

8-2016

## Building Principals' Self-Efficacy Regarding Their Ability to Supervise Special Education Programing and Staff

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Building Principals' Self-Efficacy Regarding Their Ability  
to Supervise Special Education Programing and Staff

Candida Jo Marek

A Thesis Submitted to the Graduate Faculty of

GRAND VALLEY STATE UNIVERSITY

In

Partial Fulfillment of the Requirements

For the Degree of

Master of Education in Educational Leadership

Special Education Administration

August 2016

## **Acknowledgements**

I would like to thank my family for providing a huge amount of support throughout my progress and journey. There have been many moments missed and I appreciate the sacrifices they have made so that I could complete this goal. I'd like to also thank everyone that has worked with me on this research and encouraged me to keep going. Thank you to my school district for providing the pathway to explore my dream and my Committee Members: Dr. Cynthia Smith, Dr. Cathy Meyer-Looze, and Dr. Nagnon Diarrassouba. Lastly, a huge thank you to my mom, Treva Chambers. She has built such a strong foundation for me and pushed me to go for the extraordinary. Without her, I really do not know if I would have come so far. She has been my biggest cheerleader, teaching me to believe in myself and my ability to achieve anything I put my mind to.

Candy Jo Marek

## **Abstract**

This study uses quantitative data analysis to reveal Michigan building principals' self-efficacy dependent on number of years on the job and types of certification they hold. These findings reveal the need for principals to have more opportunities to better understand this special population they are leading and are responsible for. Albert Bandura has established much research on self-efficacy and cognitive theory. Applying that research to that of principal responsibility reveals a need for more knowledge and confidence in the area of Special Education. Principals report that this area is not addressed formally in their certification journey and the need to learn more is imperative.

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## **Chapter One: Introduction**

### **Problem Statement**

The obligation of building principals to meet the needs of children with disabilities has evolved over the past several decades. The responsibilities and knowledge needed has grown exponentially. However, research dating 40 years back, suggests principals do not have adequate knowledge or competency in the area of special education (Edmonds, 1979; Brewer, Gates, & Ross, 2001; Green, 2005; Leithwood, 1994; Senge, 1990; Fullan, 2001). The instructional leadership role of a principal greatly influences overall student performance. Principals guide teachers by assisting in identifying goals and professional needs and heading the implementation of practices for effective teaching and learning (Boscardin, 2005; Herrington & Wills 2005; Anderson, Leithwood, Louis, & Wahlstrom, 2004; McGuire, 2002). A competent principal with strong efficacy, experience, and knowledge in all areas of responsibility is required for successful leadership (Arguelles, Hughes, Klinger, & Vaughn, 2001; Huges, Klinger, & Vaughn2000). The challenge facing districts is the lack of preparation for principals in the area of special education. Research reveals many newly trained principals are graduating from preparation programs with inadequate training to administer special education programs and services. On-the-job learning or relying on other district personnel to guide them has become a common practice. This lack of preparation calls into question the competence of building principals to carry out this important function.

## **Importance and Rationale**

The impact a principal has on all students is significant. The role of a principal includes ample responsibility with parents, advocates, lawyers and even government agencies that hold administrators accountable for their failures (Katsiyannis & Wagner, 2010). A principal position consists of an extensive list of duties (Cruzeiro & Morgan, 2006; Hess & Kelly, 2007; Portin, 2004), including but not limited to:

- creating and maintaining academic collaboration,
- possessing knowledge in the use of multiple academic practices,
- managing relationships within the building as well as public relations
- assessing the need for and providing professional developmental opportunities,
- identifying goals for the district and developing mandated school improvement plans, cultural and strategic planning,
- facilitating the evaluation and monitoring for operative teaching and learning,
- knowledgeable of all government and finance related entities
- leaders of personnel, staff and students
- leaders of instruction, curriculum implementation, and academic performance

Beyond this exhaustive list of accountabilities, principals must also tend to the unique needs of the students with disabilities within their school building. However, research conducted by Karge and Lasky (2006) revealed that principal preparation programs have failed to prepare graduates with the appropriate knowledge to effectively lead a building as the principal, especially in the area of special education.

It is the responsibility of the principal to oversee all entities of special education (DiPaola, Tschannen-Moran, & Walther-Thomas, 2004). Without the proper knowledge in the area of special education, principals have a difficult time providing professional development for staff in the special education department as well as including them in school initiatives. Often, the special education staff is inadvertently forgotten through the advances in a school building because the principal does not know where to include them or what they need due to their lack of knowledge and experience in this area. When a principal provides relevant learning opportunities and administrative support for all staff, special education teachers benefit and report they can significantly affect the academic progress of their students and the school as a whole (Gersten, Keating, & Yovanoff, 2001). All teachers, general or special education, have a need and appreciation for the support of a confident, knowledgeable principal. Students with disabilities demonstrate improved academic outcomes in schools where the principal is knowledgeable about special education issues and supportive of the teachers and students (Brownell, Colon, McCallum, & Ross, 2003; Arguelles, Hughes, Kingner, & Vaughn, 2001). In Lynch's study (2012) about the quality of principals, it was found that the leadership and instructional role of the building principal greatly influences overall student performance. In order for a principal to efficiently lead a building of teachers for all students, they need a broader understanding of special education.

Due to the population of students with disabilities and special education needs in the general education classrooms increasing (U.S. Department of Education, National Center for Education Statistics, 2016), principals are now spending more time involved in special education

related activities than in the past (Karge, & Lasky, 2006). Historically, a dual or parallel system was established where a special education administrator was responsible for the programming of students with disabilities (Boyer, Goor, & Schwenn, 1997), allowing the principal to be fully invested in facilitating the curriculum for general education. As funding for education has been reduced, some districts have assigned the supervision of special education programs and staff to a building principal rather than employing a special education administrator. This change has added more responsibility to the principal, enforcing a more active role in the learning of all students. Therefore, a principal holding high self-efficacy and competency in the support for students with disabilities is vital to their success.

In 1980, Davis found there was little formal coursework in the area of special education required in administrator preparation programs. He surveyed 345 principals and found that 50% of them had no formal training. Similar findings were reported by Boyer, McHatton, Shaunessy, and Terry (2010) and Angelle and Bilton (2009) thirty years later. Principals stated they were very involved with department meetings, individualized education program (IEP) meetings, special education teacher observations and review of special education lesson plans. However, they found a disconnect between what principals were accountable for and what they were actually being prepared for. Even with a 30-year gap between studies, evidence revealed principals are expected to accomplish more, but are not being prepared for the comprehensive set of responsibilities. This indicates little to no change in the way principals are prepared for the responsibility of leading a school with students who have disabilities. Recent studies conducted indicate preparation programs for general education principals across the

nation provide a minimum number of courses in exceptionalities, although many do not require any courses specifically focused on working with special populations (Boyer, N. R., McHatton, P. A., Shaunessy, E., & Terry, P. M., 2010; Angelle and Bilton, 2009).

### **Background of the Problem**

The history of special education is complex and filled with legislative revisions and updates that require understanding in order to implement with fidelity. There are many laws such as the Individuals with Disabilities Education Improvement Act, IDEIA (2004) and the Elementary and Secondary Education Act (US Department of Education, 2016), which have significant implications for the roles and responsibilities of building principals in regard to special education. IDEIA mandates that all students with disabilities be entitled to a Free and Appropriate Public Education (FAPE). Studies reveal the overall knowledge, understanding, and implementation of IDEIA varies greatly among school districts, individual schools, and principals (Holler and Zirkel, 2008).

Traditionally, general education and special education had separate administrators, each tending to the specific areas of expertise. Research reveals a change from this way of operating across many districts, especially those in rural areas. The principal now manages special education matters previously handled by a special education administrator (Boscardin, 2005; Bowling, Marshall, & Patterson, 2000). The specific expertise needed for successful implementation of special education is developed over extended periods of time through individual effort and deliberate practice (Ericsson, Krampe, & Tech-Romer, 1993). Teaching

students in an inclusive building requires the experience, knowledge, and self-efficacy of a great leader.

