understand that the instrument is testing how much they believe they can do as teachers to support students in the classroom. For example, "How much can you do to calm a student who is disruptive or noisy? Or how well can you implement alternative instructional strategies for students in your classroom?" The TSES has also been validated to support the stability of the three-factor analysis as well as being used as a single general measure of teacher self-efficacy (Nie, Lau, & Liau, 2012). Overall, the TSES is a valid instrument for measuring teacher efficacy.

The TSES uses a 9-point Likert scale in which 1 represents the lowest level of efficacy (the teacher feels that he or she cannot do anything), and 9 represents the highest level (the teacher feels that he or she can do a great deal). The TSES is broken into three sub-scales: classroom management, instructional strategies, and student engagement. The coefficient alpha reliability of the sub-scales ranges from .81 to .86. A principal axis factor analysis was conducted on this three-dimensional scale to determine the underlying structure (Tschannen-Moran & Hoy, 2001). As can be seen in Table 2, the factor items loaded on the short scale used for this study are: efficacy in classroom management 1, 6, 7, 8; efficacy in instructional strategies 5, 9, 10, 12; and efficacy in student engagement 2, 3, 4, 11.

Table 2. Modified TSES Sub-Scale Questions

Classroom management	
Question 1	How much can you do to control disruptive behavior in the classroom?
Question 6	How much can you do to get students to follow classroom rules?
Question 7	How much can you do to calm a student who is disruptive or noisy?
Question 8	How well can you establish a classroom management system with students?
Instructional strategies	
Question 5	To what extent can you craft good questions for your students?
Question 9	How much can you use a variety of assessment strategies for students?
Question 10	To what extent can you provide an alternative explanation or example when students are confused?
Question 12	How well can you implement alternative instructional strategies for students in your classroom?
Student engagement	
Question 2	How much can you do to motivate students who show low interest in school work?
Question 3	How much can you do to get students to believe they can do well in school work?
Question 4	How much can you do to help you students to value learning?

Question 11	How much can you assist families in helping their students do well in school?

The TSES was modified in two ways and used to assess the general education teachers' level of teacher self-efficacy. First, the researchers altered the scale by requiring participants to respond to each question about two different contexts. Participants answered each question once about students with special needs and another time for general education students. According to Bandura (1977, 1997) self-efficacy is context and situation specific; thus, it is necessary to explore teachers' perceptions for educating students with special needs and their general education peers by requiring participants to respond to the modified TSES twice. Second, a demographic section was added to the end. The demographic section contained questions regarding educational background, years in the profession, grade level, previous teaching experiences, and gender. Educational background includes undergraduate and graduate training in various teaching contexts (math, special education, reading, etc.). Previous teaching experiences refer to grade levels, content subject area, and experiences with students with special needs. When this demographic data was entered into the SPSS data package, it was coded as follows: Gender: 1 = Male, 2 = Female; Years Teaching: 1 = 1-16 years, 2 = 17 or more years; Grade teaching: 1 = general education teacher, 2 = specials or specialist; Prior Grade Taught: 1 = elementary only, 2 = middle or high school only.

2.3. Procedure

Prior to the start of the data collection, the researchers emailed the superintendents of four DRG B Districts requesting permission to conduct a research study in their district. The email briefly described the study, how it would be conducted, and what would be needed from the district. These four districts were selected due to their geographical proximity to the researchers. Of the four districts, only one superintendent responded with permission for the study to be conducted in her district. The researchers then emailed the principals of the five elementary schools within that district requesting permission to conduct the study in their schools. Of the five elementary schools, two of them allowed the researchers to conduct the study in their schools.

This quantitative study was comprised of a pilot panel to review the modified TSES and the administration of the modified TSES to study participants. The first phase of this study began with a panel of three general education teachers to pilot and review the modified TSES for clarity. The modified TSES was piloted to ensure that general education teachers understood the dual nature of the questions and demographic section. The researchers emailed the teachers of an elementary school in the district that was not participating in the study to gather general education teacher volunteers to pilot the modified TSES. Three general education teachers volunteered. The researchers met with these three teachers after school in one of their classrooms. The researchers first reviewed that all responses will remain anonymous, the informed consent, as well as the right to discontinue their participation in the study at any time.

The researchers asked for permission to create an audio recording of the discussion that occurred after the participants took the modified TSES survey. Once the three participants read and signed the informed consent form, the researchers handed out the modified TSES and explained the directions, the layout of the survey, and clarified the meaning of the term Students with Special Needs. At the close of administering the survey, the researchers held a discussion with the two volunteers as to their understanding of the questions in the scale, what they thought each one meant, and any questions they had regarding the intent of each question. The panel session took about 20 minutes. Revisions and clarifications to the questions on the modified TSES were made after the panel session.

After the pilot was completed, the researchers contacted the two principals of the elementary schools partaking in this study via email and asked for permission to give the modified TSES survey to their teaching staff during a faculty meeting. The email contained an explanation of the purpose of the study and a request for the principal to contact the researchers either by email or phone to schedule a time for the researchers to administer the modified TSES to the staff. The researchers administered the modified TSES at two separate faculty meetings (one for School A and one for School B). In total, 56 of the 67 total teachers, from both schools, took the modified TSES. This is an 84% participation rate. These participants were given a packet that contained information regarding the study, the consent form, and the modified TSES. The participants were assured that their identity and the school district's identity would remain anonymous in the final report of this study and all references would be made using pseudonyms. Once the participants reviewed the informed consent, they affirmed that they read the documentation and that they agreed to participate in the study. The scale took about 15 minutes to administer. The responses on the TSES provided data to answer research questions 1 and 2.