The U.S. Department of Education (2016) reports there were more than 6.5 million children in the United States considered eligible for special education services in the school year 2013/2014, representing 13% of the K-12 population. Nationally, more than 62% of students with special needs received 80% of their instruction in general education classrooms. Specific learning disabilities held the highest rate of eligibility at 35%, 21% had speech or language impairments, 13% had other health impairments, and students with autism, intellectual disabilities, developmental delays, or emotional disturbances accounted for 5 and 8 percent of students. The rest of the eligibilities accounted for 2% or less of the population (2016). This data shows there is a high need for knowledge in the area of special education throughout the academic world.

Jeremy Lynch (2012) compiled a list of U.S. States that explicitly noted special education requirements for principal certification. He found that several states included specific language about special education in their certification policies including Iowa, Maine, Minnesota, Nebraska, and Vermont. Colorado includes special education in its induction for principals, North Dakota require principals to complete an internship in special education prior to certification and policies in Ohio state that principals must have a direct experience with students that have disabilities. The other forty-two states have no official language or policy about the amount or type of training principals must have on special education practices; instead leaving these decisions up to individual principal preparation programs.

An online review of program and course requirements--including an examination of course content descriptions and syllabi when available--of Michigan college and university educational administration programs revealed that of the 19 colleges or universities that have programs for K-12 administration, only one offered a course related to special education administration, and it is an elective rather than a required course. Research suggests that principal preparation programs need to concentrate more on special education; they also need to change their overall approach from a theoretical base to a more practical application model to increase principals' effectiveness as instructional leaders (Acker-Hocevar & Cruz-Janzen, 2008).

To better understand, use a visual such as a maze. A maze has an entrance and an exit through which a player must navigate to. After entering the maze, there are straight-a-ways, left turns, right turns and dead ends. Upon coming to the dead ends the player must retrace their steps to try and get back on track to find the end. The maze requires the player to have a deliberate and motivational effort to push on. It would be easier to avoid all the stress, such as the scared feeling of being lost or claustrophobia of the walls coming in, by going around the outside of the maze to get to the end. However, if an individual does that, they won't gain the knowledge, the confidence, and the experience that builds the expertise of knowing the path.

The maze contains the structures and strategies needed to mature an individual to the end. Developing self-efficacious principals is like sending them through a maze. For effectiveness the principal needs to experience the journey of understanding, go through every turn and dead end in order to build confidence and background for their leadership. Principals

need the time and experience. McCauley, Ruderman and VanVelsor further express the importance to provide sufficient time for learning with opportunities for sustained practice with progressively difficult tasks along with support and continued motivation to cultivate expertise (2010). This structure, the time and opportunity for sustained practice is in the maze. The dead ends symbolize the difficult tasks and the retracing of steps to find a different path is the practice and the fear of failing. The needed support and continued motivation provides strength when the feeling of defeat is overwhelming and the path becomes unclear. This experience and struggle builds the confidence and self-efficacy needed to sustain effectiveness in a building principal. Without the maze or the involvement and deliberate practice, principals are ill prepared and cannot build the confidence and self-efficacy to be successful in leadership for all students.

### **Statement of Purpose**

The purpose of this study is to explore a principal's perception of their confidence level based on their preparation and knowledge in the area of special education. Principals will be surveyed and asked to self-report on their ability to perform leadership skills in a building that include students with disabilities. When an administrator graduates from a preparatory school, are they confident enough in regards to leading special education staff? The body of research on social cognitive theory and self-efficacy as a construct indicates that psychologists have interpreted the term self-efficacy in various ways depending on the context, the purpose, and the specific task. For the purpose of this study, self-efficacy is defined as the self-beliefs of one's ability as well as their philosophical beliefs.



### **Research Question**

The following research question was developed to ascertain the level and amount of training as it is related to the self-efficacy of principals' ability to adequately administrate a school district building with the inclusion of students with special education services: What specific leadership tasks involving the education of students with disabilities do building principals feel competent to perform?

### **Design, Data Collection and Analysis**

This study will gather data via a survey regarding the self-efficacy of building principals in Michigan to administer special education programming and personnel. Data will be collected to understand the confidence and self-efficacy of principals newly hired, 1 – 3 years' experience, in their position, to those in the profession for 30 or more years. Email addresses were obtained from the state of Michigan Education Services. The survey questions were developed by Michael Miller on behalf of the Council of Administrators in Administration (CASE). It should be noted that all states have expectations for the training of principals, but we included the standards for Michigan as this is where the study will be conducted. The MDE standards were reviewed in 2012 by a task force convened by the MDE, resulting in no changes to the standards. While the intent was to conduct a census of all principals throughout the state, some of the targeted population may have been missed due to the limitations of databases. Because the survey was derived from a previous research attempt, permission was obtained from the original author after some adjustments were made.

Focusing on the experience and preparation of principals in Michigan, the survey was developed by the researcher to address the research question. The survey questions were based on the requirements for special education as recommended by the Council for Exceptional Children (2009) using the theoretical framework of self-efficacy by Bandura (1982).

### **Definition of Terms**

Individuals with Disabilities Education Act (IDEA): original law of 1997 that ensures the services to children with disabilities throughout the nation. IDEA governs how states and public agencies provide early intervention, special education and related services to more than 6.5 million eligible infants, toddlers, children and youth with disabilities.

The Individuals with Disabilities Education Improvement Act (IDEIA): the IDEA was re-authorized as IDEIA in 2004, but is still referred to as IDEA.

Free Appropriate Public Education (FAPE): an educational right of children with disabilities in the United States through the Rehabilitation Act of 1973 and IDEA

Special Education: the practice of educating students with special educational needs in a way that addresses their individual differences and/or disabilities.

Principal: a leader that directs the organization and implementation of a school building

School Leadership: usually the principal or administration that works to guide teachers toward improving educational process in elementary, secondary and postsecondary institutions. These people usually go beyond just management and administrative tasks.

Administration: oversees the operations of schools, colleges, universities; the important link between students and local communities.

Self-efficacy: one's belief in one's ability to succeed in specific situations or accomplish a task.

Sense in self-efficacy can determine how a goal, task, or challenges are approached.

### **Delimitations of the Study**

This study focused on principals' preparedness to confidently enter into a position as a leader of a building with students receiving special education services. The intent was to get enough participation for results to be generalized to principals throughout the state of Michigan. Because school districts employ individual principals for grade level buildings with similarity in tasks and job focus, the results from this study would have generalized fairly well across the state as well as other states as the recommendations for certification are nationally utilized.

This study does not answer how an individual comes to possess a high level of self-efficacy and how that relates to the principal's actual job performance as documented in an evaluation process. The confidence and self-efficacy of a principal cannot be identified through observation. Therefore, there is not an efficient way to discriminate between a self-proclamation and outside view of an evaluator or staff member of said principal.

### **Limitations of the Study**

Limitations of the study exist with the validity and reliability of the results. First, there are concerns with the validity of the survey as it was developed by a co-researcher and may contain unintentional bias. To reduce potential bias, the survey was developed under the direction of another researcher and was trialed on four principals prior to being used with the targeted population.

Another limitation of the study is that it most likely does not constitute a true census of the intended population. The survey used to collect data was sent to all principals in the state of Michigan via an internet purchased list of names. In one large urban district, a request for endorsement, as required by district leadership, was denied. Some emails were returned to the researcher as not valid and others responded with an answer of not being a principal so they were not going to fill the survey out. It is unknown exactly how accurate the email list was and if it truly reached all of the intended audience. The response rate was only 18% of the Michigan principals emailed.

The third limitation of this study is that it relies on the willingness of those that did receive the request to fill out the survey. Respondents who chose to participate could have done so because they felt more confident in their abilities than those who declined the invitation. Fear of reporting a lack of ability in these areas, which are related to the job requirements, might have contributed to the low return rate as well. Finally, the time of year the survey was sent might factor in, as it was the end of the school year when principals may have less time as they complete extra job responsibilities related to the end of a school year. Low participation from those given the survey has increased nonresponse bias, resulting in decreased validity when looking at generalizing the responses and making conclusions pertaining to the evaluation of principals in leadership roles that include students with special education needs.

Furthermore, direct accuracy could be skewed if the principal does not answer questions honestly as it relates in fear of appearing inadequate. It is our hope that with

anonymous surveying, this would have been limited. However, the abilities and skills were self-reported and not actually observed, so principals may have over or under rated their abilities with the various tasks. Finally, the survey was sent to all principals in Michigan. Therefore, there was no way to ensure a representative sample from a variety of school contexts, including size, type (rural, urban, suburban), the racial diversity or poverty levels of the students in each school. While this data does provide information regarding the demographics of the respondents, it does not provide correlations between demographic data and perception data.

### **Organization of the Study**

This concludes chapter one which provides an overview of this study. Chapter two focuses on a thorough review of the literature focusing on the topic principal self-efficacy and the theoretical framework used to guide the study, principal responsibilities, and special education needs from a leadership point of view. Chapter three provides details about the design of the study. In chapter four, results of the study will be reported, including demographic information about the respondents and findings related to self-efficacy of principals. Chapter five will include a summary of the thesis consisting of conclusions, discussion, recommendations, and implications for policy and practice.

## **Chapter Two: Literature Review**

### **Introduction**

This chapter will review current literature regarding principal preparation programs and the confidence and self-efficacy of building principals in regard to the supervision of special education programs and personnel. In order to understand how self-efficacy, beliefs, knowledge and experience impacts principals' effectiveness, one must understand the theory of self-efficacy and belief systems. This chapter will provide the reader with this foundational knowledge by reviewing Bandura's theories of social cognition and self-efficacy. Furthermore, this chapter will review the instructional leader's need with experience and further instruction to understand special education law and the roles teachers, the district, and themselves play in the provision of services. Educating children with disabilities is complex on all levels. Not only are there different degrees of disability, but the laws regarding the education of students is complex and frequently changes.

This chapter provides the foundation the reader needs by reviewing 1) Bandura's social cognitive theory and self-efficacy and how it has an effect on a principal's ability to be a competent leader, 2) how belief systems are influenced by experience and knowledge, 3) research that expands on the evolution of the profession of a principal philosophy and the leadership responsibilities, 4) self-efficacy as it has been used in other research, and 5) scholarly literature on principal preparation programs and the lack of instruction in special education.

## **Theoretical Framework**

The theoretical framework of self-efficacy, taken from the work of Albert Bandura (1994), states that “perceived self-efficacy is defined as people’s beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy beliefs determine how people feel, think, motivate themselves and behave.” (p. 71). With strong perceived self-efficacy a principal will have confidence in their ability in leadership of students with special education services. Self-efficacy and the belief systems motivate the human being to evolve and function. To further understand this theory, Nescolarde-Selva & Uso-Domenech (2016) explain the human being as a social animal with rational and abstract thought. A person’s foundation is based on belief systems and those beliefs come from experience and knowledge. Therefore, the training a principal goes through, and the experience and knowledge gained regarding special education responsibilities, impacts their foundation and leadership qualities. This is important because a principal’s belief system and their self-efficacy are reflected in their ability as a leader where students with special education needs are involved.

The theory of social cognitive and self-efficacy applied to the role of the principal implies that knowledge from administration preparation, previous experiences, and problem solving, are essential in a leadership position. Each entity builds upon the other. Experience builds on the knowledge; knowledge is gained through problem solving and experience. The belief system is compiled through the experience and training (Nescolarde-Selva & Uso-Domenech, 2016). Through experience and knowledge, a strong sense of self-efficacy improves

the ability and performance in everyday life and job-specific settings. A person with high assurance in their abilities will approach a task as a challenge to master rather than a threat to avoid. A non-efficacious person will shy away from difficult tasks and have low aspirations and a weak commitment to the goals (Bandura, 1994). A strong leader, especially one of students with disabilities needs to approach difficult situations with confidence and high assurance.

According to Bandura's social cognitive theory, specifically focused on self-efficacy theory, components of "an efficacy expectation is the conviction that one can successfully execute the behavior required to produce the outcomes" (1977, p. 193). This theory applied to the role of the principal suggest that the knowledge principals have from initial preparation, previous classroom and administrative experiences, and from trial and error, are components that intersect and allow them to perform the tasks required of them. Self-efficacy is not a measurable outcome; rather it is a perception of confidence, a belief in one's self. As such, it should be interpreted as other forms of self-reported data. Bandura explained:

"There is a marked difference between possessing knowledge and skills and being able to use them well under taxing conditions. Personal accomplishments require not only skills but self-beliefs of efficacy to use them well. Hence a person with the same knowledge and skills may perform poorly, adequately, or extraordinarily depending on fluctuations in self-efficacy thinking," (1993, p. 119).

The research on self-efficacy has demonstrated its importance in leadership roles (Bandura, 1993, McCormick, 2001).



“Thinking about leadership as a particular kind of human functioning, Bandura’s social cognitive model implies that to fully understand the leadership process three categories of leadership variables must be considered. They are leader cognitions, leader behaviors, and the leadership environment. And the most important, leader cognition, is the individual’s self-efficacy for the leadership task” (McCormick, 2001).

However, a review of literature specific to educational leadership in terms of supporting special education and principal self-efficacy revealed few studies. A leader who does not have a positive belief or view of special education or students with disabilities will most likely not have skills to lead in an administrative position. This begs the question: how can a principal without adequate experience, knowledge and high self-efficacy in the area of special education, successfully provide the academic experience for all students?

### **Synthesis of Research Literature**

The instruction of students with disabilities has changed substantially over the past several decades. The most important change relates to the increasing number of students with disabilities included in the general education classrooms for much of the school day. Due to these changes, the responsibilities of administrators have increased and now encompass the cultivation of learning environments and ensuring programming that is supportive of all students (Lynch, 2012).

Principals have a complex role when providing leadership at a rural school which requires them to be more than an operational manager. Effective principals need to utilize skills of instructional leaders and managers. They need to establish the climate and provide

consistent opportunities for growth and the development of all students. Principals are held accountable for the adequate yearly progress of all students including those with disabilities. They have to be knowledgeable about special education as more students with services are included in the general education. General education teachers need more guidance and support from principals for teaching all students in their care, especially those receiving additional services. All students are the responsibility of the principal (Ahlgrim-Delzell, Browder, Flowers, & Wakeman; 2006). Therefore, principals must have a well-rounded preparation for the duties they will undertake in an administrative role.

Principals today are expected to be leaders of staff, students, government and public culture and strategic planning (Cruzeiro & Morgan, 2006; Hess & Kelly, 2007; Anderson, Leithwood, Louis, & Wahlstrom, 2004; Portin, 2004). However, many in the leadership role of principal lack the skills and knowledge needed in the area of special education. The attitude that a principal has toward the added responsibility of special education is directly related to the amount of special education knowledge a principal has (Hirth & Valesky, 1992). With the high regulations and legal ramifications, school leaders are finding themselves immersed in procedural and technical compliance matters with which they are unfamiliar (Bays & Crockett, 2007). Research indicates students with disabilities have increased from 34% in 1990 to 61% in 2011 (Hoppey, Landers, McLeskey, & , Williamson, 2012; U.S. Department of Education, 2016) and achievement outcomes and post-school success for these students remains far below desirable levels (Feng & Sass, 2012; National Center for Education Statistics [NCES}, 2012; National Council on disability, 2011; U.S. Department of Education, 2016).

## **Self-efficacy research**

Bandura (1977, 1982, 1997) defines self-efficacy as the level of confidence an individual has in their ability to execute certain courses of action, or achieve specific outcomes. In a study by Lane, Lane and Kyprianou (2004), the relationship between performance and self-efficacy was measured in regards to motivation and academic performance in adult students in a postgraduate management business school. Referencing Bandura's work, they surveyed 205 UK university participants with an average age of 27.5 years. There were 82 males and 123 females with 75 of the overall simultaneously employed in a management position. Participants expressed their confidence with a percentage rating scale of 1-100 recommended by Bandura (1977). Performance was assessed both objectively and subjectively, and perceived academic success was assessed by asking participants to rate feelings of success academically with all situational and personal circumstances. This study was implemented over a 15-week semester, with a questionnaire during the first two weeks and then a criterion measurement at the end.