The researchers used SPSS to enter each of the 51 participants' modified TSES responses. Eight efficacy scores were collected from each participant: the overall efficacy score and the three sub-scale efficacy score (classroom management, instructional strategies, and student engagement). These four scores were collected for general education students and again for special needs students—totaling 8 efficacy scores. These scores were used to identify trends in the data. Analyzing these data allowed the researchers to determine similarities, differences, areas of perceived strength, or areas of perceived weakness among the participants' efficacy scores.

2.4. Data analysis

Following the data collection for this quantitative methods study, descriptive and correlational analyses were conducted. More specifically, the data analysis was organized around the research questions. The first research question was, "What is the difference between a teacher's sense of self-efficacy for educating students with special needs and his or her self-efficacy for educating general education students?" The modified TSES, which contained a demographic survey, was used to answer this research question. The data collected from the modified TSES was entered into the Statistical Package for the Social Sciences, version 24. After the data were cleansed, statistics including measures of central tendency and variation was used to summarize and profile teachers' modified TSES scores on both the general education scale and the scale for students with special needs. A dependent samples t-test was used to compare teachers' modified TSES total efficacy scores for special needs students and general education students.

The second research question was, "How do various factors impact a general education teacher's level of self-efficacy for educating students with special needs?" The modified TSES was used to quantitatively answer this question. Data from the modified TSES and the demographic survey were entered into SPSS. A multiple linear regression was used to determine if there was significant relationship between a teacher's efficacy level and her or his years of teaching experience, educational background, grade level taught, previous teaching experience, and gender.

3. Findings

In this section, the overall results about the beliefs that general education elementary school teachers have about their ability to educate students with special needs versus their general education peers are presented. This section has two sections. The first section presents the quantitative results for research questions 1 and 2. The second section presents the qualitative results for research question 3.

3.1. What is the difference between a teacher's sense of self-efficacy for educating students with special needs and his or her self-efficacy for educating general education students?

After the survey completion and data collection, the teacher mean scores and standard deviations were computed for both the general education and special needs sub-sections: student engagement, classroom management, and instructional strategies. The mean and standard deviation for each survey item was computed and compared against the two student groups: general education and students with special needs. For each survey item a teacher could score between 1, representing their belief that there is nothing they can do, to 9, representing their belief that they can do a great deal. As can be seen in Table 3, each survey item had lower scores for educating students with special needs when compared with the teachers' scores for educating general education students. Lastly, a t-test was computed to compare teacher efficacy scores for two student sub-groups (general education students and special needs students). Research question 1 sought to identify if teachers felt more efficacious for educating one sub-group of students versus another. To this end, a paired samples t-test was chosen as the analytical model to address this question. A paired samples t-test is a data analysis procedure that seeks to calculate the difference within each pair data points, determines the mean of these changes, and reports whether this mean of the differences is statistically significant (Tanner, 2012).

Prior to conducting the inferential analysis, the assumption of normality distributed difference scores was examined. The assumption was considered satisfied as the skew and kurtosis levels were estimated at .740 and .260 respectively, which is less than the maximum allowable values for a t-test (i.e., skew is $< |2.0|$ and kurtosis is $< |9.0|$ [Posten, 1984]). It should also be noted that the correlation between the two conditions was estimated at $r = .635$, $p<.001$, suggesting that the paired samples t-test is appropriate in this case. The results are presented in Table 3.

Table 3. Survey item means and standard deviations (N = 51)

General education			Special needs	
M	SD	Survey item	M	SD
7.57	1.54	1	6.45	1.7
7.18	1.48	2	6.31	1.45
7.63	1.23	3	6.70	1.45
7.55	1.25	4	6.61	1.44
7.84	1.07	5	7.29	1.15
7.94	.99	6	7.02	1.44
7.45	1.32	7	6.0	1.66
8.37	.69	8	7.32	1.49
7.92	1.11	9	7.51	1.35
8.06	.86	10	7.69	1.01
7.18	1.29	11	6.88	1.46
7.53	1.17	12	7.16	127

The standard deviations listed in Table 4 indicate considerable and consistent variation when comparing sub-scales for general education students and special needs students. The range a teacher could score for overall efficacy was on the low end a 12 to a high end of 108.

For each sub-scale, the range a teacher could score was on the low end a 4 to a high end of 36. On the overall mean, teachers reported a higher sense of efficacy for educating general education students (M=92.15, SD=9.46) than for teaching special needs students (M=82.94, SD=10.70). There was a significant difference in the overall efficacy scores at t(50) = 7.58. The effect size as measured by d was 1.06, a value that can be considered very large.

On the student engagement sub-scales, teachers reported a higher sense of efficacy for general education students (M=29.47, SD=4.29) than for special needs students (M=26.50, SD=4.48). This difference is significant at t(50) = 6.17. The effect size as measured by d was .86, a value that can be considered large.

On the classroom management sub-scales, teachers reported a higher sense of efficacy for general education students (M=31.33, SD=3.66) than for special needs students (M=26.78, SD=5.13). This difference is significant at t(50) = 7.82. The effect size as measured by d was 1.10, a value that can be considered very large.

Lastly, on the instructional strategies sub-scales, teachers reported a higher sense of efficacy for general education students (M=31.35, SD=2.91) than for special needs students (M=29.64, SD=3.43). This difference is significant at t(50) = 4.81. The effect size as measured by d was .67, a value that can be considered medium. As a result, in the paired sample t-test module, there was a significant relationship between a teacher's efficacy for educating students with special needs versus educating general education students in every sub-scale (classroom management, instructional strategies, and student engagement) in addition to the teachers' overall efficacy level.