This study linked and extended previous studies and performance research by investigating the antecedents and correlates of self-efficacy. The three areas of focus: 1) self-efficacy to maintain motivation in the light of difficulties you might meet, 2) self-efficacy to cope with the intellectual demands of the program, and 3) self-efficacy to gain at least a pass in the end of semester assessments. The researchers' findings aligned with Bandura in that self-efficacy derives from the cognitive appraisal of previous performance (1997). There are significant correlates between self-efficacy and self-esteem. Self-efficacy is related to performance accomplishments and performance. There is predictive power of self-efficacy in

terms of explaining an individual's behavior and actions. However, there is a challenge associated with isolating and operationalizing the factors and conditions that influence self-efficacy judgments for research field settings.

Bandura (1994) believes expectations influence initiating behaviors and persistence to overcome difficulties encountered when trying to accomplish a task. Being successful in the performance of a task leads to higher self-efficacy, whereas failures tend to lower it. In the research by Lane, Lane & Kyprianou, they found that academic success correlated significantly with the attributions to ability, effort, all three self-efficacy measures and self-esteem. This supports the hypothesis that self-efficacy can be increased with experience and preparation (2004).

## **Principal Preparation**

The principal's role as a leader includes improving outcomes for students with disabilities as well as struggling learners (Billingsley, 2012). Principals are the main drive in developing schools that are more effective and inclusive for all students (Crockett, 2002; Dyson, Farrell, Polat, Hutheson & Gallannaugh, 2004). However, much of the evidence reveals that principals are not well prepared to address the needs of students with disabilities (DiPaola & Walther-Thomas, 2003; Pazey & Cole, 2013). If building principals are not given the knowledge and experience needed to lead the staff and students, then they will struggle to be effective.

Lynch (2012) provided research supporting the findings of inadequate preparation of developing principals by universities and the consequence it may have on students with disabilities. He found that only eight states require special education training for pre-service principals even though 40 states adopted the Interstate School Leaders Licensure Consortium (ISLLC) Standards for School Leaders. He concluded that state certification policies and the institutions that grant the degrees need to reform preparation programs and state certification policies simultaneously in order to produce more effective leaders (2012). Lynch states, "at the minimum, state policies regarding principal certification should include special education specific core competencies related to the legal aspects of special education, including the IEP process, the identification and referral process, re-evaluations, discipline, due process and mediation, least restrictive environment, and the use of outside services," (p.46). As related to academic core competencies, he further emphasizes the importance of "evidenced-based instruction for students with disabilities, appropriate educational settings, appropriate

accommodations and modifications, and creation of supportive educational environments (p. 46).

An online review of program and course requirements of the 19 colleges or universities in Michigan (the area of focus in this study) that have programs for K-12 administration, only one offered a course related to special education administration, and it is an elective rather than a required course. Research has suggested that principal preparation programs need to concentrate more on students with disabilities; they also need to change their overall approach from a theoretical base to a more practical application model to increase principals' effectiveness as instructional leaders (Acker-Hocevar & Cruz-Janzen, 2008). Osterman and Hafner (2009) determined that special education received little attention, and if it was addressed, the content usually focused on legal occurrences of special education. More recent research by Pazey and Cole (2013) concluded that special education is an area that has been neglected in leadership programs and is often void of discussions relevant to the creation of programs.

Another study by Algozzine and Davidson (2002) revealed that the lack of knowledge in novice administrators might promote difficulty in providing leadership and effective management of special education. The research was conducted using a descriptive/comparative design with a cross-sectional survey administered to beginning school administrators. Participants from the North Carolina Principal Fellows Program were asked their perception of their level of knowledge for procedural safeguards in IDEA that govern programs and services for children with special needs. They also collected demographic information with

a single stage sampling to select participants. The instrument utilized was a mail survey with a 5-point Likert-type scale that took 25-30 minutes to complete (2002).

Results indicated that participants were almost equally divided as to their perceived level of knowledge of special education law; 52.5% perceived themselves to have a “moderate” or “significant” level of knowledge, 47.5% believed they had a “limited” to “basic” level of knowledge. Percent distribution was similar regarding the participant’s knowledge for policies and procedures as mandated under IDEA. When participants in this study were asked about their satisfaction of preparation in special education training, the results revealed the following: the majority of 46.7% rated it as below or well below standard while 38.3% rated it as standard. Algozzine and Davidson state as a result of their research, “the level of knowledge of special education law is a factor that could ultimately affect the type of leadership a principal demonstrates in the management of educational programs and services for students with disabilities” (p. 44, 2002). Analysis of the data collected in this study suggests that novice administrators, due to their lack of knowledge of special education law, may have difficulty in providing leadership and effectively managing special education. These data points help identify the importance of principal knowledge in special education, however, it does not account for the self-efficacy a principal possesses in providing the leadership necessary. Managing a special education program could become frustrating and challenging for an administrator and without high self-efficacy to persevere, the task becomes almost impossible.

## **Philosophy and beliefs regarding special education**

Ahlgrim-Delzell, Browder, Flowers & Wakeman (2006) researched the fundamentals of the comprehensive knowledge base of principals. An important finding in the study determined a strong relationship between a principal's knowledge and their practice; having more knowledge increased their involvement in more aspects of special education programs. The downfalls of not having the necessary knowledge transformed to lower expectations, off-target teaching, and the denial of responsibility for students who performed poorly on high-stakes testing (Thurow & Johnson, 2000). In the study, principals reported the importance of all students being held accountable and that all teachers were responsible for targeted learning. However, only 28% of the principals had a comprehensive understanding of how to adequately provide the instruction. A possible explanation to the lack of support is that principals may not be aware of current information or have a foundation for best instructional methods for students with disabilities (Ahlgrim-Delzell, Browder, Flowers & Wakeman, 2006).

To provide leadership for effective teachers, principals must have an understanding and a high self-efficacy of their responsibility for the students with disabilities. They must recognize that needs "vary greatly even within the same disability population and at different stages of their development" (Hehir, 2005, p.56). This suggests that instructional leadership requires principals to understand the unique needs of students with disabilities and provide opportunities to achieve within the general education curriculum. It is important for principals to communicate and reinforce high expectations for students with disabilities. Research indicates many educators do not believe that students with disabilities should be held to the



same academic standards as other students, even though some students with disabilities clearly achieve these high standards (Olson, 2004). School leaders need to have the self-efficacy to challenge the status quo, and establish high achievement for all students. Unfortunately, the education of students with disabilities has been plagued by low expectations (Hehir, 2005), which may lead to exclusion from general education classmates and reduced academic expectations because general curriculum standards are viewed to be too advanced (Jorgensen, 2005). In order to facilitate the hard conversations with teachers and help them acquire the knowledge and belief to hold high expectations for all students, a principal needs knowledge, experience, self-efficacy, and a personal belief that follows the philosophy. They need to be the leader, have high expectations for the teachers and set clear performance standards for high-quality instruction. The principal cannot merely manage students with disabilities as a separate entity.

### **Knowledge of special education**

Research introduces the need for administrators to have knowledge in special education as the laws evolved and students with disabilities began embarking on inclusive experiences in their academic career. Powell (2009) researched the universities that offer administrator preparation programs in America, choosing two from every state with the largest graduation rate of administrators for the 2004, 2005, and 2006 school years. He followed the work of Hirth & Valesky, (1992), who discovered only 33% of general education administration endorsements required knowledge of special education law and 45% required knowledge on state requirements. Powell (2009) contends one of the biggest obstacles between successful

academic experience and services needed is the knowledge base of special education— its practices, law, and subsequent complaints and due processes. The data collected indicates that more universities provided knowledge of special education law in 2006 than in 1992 when Hirth & Valesky did their research. However, as in 1992, Powell’s research did not identify a correlation between the attitude towards special education responsibility and how self-efficacy produces leadership that is more effective.

Very few states require administrators to complete a special education law course, but this knowledge is required for a position as a principal. In 1986, Abernathy, Pettibone, and Stile conducted a five year study showing the need for special education knowledge growing yet no changes were implemented in the preparation programs. Susan Peterson (1987) emphasized in her research the importance of examining the principal’s involvement in leading a school with students with disabilities included in the education process. However, when inclusive practices became standard in 2004 through IDEIA and NCLB, little to no changes in principal preparation programs evolved with it.