Table 4. Sample descriptive and t-test values of teacher efficacy scores (N = 51)

	General education students		Special needs students			
	M	SD	M	SD	t-test	Effect size
Overall	92.15	9.46	82.94	10.70	7.58*	1.06
Student engagement	29.47	4.29	26.50	4.48	6.17*	.86
Classroom management	31.33	3.66	26.78*	5.13	7.82*	1.10
Instructional strategies	31.35	2.91	29.64	3.43	4.81*	.67

*p < .05.

3.2. How do various factors impact a general education teacher's level of self-efficacy for educating students with special needs?

In research question 1, the researchers explored a teacher's efficacy for educating students with special needs and his or her efficacy for educating general education students. In research question 2, the researchers studied the influence that

demographic factors can have on a teacher's efficacy level for educating students with special needs. To address the second research question, a simultaneous multiple regression analysis was conducted. The four demographic factors were entered simultaneously into this regression analysis. The dependent variable was overall teacher efficacy score for educating students with special needs. The independent variables were gender, years in the teaching profession, current grade taught, and prior grades taught. The purpose of this analysis was to assess which of the four demographic factors explained the greatest amount of variance in the efficacy score for educating students with special needs. Descriptive statistics and the results for frequencies for categorical variables are presented in Table 5.

Table 5. Frequencies for Categorical Variables

Categorical variables	N	%
Gender		
Male	5	10
Female	46	90
Years Teaching		
1-18 years	32	63
19 or more years	19	37
Grade Teaching		
General Education Classroom Teacher	35	69
Specials or Specialist Teacher	16	31
Prior Grade Taught		
Elementary	46	90
Middle or High School	5	10

Note. N=51. Total of percentages is not 100 because of rounding.

When the data shown in Table 5 is examined, it can be observed that 90% of the participants (n=46) are female and 10% of the participants (n=5) are male. When looking at the number of years the participants have been in the teaching profession, it can be said that 63% of them have been teaching between 1 and 18 years (n = 32) and 37% have been teaching more than 19 years (n = 19). It is important to note that there were not any teachers with less than 5 years of experience who took the modified TSES. When analyzing their current grade teaching assignment 69% of the participants were general education classroom teachers (n = 35 and 31% of the participants were specialist teachers (n = 16). Lastly, when looking at their previous teaching experiences, 90% of the participants have only taught at the elementary level (n = 46), and 10% of the participants have previously taught at the middle or high school level (n = 5).

For the bivariate correlations, as it can be seen in Table 6, all four demographic predictors (gender, years in the teaching profession, current grade level taught, and previous teaching experience) were not statistically significant, $F(4, 46) = 2.14$, $p > .001$.

Table 6. Means, standard deviations, and bivariate correlations for the total efficacy score for educating students with special needs (sn sum) and its predictor variables

Variable	M	SD	1	2	3	4
SN Sum	82.94	10.70	.01	.38	.42	.07
Predictor variables						
1. Gender	1.90	.30	-	.21	.34	.22
2. Total years taught	1.37	.49		-	.03	.21
3. Current grade teaching	1.31	.47			-	.01
4. Prior grade taught	1.10	.30				-

*$p < .05$

To check multicollinearity, Tolerance and Variance Inflation Factor (VIF) values were also examined. Tolerance is a

measure of collinearity reported by most statistical programs, such as SPSS. There should not be any tolerance values less than .20 so as not to violate the analysis (Field, 2009) and in this study there were not any values less than .20, as the least values was .83 for the "current grade teaching" variable. VIF measures the impact of collinearity among the variables in a regression model. VIF values were examined, and according to Hair, Black, Babin and Anderson (2010), if there were any values higher than 4, it might violate the assumption. Based on VIF values of this study, there were not any values that violated this criterion, as the highest value was 1.21 for "current grade teaching" variable. Regarding these three examinations, it can be said that multicollinearity was not observed in this study. In Table 7, tolerance and VIF values are presented.

Table 7. *Collinearity statistics of predictors for teacher efficacy for educating students with special needs*

Model	Tolerance	VIF
Gender	.97	1.04
Years teaching	.92	1.09
Grade teaching	.83	1.21
Prior grade taught	.86	1.16

After checking multicollinearity, normality assumption was checked through histogram and P-P plot. According to Field (2009), the difference between the model and the observed data should be zero or very close to zero to meet the normality of the residuals. When the histogram for this data is examined, a normal distribution curve can be seen in Figure 4, thus it can be determined that this assumption was satisfied considering this criterion. Additionally, The P-P Plot of residuals was checked, and it can be concluded that the assumption of normality was not violated since the errors were normally distributed by following the 45 degrees angle and by not scattering away from the line. As a fourth assumption, independence of errors was checked through Durbin-Watson coefficient tests for autocorrelation. To determine this, the criterion of Durbin and Watson (1951) for the value to be between 1 and 3 was used. As it was observed as 1.97, being between those values, it was determined that the assumption of independence was met. As the last assumption, the influential observations was checked through Mahalanobis Distance, Cook's Distance, Centered Leverage Value, Standardized DF Beta values, and partial plots. Firstly, Mahalanobis Distance values were checked, and it was determined that they were appropriate. The chi-square value for 4 predictor variables with a significance sensitivity of .001 was determined as $X^2 = 18.47$ from the table provided by Tabachnick and Fidell (2013). The values above this value might be considered as outliers (Field, 2009), and in this study, there is not any case that violated this principle. The leverage statistics for detecting outliers was examined. The computation formula is $(k + 1)$ x 3 / n (Stevens, 2009), and the value for this study was found as .29 through the computation (4 + 1) x 3 / 51). All the leverage values were found to be lower than .29, except for case 26, which has the value of .3. Thirdly, Cook's Distance values were also checked for detecting outlier as when there were any values higher than 1 that might cause problems (Cook & Weisberg, 1982). However, there were no such values, since the highest one was .09 in case 106.Finally, DFBeta values were checked to see whether there were any outliers, considering the criteria set by Field (2009) as standardized DFBeta values of the cases above 1 may be considered as outliers. There were no values higher than 1 in this study.

After checking the required assumptions for multiple regression analysis, necessary statistical analysis were examined to answer the research question of "How do various factors impact a general education teacher's level of self-efficacy for educating students with special needs?" According to the results of the F-test (ANOVA) and Model Summary data, the total model was insignificant, $R^2 = .16$, $F(4, 50) = 2.14$, $p > .05$ as the results provided in Table 8. None of the four predictor variables significantly contribute to the prediction of criterion variable, which is teacher efficacy score for teaching students with special needs and totally they explained 16% of variance.

Table 8. Regression analysis summary for variables predicting teacher efficacy for educating students with special needs

Variable	*B*	*SE B*	*B*	*t*
Gender	11.34	4.91	.32	2.31*
Years teaching	.204	3.09	.01	.07
Grade teaching	-1.77	3.40	-.08	-.52
Prior grade taught	7.37	5.20	.21	1.42

Note. $R^2 = .27$ (N=700, $p < .05$) and *$p < .05$.

Even though the regression model was not significant, it was surprising to see that the gender variable explained 10% of the variance, and it had the highest relationship with the outcome variable compared to other predictors. As there is a positive relationship, it can be stated that an individual's gender has an impact on her or his efficacy score for educating students with special needs. According to mean scores, females (*M*=84.15, *SD*=10.20) had higher overall efficacy for educating students with special needs when compared to their male peers (*M*=71.8, *SD*=9.50). All other predictor variables (years teaching, grade teaching, and prior grade taught) did not have a significant relationship with the outcome variable of teacher efficacy for educating students with special needs.

4. Discussion and implications for policy and planning

The purpose of this study was to explore the general education teachers' perspective to educate the special education students. The significant findings were reported in the finding section. This discussion section moves beyond the results to provide implications and recommendations for future policy and practice. The researchers start by addressing the research questions posed in the study including a comparison of the findings of the study to prior research followed by implications for future practice, research and policy.

4.1. Improving teacher's sense of self-efficacy for educating students with special needs

The first research question was, "What is the difference between a teacher's sense of self-efficacy for educating students with special needs and his or her self-efficacy for educating general education students?" The data collected from the TSES revealed that general education teachers feel less efficacious for educating students with special needs overall and on each individual sub-scale: instructional strategies, classroom management, and student engagement.

4.1.1. Classroom management

The quantitative data revealed that general education teachers feel less efficacious for the classroom management of students with special needs in comparison to their general education peers. According to Ünal and Ünal (2012), classroom management is one of the top three problems for American schools. Not having a strong, positive, and preventative system in the classroom that clearly lays out the expectations, procedures, and processes that students need to follow creates a loose structure that allows discipline problems to arise. Research has shown that a lack of classroom management or less effective classroom management practices can lead to disruptions and misbehaviors that inhibit a teacher's lesson and a student's ability to learn (Rosas & West, 2009). This statement articulates the main reason that teachers need to implement more effective classroom management systems, so they can accomplish their goal of educating their students. The questions from the modified TSES that targeted the sub-scale of classroom management reveal that the participants feel less confident in their abilities to uphold classroom rules and procedures, calm a disruptive student with special needs and to implement a classroom management system directed towards a student with special needs. Wong and Wong (2005) stated, "Classroom management overarches everything in the curriculum" (p. 84). If classroom management overarches everything, then poor classroom management of students with special needs could ultimately impact the instructional strategies and engagement within the classroom as well.

Prior research studies show that a lack of efficacy and ability can lead to unsuccessful classroom management. Unsuccessful classroom management not only contributes to many student behavior referrals, it can also cause teacher stress and burnout, which can drastically affect students' learning time in the classroom (Clunies-Ross, Little, & Kienhuis, 2008). Conversely, when teachers have positive self-efficacy relating to their classroom management practices, they have less chance of feeling burned-out (Ozdemir, 2007). While this study does not explain why teachers feel less efficacious for the classroom management of students with special needs, other studies do support the finding that teachers need more than a workshop on classroom management to be effective. Wong (2002) stated that teachers should be offered a systematic classroom management training over two or three years that includes administrative support, a mentoring component, and a structure for modeling effective teaching during in-service and mentoring experiences. Yoon, Duncan, Lee, Scarloss, and Shapley (2007) conducted a review of studies to determine the effects of PD on student achievement. Their review found that PD had a moderate effect on student achievement if the number of hours of PD was greater than 49. Both of these studies show that substantial PD is needed to make a difference on teacher classroom management practice. From the data collected from the focus groups, the participants did not receive PD to this magnitude, which could be a reason that they felt less efficacious for the classroom management of students with special needs.

4.1.2. Instructional strategies

This study's results revealed that general education teachers feel less efficacious around instructional strategies for students with special needs in comparison to their general education peers. Darling-Hammond and Bransford (2005) reported that teachers need to be aware of the variety of ways that student learning can emerge in the context of development, learning differences, language and cultural differences, and individual temperaments, interests, and approaches to learning. The questions from the modified TSES that targeted the sub-scale of instructional strategies reveal that the participants feel less confident in their abilities to craft and ask good questions, assess students with special needs appropriately, and to vary instructional strategies to meet the needs of students with special needs. John Dewey noted that the best-prepared teachers are those whose practice becomes differentiated in response to individual student needs, rather than routinized (Darling-Hammond, 2006).