Angelle and Bilton (2009) studied principal preparation training in regards to principal readiness, differences between preparation perceptions with included internships, and recent versus long time graduates of principal preparation programs. They concluded that internships did not provide sufficient preparation. The research found that 69% of the respondents indicated they spent less than 50 hours on the subject of special education, while 25% said they spent no time in this area of school leadership. Participants also reported little amount of time was spent in classes about special education: 53% = no classes; 32% = one class; 9% = two

classes; and 6% = three classes. There was a statistically significant difference between the comfort levels of the participants who had exposure and those that did not. Even with limited exposure, principals' comfort levels were increased. Recent graduates did not feel more prepared than graduates from 15 years ago, indicating that preparation programs have not changed with the evolution of responsibility. Out of the 182 surveyed principals, 69 reported having at least one course in special education and 113 had none (2009). This study does not simply imply that more course work should be added to preparation programs, but that more skills and knowledge should be embedded for better experience and self-efficacy and integrate special education into general education.

### **Summary**

While the literature has shown that principals report a lack of professional preparation, training, and knowledge regarding special needs students (DiPaola et al., 2004; Goor et al., 1997), it is largely silent on how principals actually rate their self-efficacy to perform the daily activities that meet the needs of students with disabilities. This study is designed to address this gap in the research. Special education leadership is a complex, unique, and diverse continuum. The roles and responsibilities of special education leaders change as swiftly as the policies, budgets, best practices, and systems of accountability that governs their ability to meet the challenges of the students under their charge. Principals that do not hold high self-efficacy and are not confident in their ability to lead in an area they are not comfortable with is likely to be detrimental to students receiving special education services.

Karge and Lasky (2006) surveyed 205 principals and found that 75% of school principals stated they spend more time involved in special education matters than in previous years. If they do not have the experience and self-determination to learn or keep up with special education, then leading their building efficiently would prove very difficult. Principals need to continue on the journey of the maze and develop experience and confidence to maintain a self-efficacy that can drive them to be efficient and productive as building leaders. As instructional leaders, the principal is responsible for cultivating collaborative environments and productive learning environments for all students in their building. The principal directly impacts a school's learning environment (DiPaola et al., 2004). Having self-efficacy, the principal can then lead with intentionality to support students and staff alike to higher achievement.

Principals are consistently expected to do more with less, lead improvement efforts, and supervise staff with increased responsibilities. In reviewing the literature, it appears special education has been left out of the preparation of principal training even though they identify it as a top concern (Christensen, Hunter, Robertson, and Williamson, 2013). This study attempts to include the understanding self-efficacy in special education plays in the development of a building principal and how it can enhance leadership for all students.

## **Chapter 3: Research Design**

### **Introduction**

The purpose of this study is to gain an understanding of the self-efficacy of building principals in the supervision of special education programs and personnel. The following research question is addressed in this study: What specific leadership tasks involving the education of students with disabilities do building principals feel competent to perform?

This chapter will give an overview of the procedures employed in the collection of data for this study. Specifically, it will look at the participants of the study, the survey instrument used, methods for collecting data, and how the data was analyzed.

### **Participants**

The target population in this study includes all building principals who supervise special education services and special education staff in the state of Michigan. The list of administrators to receive a survey for completion was obtained through an email-marketing database. While the intent was to conduct a census of building principals who supervise teachers and students in the special education realm, some administrators may have unintentionally been missed due to limitations of databases and of the self-identification of administrators. There may have been additional principals found in the list compilation that do not supervise a special education department or have students with services in their building. Because this study involves human subjects, approval was obtained from the Human Research Review Committee through Grand Valley State University prior to the dispersal of the survey.

This population was specifically targeted because of the lack of studies regarding self-efficacy of building principals in relation to special education. Building principals who have students with special education services enrolled have first-hand knowledge regarding the tasks involved in the area of special education. Through their experience of participating in preparation programming and leading staff as the principal, they will have informed opinions about what is necessary to effectively provide and maintain compliance for their building. Additionally, the target population was chosen because the opinions of building principals and the self-efficacy they possess in special education has not been reviewed, yet they are expected to do more than ever within this area of education.

### **Instrumentation**

A survey was developed with the assistance of the Grand Valley State University Statistical Consulting Center to address the research question. Items from the Special Education Leadership Appraisal Scale (SELAS), an instrument developed by Dr. Michael Miller at Drexel University, were used with permission granted to Dr. Cynthia Smith and her students. The survey developed contains 44 contextual questions about the respondent's experience with special education, his or her experience in principal preparation programs, and experience as a building principal with the inclusion of students receiving special education services. It contains statements regarding self-reflected confidence in implementing compliance in regards to special education. For each of the demographic items, participants selected their response from a drop-down list. They were able to select more than one response when appropriate, (e.g. type of certificate held). A four point Likert scale was used to measure the participants'

confidence in 38 forced-choice items. The choices ranged from “*Certain I cannot do*” (1) to “*Certain I could do successfully*” (4). These items focused on key areas involving leadership performance: (a) evaluation of students with special education services, (b) teacher monitoring and support, (c) support of students and families, and (d) due process/disciplinary issues.

The SELAS is a self-efficacy scale, similar to The Principal Sense of Efficacy Scale (PSES) developed by Tschannen-Moran, & Gareis (2004) upon the advanced standards for the preparation of special education administrators promulgated by the Council for Exceptional Children (CEC) (Council for Exceptional Children, 2009). The original instrument was field tested for content validity before its use in a study with members of the Council of Administrators in Special Education (CASE), (Miller & Hudson, 2011). The revised tool was reviewed for content validity by a practicing elementary principal and university professor, Dr. Cynthia Smith, in the field of special education.

### **Data Collection**

The electronic survey was distributed in May of 2016 by email to the intended recipients, all building principals in the State of Michigan. In an attempt to increase the number of responses to the survey completion request, it was sent to non-respondents a total of four times at one-week intervals. The survey was distributed, and data was collected, by the Statistical Consulting Center at Grand Valley State University via Survey Monkey.

### **Data Analysis**

Assistance was obtained from the Grand Valley State University Statistical Consulting Center in the development of the survey instrument, the collection of data, and the statistical

analysis of the data collected. The quantitative analysis of the data focuses on answering the research question. The analysis looks at trends through a cross tabulation with chi-square analysis for factors including years of experience, type of certification, and number of students enrolled in the district. A cross tabulation of the type of certifications, licenses and/or endorsements held was performed to look for any patterns in efficacy ratings.

### **Summary**

This chapter provided an overview of the research design. This study involves descriptive research conducted through the completion of an electronic survey distributed to building principals in the state of Michigan. Data collected was analyzed to determine trends in the levels of perceived self-efficacy of building principals. Perception data related to self-efficacy was looked at as a whole for all respondents, specifically for principals that held a general education certificate versus principals that held a special education certificate, and specifically for principals on the job at the time of the survey.



## Chapter 4: Results

This chapter presents the results of the survey including data regarding the demographic information of the respondents, frequencies of responses to survey questions, and the statistical analysis of the data in order to answer the research question.

### Context

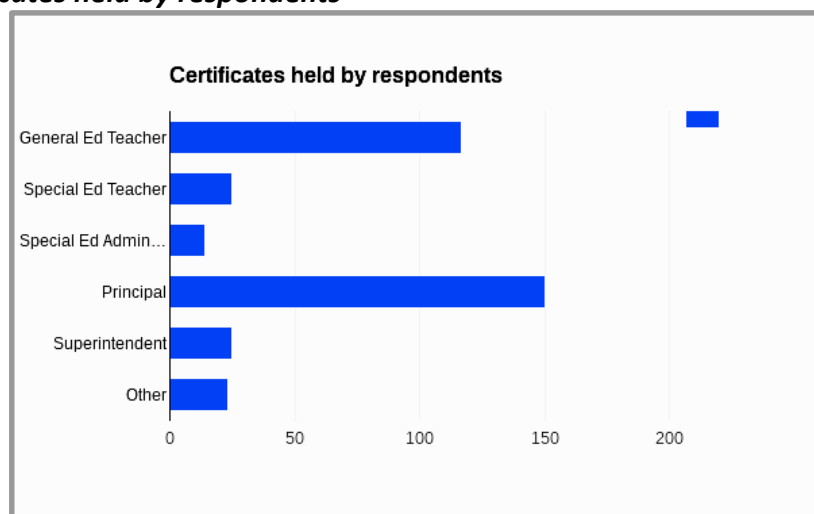
The survey was distributed to 2,911 principals throughout the state of Michigan. From that population, 306 administrators started the survey with 262 actually completing it, establishing a 9% response rate. It is unknown why 44 respondents did not actually finish answering the survey. The respondents have varying levels and years of experience and certifications. Of the 262 respondents that completed the demographic section of the survey, 75% held a certificate in general education teaching, 18.85% had certificate in special education teaching, 11.15% held a certificate for special education administration, 91.92% had principal certification and 15% held certification for employment as a superintendent. Table 1 provides information regarding the highest degree obtained by 258 respondents (48 respondents either skipped this question or did not finish the survey).

**Table 1: *Highest Degree***

| Answer choices         | Responses |     |
|------------------------|-----------|-----|
| Doctorate              | 8.53%     | 22  |
| Educational Specialist | 28.29%    | 73  |
| Masters                | 62.40%    | 161 |
| Bachelors              | 0.78%     | 2   |
| Total                  |           | 258 |

While the state of Michigan requires a master's degree and completion of a state-approved administrator preparation program with at least 18 semester hours of graduate credit in K-12 administration before issuing an administrator certificate, there were two respondents with only a bachelor's degree. This may occur with an alternative certification for school administrators. Qualification for this path includes a bachelor's degree with 3 years of experience in leadership with the intent to complete a supervised internship, (Michigan Department of Education, 2015). Figure 1 shows the frequency in which the survey was answered based on experience. One hundred and sixty-three respondents answered the question regarding the certificate they held, but 25 skipped it. The 'other' category contained a variety of certifications including but not limited to: counselor, early childhood, reading specialist, technology, psychology and speech pathology. Respondents were able to choose all that applied; therefore there may be some overlap in certification.

**Figure 1: *Certificates held by respondents***



## Findings

In order to answer the research question, frequencies and percentages of the survey responses were obtained and cross tabulations of the data from different questions were done using the predictive analytics software SPSS.

This study's main objective was to assess the research question: what specific leadership tasks involving the education of students with disabilities do building principals feel competent to perform? In the analysis of the data for principals in the profession for less than 5 years, the areas in which more than 50% of respondents choose “Certain I could do successfully” were:

- Make decisions within the boundaries of ethical and legal practices (50.85%)
- Lead programs that are differentiated based on individual student needs (58.33%)
- Lead the use of data for making decisions regarding students with disabilities (60%)
- Ensure students with disabilities receive ethical and legal discipline (66.67%)
- Lead programs that produce positive school outcomes for students with disabilities (55.93%)
- Analyze subgroup data from state standardized assessments (51.67%)
- Advocate for students with disabilities in the school and the community (70%)
- Work effectively with various health, social and educational providers who interact with students, families, and educators (73.33%)
- Recruit and hire special education teachers and staff members (73.33%)
- Evaluate teaching staff effectively (75%)

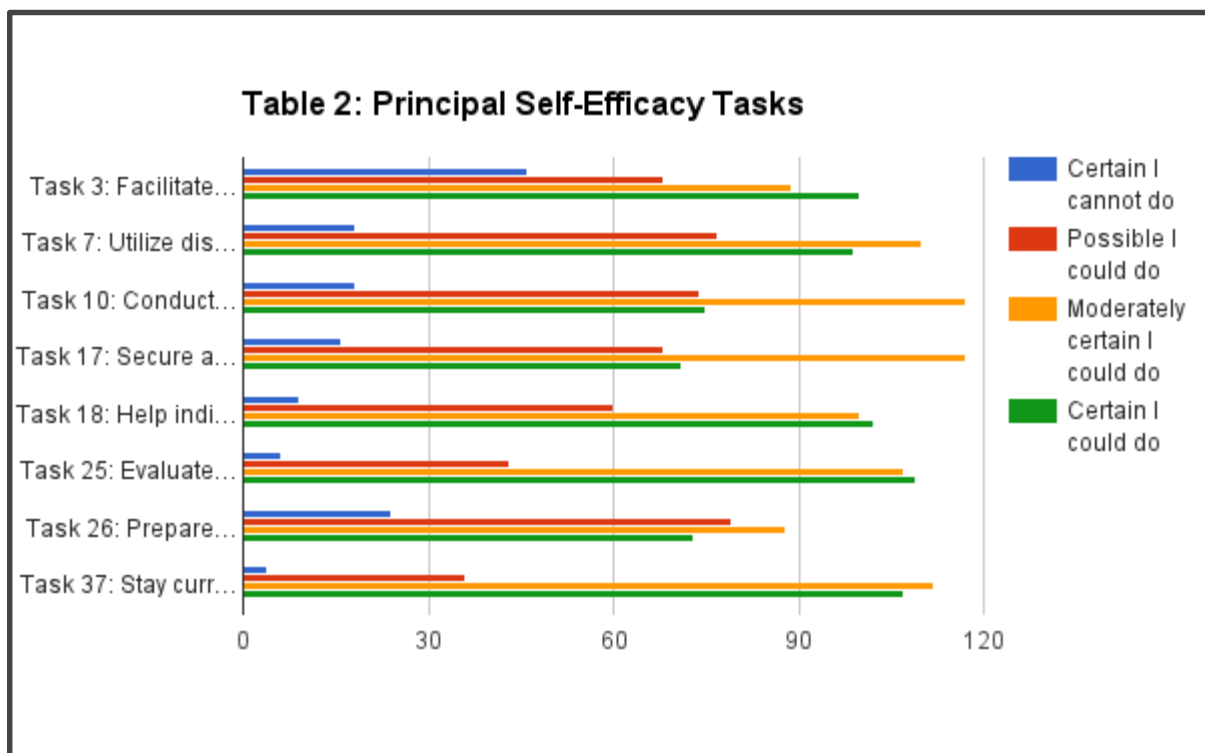
In Table 2 (see Appendix 1 for complete chart), the results are broken down into the four categories and allow for a visual calculation of the respondents confidence level in each task. The majority of the tasks were rated highest in the “Certain I could do successfully” category but there are a few tasks that should be addressed. Looking at Table 2, the category of *Utilize dispute resolution systems that support students with disabilities and their families* reveals a lack of self-efficacy in 67.43% of the respondents. Another campus staff, however, traditionally covers this task, but knowing the process or where to go is important for the building principal. Parents and students with disabilities have rights that are federally mandated and knowing the procedures for a dispute resolution is essential. Every state educational agency must follow and abide by the rules and the building principals with self-efficacy and confidence in this area are more likely to protect their building and districts with compliance.

A second area of concern revealed by this data is task three, *Facilitate an effective evaluation process to determine if students are eligible for special education and related services under IDEA* and task ten, *conduct a district-wide needs assessment of services and supports for students with disabilities and their families*. Task three represents 67% and task ten reveals a 73.60% of less than certain confidence. Child Find in the state of Michigan is established for students suspected of having a disability and who may need special education services. IDEA states:

“The State must have in effect policies and procedures to ensure that all children with disabilities residing in the State, including children with disabilities who are homeless

children or are wards of the State and children with disabilities attending private schools, regardless of the severity of their disability, and who are in need of special education and related services, are identified, located, and evaluated” §34 CFR 300.111(a)(1) (Michigan Department of Education, 2012).

The evident lack of self-efficacy in this area is concerning since it is a mandated law. Building principals are in charge of compliance and ensuring services for all students.



Thirdly, tasks 17 and 18 indicate a higher moderation in lack of confidence. Task 17 is the ability to *secure and implement the effective use of assistive technologies for students with disabilities*. Assistive technology has been around for a few decades but the use of it has become more valuable and accessible due to the more recent technological advances. This task is an upcoming and transforming trend and the more that is learned and developed the more

confident teachers and principals will become. Task 18, *Help individual education program teams gain the skills needed to correctly determine what students with disabilities will take alternative state standardized assessments*, with a 62.36% response of less than certain confidence indicates a concern as assessing students provides the data determining the performance for the student, the teacher and the student body.