Furthermore, research focused on pre-service teachers warns administrators to avoid the assumption that beginning teachers will eventually learn to implement differentiated instruction on their own once they gain experience (Edwards, Carr, & Siegel, 2006). Once untrained beginning teachers face diverse student classrooms and fail at meeting student needs, most resort to a rote-oriented curriculum. In contrast, "research has found that strong teacher education results in teachers' significantly greater use of strategies that produce higher-order learning and that respond to students' experiences, needs, and learning approaches" (Darling-Hammond, 2010, p. 209). Knowledgeable teachers who have been supported and well trained are aware of how to plan and manage a classroom, allowing time to focus on developing higher order thinking skills through differentiation.

While this study does not explain why teachers feel less efficacious for using instructional strategies for students with special needs, it is of interest to note that all of the teachers in the focus groups had attended workshops on differentiation strategies, yet they still felt less efficacious for differentiating instructional strategies for students with special needs. As stated earlier in the literature review, effective PD should be ongoing, monitored, and adjusted as needs arise over time (Elmore, 2004). The differentiation workshop that the focus groups attended was a one-time event, in other words, it was not ongoing, monitored, or adjusted as needs arise over time, which could be a reason that teachers still feel less efficacious in this area.

Lastly, while participants felt less efficacious for educating students with special needs on all three sub scales (instructional strategies, student engagement, and classroom management); the effect size for instructional strategies was smaller than the effect size for the other sub scales. In other words, participants felt more efficacious in the area of instructional strategies when compared with their efficacy for student engagement and classroom management. The rationale for participants feeling slightly more efficacious for instructional strategies is due to the fact that the majority of professional development sessions are centered around instructional strategies specifically targeting how to implement the new Common Core Standards and the new Science NGSS Standards. Districts are required to implement these standards; therefore, many professional development sessions have been focused on supporting teachers in this endeavor. Since this training has been recent the participants efficacy for this subscale was slightly higher than classroom management and student engagement.

4.1.3. Student engagement

The quantitative results revealed that general education teachers feel less efficacious in student engagement for students with special needs in comparison to their general education peers. Early research by Karp and Yoels (1976) found that few students participated regularly in any given classroom. These findings have been confirmed in a more recent study (Rocca, 2010). Research has shown that teachers in more engaging classrooms more frequently used research-based practices. This includes teachers connecting material to prior knowledge, challenging students, and showing students how the skills and content taught are relevant, creating relevant student tasks, and keeping cultural and technological conditions consistent (Luke et al., 2003). Raphael, Pressley, and Mohan (2008) suggested that it is not the type of practice that teachers use to stimulate student engagement but rather the quantity of practices. They asserted that the sheer diversity of practices ensures that students are engaged. Pianta, Hamre, and Allen, (2012) agreed by stating that varying tasks and activities keep students curious about their learning, as they will not be able to predict what will be coming next.

As stated earlier in the literature review, few studies have examined teachers' perspectives of factors that may influence student engagement (McMahnon & Zyngier, 2009; Zyngier, 2008). Further research is needed to determine why teachers feel less efficacious for the student engagement of students with special needs in the general education classroom.

4.2. Factors impact a general education teacher's level of self-efficacy

The second research question was, "How do various factors impact teacher's level of self-efficacy for educating special education students?" The quantitative data results revealed that the regression model was not significant. Therefore, the variables gender, years taught, grade taught, and prior grade taught together do not predict a teacher's efficacy level for educating students with special needs. These factors do not significantly impact the teacher's efficacy score.

Although the regression model was not significant, in isolation the variable gender did have a significant impact on a teacher's efficacy level for educating students with special needs. In this study, female teachers, on average, had higher efficacy scores than did their male peers. A vast array of conflicting research findings exists on the effect that gender has on self-efficacy. Some research studies indicated relationship between teachers' sense of self-efficacy and gender (Gurbuzturk & Sad, 2009; Hamurcu, 2006; Tabak, Akyildiz, & Yildiz, 2003), while other studies found no differences in teacher self-efficacy by gender at all (Chacon, 2005; Cubukcu, 2008; Karimvand, 2011; Mitchual, Donkor, & Quansah, 2010). Lastly, the research regarding the effect of teacher gender on teacher self-efficacy reveals that females report higher teacher self-efficacy than males (Anderson, Greene, & Lowen, 1988; Evans & Tribble, 1986). Similarly, in investigating the effects on teachers' self-efficacy and job satisfaction in terms of gender, Klassen and Chiu (2010) found that female teachers have lower teacher self-efficacy in the area of classroom management but not in instructional strategies and student engagement. Gurbuzturk and Sad (2009) observed that male and female participants' self-efficacy levels differed significantly. They found that female participants were found to have slightly higher self-efficacy scores than those of male participants.

While, the demographic factors, prior grade taught, years taught, and grade taught were not found to impact a teacher's level of self-efficacy for educating student with special needs, research has been conducted on preservice teacher's sources of efficacy outside of the aforementioned sources of efficacy discovered by Bandura (1977). Poulou (2007) highlighted the importance of student teachers' personality characteristics, capabilities, and motivation as potential sources of teaching efficacy. The author found that student teachers' motivation (for example, love for pupils, which enhances efforts towards effective teaching and personal effort and study about topics of teaching effectiveness) to improve their teaching efficacy received the highest ratings as a source of teaching efficacy. In addition, student teachers' personality characteristics (for example, direct communication with pupils, positive stance/humor) also received high mean scores as likely sources of teaching efficacy. Poulou (2007) found that student teachers' personality characteristics were significant predictors of all three areas of efficacy for instructional strategies, classroom management, and student engagement. Poulou (2007) mentioned that the more student teachers perceived themselves as possessing specific personality characteristics and teaching capabilities, the more they felt efficacious in implementing. Further research is needed to explore how the factors personality characteristics, capabilities, and motivation may have a bearing on an in-service teacher's efficacy level.

4.3. Implications for practice

This study had a practical purpose, which was to identify the self-efficacy levels of teachers for teaching students with special needs in the context of the general education classroom. This study further elaborated on the professional development characteristics that teachers perceive to positively influence their teacher efficacy for educating students with special needs. As stated earlier in this chapter, the perceptions of teachers were not always embedded in their prior experiences; some respondents shared what they thought would support them. From the findings of this quantitative study and all previous studies done, the future recommendations are suggested in Table 9.

Table 9. Implications for Policy and Practice

Finding	Implication
General education teachers feel less efficacious regarding instructional strategies, student engagement, and classroom management for students with special needs	School and district administrators should provide ongoing, monitored, and adjusted professional development to general education teachers for • Identifying and utilizing differentiated instructional strategies for students with special needs. • Managing disruptive behavior for students with special needs • Engaging students with special needs in a lesson
Prior grade taught, current grade taught, and years of experience were insignificant variables in	School and district administrators should take into consideration that just because a general education teacher has prior experience

predicting a general education teacher's efficacy for educating students with special needs in the classroom.	does not necessarily mean that they feel confident or efficacious in their ability to educate student with special needs. They need support just as novice teachers do.

A teacher's efficacy for educating students with special needs is lower than their efficacy for educating general education students. Schools should offer and allow for additional training/professional development to general education teachers in differentiation of instructional strategies and programs, so they can better prepare to teach and service the needs of students with disabilities. Research shows that teachers with additional training and experience had a more positive belief regarding inclusion (Bradshaw & Mundia, 2006; Subban & Sharma, 2006).

School districts should provide training that goes into depth regarding the knowledge and skills teachers need to work with students with challenging behaviors. This training needs to occur on a continuous basis. A behavioral coach versed in the knowledge and skills of managing challenging behaviors should be available to assist the teachers in implementing the necessary skills and lead the teachers in discussing the challenges they are facing and the strategies that have been helpful. Teachers should use a holistic classroom management system focused on building a classroom community through behavioral expectations, building relationships with students, mutual respect, and classroom routines. Lake's (2004) research supported the importance of building a classroom community and having students feel they belong to that community. Furthermore, Walker (2009) stated, "The best teachers don't simply teach content, they teach people" (p. 122).

5. Conclusion

Findings revealed that general education teachers have lower overall efficacy for educating students with special needs. Since the general education teachers do not have high self-efficacy for educating students with special needs. The findings speak to the need for a more diverse, flexible and comprehensive approach to implement teacher professional development activities. Moreover, the four demographic factors (gender, prior grade taught, current grade taught, and years of experience) were also found to not have a strong influence on a teacher's efficacy for educating students with special needs. If teachers' demographic factors do not play a significant role towards education students with special needs, this finding is also suggesting the importance of differentiated professional development activities in the role of positively affecting a teacher's efficacy for educating students with special needs. Ultimately, with an accountable, evidence based and personalizes professional development programs, classroom teachers will be able to gain targeted knowledge and skills on narrowing the opportunity and achievement gap for educating students with special needs.

Disclosure of Conflict

The author(s) declare that they have no conflicts of interest.

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References

Anderson, R., Green, M., & Loewen, P. (1988). Relationships among teachers' and students thinking skills sense of efficacy and students' achievement. *Alberta Journal of Education Research*, *34*, 148-165.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review,* 84(2), 191-215. doi: 10.1037/0033-295X.84.2.191

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.

Berman, P., McLaughlin, M. W., Bass, G., Pauly, E., & Zellman, G. (1977). Federal programs supporting educational change. *Col. VII: Factors affecting implementation and continuation*. Santa Monica, CA: Rand.

Berry, B., Daughtrey, A., & Wieder, A. (2010). *Teacher effectiveness: the conditions that matter most and a look to the future*. Chapel Hill, NC: Center for Teaching Quality.

Blanton, L. P., Pugach, M. C., & Florian, L. (2011). *Preparing general education teachers to improve outcomes for students with disabilities*. Washington, DC: American Association of Colleges for Teacher Education and National Center for Learning Disabilities.

Bradshaw, L., & Mundia, L. (2005). Understanding pre-service teachers' construct of disability: a metacognitive process. *Disability & Society, 20*(5), 563-574.

Bradshaw, L., & Mundia, L. (2006). Attitudes and concerns about inclusive education: Bruneian inservice and preservice teachers. *International Journal of Special Education*, *21*(1), 35-41.

Brown, S., Welsh, L., Hill, K. H., & Cipko, J. (2008). The efficacy of embedding special education instruction in teacher preparation programs in the United States. *Teaching and Teacher Education*, *24*, 2087-2094.

Bryant, L., & Yan, W. (2010). Urban school teachers' self- efficacy beliefs and AYP status. *The Charter Schools Resource Journal*, *6*, 1-13.

Chacon, C. T. (2005). Teachers' perceived efficacy among English as a foreign language teachers in middle schools in Venezuela. *Teaching and Teacher Education*, *21*(3), 257–272.

Clunies-Ross, P., Little, E., & Kienhuis, M. (2008). Self-reported and actual use of proactive and reactive classroom management strategies and their relationship with teacher stress and student behavior. *Educational Psychology*, *28*, 693-710.

Connecticut Common Core of Teaching Framework. (2010). Available from file:///C:/Users/darterbery/Downloads/CCT.pdf

Cook, R. D., & Weisberg, S. (1982). *Residuals and influence in regression*. New York, NY: Chapman and Hall.