Table 2 indicates that these areas of evaluating current research as it applies to special education and complying to state monitoring are lacking for the respondents in this survey. Both task 25 and 37 have a 58.87% response for less than certain of confidence related to staying current in research in the area of special education. Task 26 is 72.35% less than confident in state monitoring. If a building or district is not in compliance when they are monitored by the state, funding implications can occur as well as corrective action plans.

Using a chi-square test to compare the self-efficacy a principal has, the two frequencies concentrated on were the respondents that reported having a certification in general education to those with certification in special education and how many years they have had experience in administration. The analysis in comparing the certifications reveals that the data is uniformly distributed for most of the survey items. For the majority of the survey questions, there does not appear to be a significant increase in confidence if the respondent did or did not have special education certification in their background. Table 3 represents these results of respondents that responded with "Certain I could do successfully". Note that the frequency of general education certified respondents was 180 and special education was only 59.

Although the majority of survey questions revealed little difference in self-efficacy, there were three items that showed higher self-efficacy for principals possessing a special education certificate versus general education certificate. The first one was item 15; *provide effective professional development opportunities to increase regular and special education staffs' skills for working with students with disabilities*. Principals with special education experience in their background had a 13% increase in self-efficacy over the principals without special education experience. The second one was item 17, *secure and implement the effective use of assistive technologies for students with disabilities*, with a 5.9% increase over the responding principals without special education experience. The third one was item 24, *facilitate effective pre-referral intervention processes*, 9.59% increase with principals possessing special education experience. These three items had a p-value higher than .05 and could be used in the chi-square cross analysis indicating a sufficient difference in data collection.

The years of administrative experience appear to make a difference in the confidence level and self-efficacy a principal possesses. The three categories analyzed within this study were 5 years or less, 6 to 10 years, and 11 years or more of experience. In Table 3, each task shows an increase in the category of "certain I could do" as the amount of years in the principal role increase. This suggests that the more years of experience a principal has, the more self-efficacy they have in performing given tasks. As Nescolarde-Selva & Uso-Domenech (2016) explained in their research, a person's foundation is built on their experience. The principals in the early years have some self-efficacy from their training in preparation school, but the more they experience and journey through the maze of leadership with special education, the better

they feel about their confidence in the role. As Bandura's work reveals, the more a person does a particular task, the more confident they feel in their ability to perform, thus higher self-efficacy, (1994).

It should be noted in viewing Table 3; the number of respondents for each category was varying. Therefore, the percentage of actual respondents is recorded. It is undetermined why some respondents did not answer all the questions, skipping over some survey questions. An explanation might be that the respondent thought they chose an answer, but missed the electronic button and didn't realize it before going on to the next page in the survey. On average, in the category of 5 or less years, 60 principals responded; 6-10 years, 70 principals responded, and 11 or more years, 109 principals responded.



| <b>Table 3 Principals “Certain I could do successfully”</b> |   | <b>Certification</b>   |                        | <b>Years of administrative experience</b> |                     |                          |
|---|---|------------------------|------------------------|---|---------------------|--------------------------|
|   |   | <b>General Ed Cert</b> | <b>Special Ed Cert</b> | <b>5 years and less</b>                   | <b>6 - 10 years</b> | <b>11 years and more</b> |
| 1   | Apply models of effective leadership that provide a foundation for the administration of programs and services for students with disabilities and their families.           | 53.07% out of 179      | 48.28% out of 58       | 40% out of 60                             | 47.83% out of 69    | 61.11% out of 108        |
| 2   | Lead the development of and implementation of Individual Education Programs for students with disabilities.   | 48.04% out of 179      | 46.55% out of 58       | 41.67% out of 60                          | 47.14 out of 70     | 51.40% out of 107        |
| 3   | Facilitate an effective evaluation process to determine if students are eligible for special education and related services under IDEA.                                     | 32.40% out of 179      | 36.21% out of 58       | 31.67% out of 60                          | 33.33% out of 69    | 34.26% out of 108        |
| 4   | Make decisions within the boundaries of ethical and legal practices.  | 63.69% out of 179      | 53.45% out of 58       | 50.85% out of 59                          | 61.14% out of 70    | 62.96% out of 108        |
| 5   | Lead the implementation of processes to reduce unnecessary referrals.   | 55.68% out of 176      | 55.17% out of 58       | 45% out of 60                             | 56.52% out of 69    | 60.95% out of 105        |
| 6   | Conduct educational program evaluation.   | 47.19% out of 178      | 44.83% out of 58       | 38.98% out of 59                          | 47.83% out of 69    | 50% out of 108           |
| 7   | Utilize dispute resolution systems that support students with disabilities and their families.  | 32.22% out of 180      | 32.76% out of 58       | 23.33% out of 60                          | 32.86% out of 70    | 37.04% out of 108        |
| 8   | Lead programs that are differentiated based on individual student needs.  | 60.34% out of 179      | 57.63% out of 59       | 58.33% out of 60                          | 60.87% out of 69    | 59.63% out of 109        |
| 9   | Lead the use of data for making decisions regarding students with disabilities.   | 65.36% out of 179      | 66.10% out of 59       | 60% out or 60                             | 66.67% out of 69    | 67.89% out of 109        |
| 10  | Conduct a district-wide needs assessment of services and supports for students with disabilities and their families.  | 26.82% out of 179      | 22.03% out of 59       | 20% out of 60                             | 24.64% out of 69    | 29.36% out of 109        |
| 11  | Ensure students with disabilities receive ethical and legal discipline.   | 77.09% out of 179      | 67.80% out of 59       | 66.67% out of 60                          | 78.26% out of 69    | 77.06% out of 109        |
| 12  | Lead the implementation of programs and services for students with disabilities that are in compliance with IDEA 2004.  | 47.75% out of 178      | 45.76% out of 59       | 35% out of 60                             | 48.53% out of 68    | 53.21% out of 109        |
| 13  | Lead special education staff in implementing strategies that provide students with disabilities access to the general curriculum.   | 54.75% out of 179      | 44.07% out of 59       | 41.67% out of 60                          | 55.07% out of 69    | 55.96% out of 109        |
| 14  | Lead special education staff in using appropriate accommodations for students with disabilities on assessments.   | 49.16% out of 179      | 50.85% out of 59       | 35% out of 60                             | 47.83% out of 69    | 58.72% out of 109        |
| 15  | Provide effective professional development opportunities to increase regular and special education staffs’ skills for working with students with disabilities.              | 37.64% out of 178      | 50.85% out of 59       | 27.12% out of 59                          | 49.28% out of 69    | 43.12% out of 109        |
| 16  | Lead the implementations of programs and services for students with disabilities that are in compliance with state regulations.   | 45.25% out of 179      | 44.07% out of 59       | 38.98% out of 59                          | 45.71% out of 70    | 47.71% out of 109        |
| 17  | Secure and implement the effective use of assistive technologies for students with disabilities.  | 22.91% out of 179      | 28.81% out of 59       | 22.03% out of 59                          | 28.57% out of 70    | 22.94% out of 109        |
| 18  | Help individual education program teams gain the skills needed to correctly determine what students with disabilities will take alternative state standardized assessments. | 36.87% out of 179      | 30.51% out of 59       | 22.03% out of 59                          | 41.43% out of 70    | 38.53% out of 109        |
| 19  | Cooperate with various advocacy groups and their roles in supporting families.  | 53.07% out of 179      | 49.15% out of 59       | 42.37% out of 59                          | 50% out of 70       | 58.72% out of 109        |
| 20  | Lead programs that produce positive school outcomes for students with disabilities.   | 59.22%                 | 61.02                  | 55.93%                                    | 58.57%              | 62.39% out               |