Crist, K. (1991). Restoring opportunity for dropouts. *Equity and Excellence in Education*, *25*(1), 36-39.

Croll, P. (2001). Children with statements in mainstream key stage two classrooms: A survey in 46 primary schools. *Educational Review*, *53*(2), 137-145. doi:10.1080/00131910120055561

Cubukcu, F. (2008). Study on the correlation between self-efficacy and foreign language anxiety. *Egitimde Kuram ve Uygulama*, *4*(1), 148–158.

Darling-Hammond, L. (2006). Assessing teacher education—the usefulness of multiple measures for assessing program outcomes. *Journal of Teacher Education, 57*, 120-138.

Darling-Hammond, L. (2010). *The flat world and education: How America's commitment to equity will determine our future.* New York, NY: Teacher's College Press.

Darling-Hammond, L., & Bransford, J. (Eds.). (2005). *Preparing teachers for a changing world. National academy of education committee on teacher education*. San Francisco, CA: Jossey-Bass.

de Boer, A., Pijl, S. J., & Minnaert, A. (2012). Students' attitudes towards peers with disabilities: A review of the literature. *International Journal of Disability, Development and Education*, *59*(4), 379-392

Deemer, S. A. (2004). Classroom goal orientation in high school classrooms: Revealing links between teacher beliefs and classroom environments. *Educational Research, 46*(1), 73-90.

Drain, D. (2008). Teachers' attitudes and practices toward differentiating for gifted learners in K–5 general education classrooms. (Doctoral dissertation). The College of William and Mary, Williamsburg, VA.

Durbin, J., & Watson, G. (1951). Testing for serial correlation in least squares regression. II. *Biometrika, 38*(1/2), 159-177. doi:10.2307/2332325

Edwards, C. J., Carr, S., & Siegel, W. (2006). Influences of experiences and training on effective teaching practices to meet the needs of diverse learners in schools. *Education, 126*(3), 580-592.

Elmore, R. (2004). *School reform from the inside out.* Cambridge, MA: Harvard Education Press.

Evans, E. D., & Tribble, M. (1986). Perceived teaching problems, self-efficacy, and commitment to teaching among preservice teachers. *Journal of Educational Research*, *80*, 81-85.

Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). London, England: Sage.

Friend, M., & Bursuck, W. D. (2006). *Including students with special needs: A practical guide for classroom teachers*. Boston, MA: Pearson, Allyn, and Bacon.

Ghaith, G., & Yaghi, H. (1997). Relationships among experience, teacher efficacy, and attitudes toward the implementation of instructional innovation. *Teaching and Teacher Education, 13*(4), 451-458.

Gur, G., Cakiroglu, J., & Aydin, Y. C. (2012). Investigating predictors of sense of efficacy beliefs of classroom, science and mathematics teachers. *Education and Science, 37*, 68-76.

Gurbuzturk, O., & Sad, S. N. (2009). Student teachers' beliefs about teaching and their sense of self-efficacy: A descriptive and comparative analysis. Inonu University *Journal of the Faculty of Education*, *10*(3), 201-226.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Upper Saddle River, NJ: Prentice Hall.

Hamurcu, H. (2006). Candidate class teachers' self-efficacy beliefs about science teaching. *Egitim Arastirmalari, 24*, 112-122.

Hawkins, V. J. (2009). Barriers to implementing differentiation: Lack of confidence, efficacy and perseverance. *New England Reading Association Journal*, *44*(2), 11-16, 92-93.

Heward, W. L. (2013). *Exceptional children: An introduction to special education* (10th ed.). Upper Saddle River, NJ: Pearson.

Hoy, W. K., & Woolfolk, A. E. (1993). Teachers' sense of efficacy and the organizational health of schools. *The Elementary School Journal*, *93*, 355-372.

Individuals with Disabilities Education Act Amendments of 1997. (1997). Pub.L.No.105-17, 111 Stat. 37, 20 U.S.C. § 1400 et seq.

Individuals with Disabilities Education Improvement Act of 2004. (2004). Pub.L.No. 108-446, 118 Stat. 2647, 20 U.S.C. § 1400 et seq.

Johnson, G. (2000). Schoolwide enrichment: Improving the education of students (at risk) at promise. *Teacher Education Quarterly, 27*(4), 45-61.

Karimvand, P. N. (2011). The nexus between Iranian EFL Teachers' self-efficacy, teaching experience and gender. *English Language Teaching*, *4*(3), 171–183.

Karp, D. A., & Yoels, W. C. (1976). The college classroom: Some observations on the meaning of student participation. *Sociology and Social Research*, *60*, 421-439.

Klassen, R. M., & Chiu, M. M. (2010). Effects on teachers' self-efficacy and job satisfaction: Teacher gender, years of experience, and job stress. *Journal of Educational Psychology, 102*(3), 741-756.

Lake, V. E. (2004). Ante up: reconsidering classroom management philosophies so every child is a winner. *Early Child Development and Care*, *174*(6), 565-574.

Lambe, J., & Bones, R. (2006). Student teachers' perceptions about inclusive classroom teaching in Northern Ireland prior to teaching practice experience. *European Journal of Special Needs Education*, *21*(2), 167-186.

Longmore, P., & Umansky, L. (2001). The *new disability history: American perspectives*. New York, NY: New York University Press.

Luke, A., Elkins, J., Weir, K., Land, R., Carrington, V., Dole, S., …& Steven, L. (2003). Beyond the middle: A report about literacy and numeracy development of target group students in the middle years of schools. Canberra, Australia: Commonwealth Department of Education, Science and Training.

Maxwell, J. A. (1997). Designing a qualitative study. In L. Bickman & D. J. Rog (Eds), *Handbook of applied social research methods* (pp. 69-100). Thousand Oaks, CA: Sage.

McMahon, J., & Zyngier, D., (2009). Student engagement: Contested concepts in two continents. *Research in Comparative and International Education*. *4*(2), 164–181.

Mitchual, S. J., Donkor, F., & Quansah, C. (2010). The relationship between self-efficacy beliefs and performance of pre-service teacher interns. *Ghana Journal of Education and Teaching*, *11*, 268–282.

Nie, Y., Lau, S., & Liau, A. K. (2012). The teacher efficacy scale: A reliability and validity study. *The Asia-Pacific Education Researcher, 21(2),* 414-421.

No Child Left Behind Act of 2001. (2002). Pub.L.No. 107-110, 115 Stat. 1425.

Ozdemir, Y. (2007). The role of classroom management efficacy in predicting teacher burnout. *International Journal of Social Sciences*, *2*, 257-263.

Pianta, R. C., Hamre, B. K., & Allen, J. P. (2012). Teacher-student relationships and engagement: Conceptualizing, measuring, and improving the capacity of classroom interactions. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 365-386). New York, NY: Springer Science + Business Media.

Posten, H. O. (1984). Robustness of the two-sample t-test. In D. Rasch & M. L. Tiku (Eds.), *Robustness of statistical methods and nonparametric statistics* (p. 92-99). Dordrecht, The Netherlands: Reidel.

Poulou, M. (2007). Personal teaching efficacy and its sources: student teachers' perceptions. *Educational Psychology, 27*, 191-218.

Pressley, M., Dolezal, S. E., Raphael, L. M., Mohan, L., Roehrig, A. D., & Bogner, K. (2003). *Motivating primary-grade students*. New York, NY: Guilford.

Raphael, L. M., Pressley, M., & Mohan, L. (2008). Engaging instruction in middle school classrooms: An observational study of nine teachers. *The Elementary School Journal, 109*(1), 61-81.

Rocca, K. A. (2010). Student participation in the college classroom: An extended multidisciplinary literature review. *Communication Education*, *59*(2), 185-213.

Rosas, C., & West, M. (2009). Teachers beliefs about classroom management: Pre-service and inservice teachers' beliefs about classroom management. *International Journal of Applied Educational Studies*, *5*(1), 54–61.

Stevens, J. P. (2009). *Applied multivariate statistics for the social sciences* (5th ed.). New York, NY: Routledge.

Subban, P., & Sharma, U. (2006). Primary school teachers' perceptions of inclusive education in Victoria, Australia. *International Journal of Special Education*, *21*(1), 42-52.

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics.* Boston, MA: Pearson.

Tabak, R. S., Akyildiz, N., & Yildiz, S. (2003). Teachers' self-efficacy perception levels and environment awareness. *Egitim Arastirmalari, 10*, 134-145.

Tanner, D. (2012). *Using statistics to make educational decisions*. Thousand Oaks, CA: Sage.

Tournaki, N., & Podell, D.M. (2005). The impact of student characteristics and teacher efficacy on teachers' predictions of student success. *Teaching and Teacher Education*, *21*(3), 299-314.

Troia, G. A., & Maddox, M. E. (2004). Writing instruction in middle schools: Special and general education teachers share their views and voice their concerns. *Exceptionality, 12*(1), 19-37.

Tschannen-Moran, M., & Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, *17*(7), 783–805.

Tschannen-Moran, M., Hoy, A., & Hoy, W. K. (1998). Teacher efficacy: Its meaning and measure. *Review of Educational Research, 68*(2), 202-248.

Ünal, Z., & Ünal, A. (2012). The impact of years of teaching experience on the classroom management approaches of elementary school teachers. *International Journal of Instruction*, *5*(2), 41-60.

U.S. Department of Education. (2015). *37th Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act.* Retrieved from https://www2.ed.gov/about/reports/annual/osep/2015/parts-b-c/37th-arc-for-idea.pdf

Van Reusen, A. K., Shoho, A. R., & Barker, K. S. (2000/2001, December/January). High school teacher attitudes towards inclusion. *High School Journal*, *84*(2), 7-20.

Walker, J. (2009). Authoritative classroom management: How control and nurturance work together. *Theory Into Practice*, *48*, 122–129.

Wolters, C. A., & Daugherty, S. G. (2007). Goals structures and teachers' sense of efficacy: their relation and association to teaching experience and academic level. *Journal of Educational Psychology*, *99*(1), 181-193.

Wong, H. (2002). Induction: The best form of professional development. *Redesigning Professional Development, 59*(6), 52-55.

Wong, H., & Wong, R. (2005). *The first days of school: How to be an effective teacher*. Mountain View, CA: Harry K. Wong

Wood, D. (2002). The why? what? when? and how? of tutoring: The development of helping and tutoring skills in children. *Literacy Teaching and Learning*, *7*, 1–30.

Woolfolk, A. E., Rosoff, B., & Hoy, W. K. (1990). Teachers' sense of efficacy and their beliefs about managing students. *Teaching and Teacher Education*, *6*, 137-148.

Yehuda, S., Leyser, Y., & Last, U. (2010). Teacher educational beliefs and sociometric status of special education needs (SEN) students in inclusive classrooms. *International Journal of Inclusive Education*, *14*(1), 17-34.

Yoon, K. S., Duncan, T., Lee, S. W.-Y., Scarloss, B., & Shapley, K. (2007). *Reviewing the evidence on how teacher professional development affects student achievement* (Issues & Answers Report, REL 2007–No. 033). Retrieved from http://ies.ed.gov/ncee/edlabs

Zyngier, D. (2008). (Re)conceptualizing student engagement: Doing education not doing time. *Teaching and Teacher Education*, *24*, 1765-1776.