|    |   |                      |                     |  |                     |                     |                      |
|----|---|----------------------|---------------------|--|---------------------|---------------------|----------------------|
|    |   | out of 179           | out of 59           |  | out of 59           | out of 70           | of 109               |
| 21 | Implement research-based practices related to support of special education teachers.  | 52.25%<br>out of 178 | 53.45%<br>out of 58 |  | 47.46%<br>out of 59 | 48.53%<br>out fr 68 | 57.80% out<br>of 109 |
| 22 | Analyze subgroup data from state standardized assessments.  | 67.22%<br>out of 180 | 64.41%<br>out of 59 |  | 51.67%<br>out of 60 | 70% out<br>of 70    | 72.48% out<br>of 109 |
| 23 | Ensure effective mentoring occurs for new special education teachers and staff.   | 56.11%<br>out of 180 | 61.02%<br>out of 59 |  | 41.67%<br>out 60    | 58.57%<br>out of 70 | 65.14% out<br>of 109 |
| 24 | Facilitate effective pre-referral intervention processes.   | 49.72%<br>out of 179 | 59.31%<br>out of 59 |  | 40% out<br>of 60    | 65.22%<br>out of 69 | 50.46% out<br>of 109 |
| 25 | Evaluate educational research that is related to special education program delivery.  | 39.11%<br>out of 179 | 38.98%<br>out of 59 |  | 30% out<br>of 60    | 42.86%<br>out of 70 | 41.67% out<br>of 108 |
| 26 | Prepare for compliance monitoring conducted by the State Education Agency (SEA).  | 26.26%<br>out of 179 | 24.14%<br>out of 58 |  | 18.64%<br>out of 59 | 31.88%<br>out of 69 | 25.69% out<br>of 109 |
| 27 | Advocate for students with disabilities in the school and the community.  | 76.11%<br>out of 180 | 71.19%<br>out of 59 |  | 70% out<br>of 609   | 75.71%<br>out of 70 | 77.06% out<br>of 109 |
| 28 | Work effectively with various health, social, and educational providers who interact with students, families, and educators.                                      | 72.22%<br>out of 180 | 76.27%<br>out of 59 |  | 73.33%<br>out of 60 | 71.43%<br>out of 70 | 74.31% out<br>of 109 |
| 29 | Recruit and hire special education teachers and staff members.  | 76.67%<br>out of 180 | 77.59%<br>out of 58 |  | 73.33%<br>out of 60 | 78.26%<br>out of 69 | 77.98% out<br>of 109 |
| 30 | Direct a continuum of services and supports across grade levels for students with disabilities.   | 50.28%<br>out of 179 | 37.93%<br>out of 58 |  | 41.67%<br>out of 60 | 52.17%<br>out of 69 | 47.22% out<br>of 108 |
| 31 | Implement evidence-based programs that account for the diversity of the students with disabilities in the program.  | 44.69%<br>out of 179 | 43.10%<br>out of 58 |  | 38.33%<br>out of 60 | 47.06%<br>out of 68 | 45.87% out<br>of 109 |
| 32 | Evaluate teaching staff effectively.  | 81.11%<br>out of 180 | 75.86%<br>out of 58 |  | 75% out<br>of 60    | 79.71%<br>out of 69 | 82.57% out<br>of 109 |
| 33 | Develop comprehensive professional development plans aligned with district wide and special education strategic plans.  | 50.00%<br>out of 180 | 47.37%<br>out of 57 |  | 38.33%<br>out of 60 | 50.72%<br>out of 69 | 54.63% out<br>of 108 |
| 34 | Work as an integral part of the district and building administrative teams so that special education is perceived as an essential part of the educational system. | 72.07%<br>out of 179 | 75.44%<br>out of 57 |  | 61.67%<br>out of 60 | 75% out<br>of 68%   | 77.78% out<br>of 108 |
| 35 | Influence the development and implementation of district policies that are responsive to the needs of students with disabilities and their families.              | 54.75%<br>out of 179 | 53.57%<br>out of 56 |  | 36.67%<br>out of 60 | 55.88%<br>out of 68 | 63.55% out<br>of 107 |
| 36 | Lead special education staff to deliver specialized instructional services that are connected to educational standards.   | 51.67%<br>out of 180 | 47.37%<br>out of 57 |  | 41.67%<br>out of 60 | 56.52%<br>out of 69 | 51.85% out<br>of 108 |
| 37 | Stay current with the new research practices in the field of special education.   | 42.22%<br>out of 180 | 28.07%<br>out of 57 |  | 30% out<br>of 60    | 37.68%<br>out of 69 | 44.44% out<br>of 108 |
| 38 | Provide instructional staff with ongoing supervision that leads to improvement in their instructional practice.   | 58.89%<br>out of 180 | 57.89%<br>out of 57 |  | 41.67%<br>out of 60 | 63.77%<br>out of 69 | 64.81% out<br>of 108 |

There were five items that were rated highest in the “Certain I cannot do.” Twenty-nine principals indicated on the survey task of *Facilitate an effective evaluation process to determine*

*if students are eligible for special education and related services under IDEA, they could not do.*

With federal mandates and compliance for students with special education services, these results are concerning. Through Child Find, The Individuals with Disabilities Education Act (IDEA) states § 34 CFR 300.111(a)(1):

“The State must have in effect policies and procedures to ensure that—All children with disabilities residing in the State, including children with disabilities who are homeless children or are wards of the State, and children with disabilities attending private schools, regardless of the severity of their disability, and who are in need of special education and related services, are identified, located, and evaluated,” (2012).

Principals and districts are mandated to have a plan for children who are suspected of having a disability and who may need special education services.

Fourteen principals were certain they could not *prepare for compliance monitoring conducted by State Education Agency (SEA)*. Twelve indicated they could not *utilize dispute resolution systems that support students with disabilities and their families*, and 11 responded as not being able to *conduct a district-wide needs assessment of services and supports for students with disabilities and their families* as well as not being able to *secure and implement the effective use of assistive technologies for students with disabilities*. As leaders, principals are responsible for knowing and conducting state compliance matters as well as supporting students with disabilities in their district.

The size of the district in the MEANS procedure did not lend to severe discrepancies, the data indicates that the number of students attending a building does not have an affect on the

self-efficacy of principals. The respondents were split into three groupings, small (less than 300 students), medium (301 to 700 students, and large (more than 701 students). The resulting data was uniformly distributed.

### **Summary**

The principals who participated in this study had differentiating certifications that got them to their current position. Some had specific training and academic work in special education but many did not. However, the overall majority responded with feeling confident in being able to lead their building with students that had special education needs included. For the components in this study, the perceived self-efficacy of the principals appeared higher when past experience with special education and increased number of years was considered in the calculation.

Even though principals rated themselves as 'certain they could' do given tasks throughout most of the items in the survey in regards to special education, principals with less than 5 years on the job experience reported less certainty of confidence in the areas of compliance for special education or needs assessment of supports and services for students with disabilities, assistive technology use, and correct determination for students with disabilities needs and supports. Principals want to believe they can do all the tasks required of them, but they do not have the ability to know everything, especially when they have entered their career without all the training necessary. As stated in the introduction of this research, the position of building principal has evolved immensely over the past 40 years. More and more has

been put on the plate of the principal. This survey only represents all the knowledge they need to be confident in as it is related to students in special education.

## **Chapter 5: Conclusion**

### **Summary of the Study**

This study was designed to collect data pertaining to the self-efficacy of Michigan principals in regards to special education. The research question specifically addresses how confident respondents felt in their ability to lead as a building principal. Prior research indicated that principals were not receiving sufficient training in the subject area of special education and may not have been prepared enough to lead a building containing students with disabilities. In the past 40 years, the laws and regulations have changed dramatically and financial needs have expanded the position of principal to incorporate so much more in the job duties. Principals are now required to handle an exhaustive list of responsibilities and many are performance based for funding and operation of the building. Due to this career evolution, this study aimed to investigate the readiness and self-efficacy of principals to compliantly and adequately lead a building where special education is concerned.

A third of the principals that responded to the survey in this study revealed a 'moderate' to 'certain' confidence and self-efficacy when it comes to special education in their buildings. However, there were many important strands of concern that principals did not feel certain they could handle. This indicates a gap in the preparation of principals in the area of special education. The internal validity is a concern due to the fact that principals tend to have a leadership expectation upon them and tend to make sure they appear to exemplify this view. The building principal has a reputation to uphold and is often looked upon by peers as the one person to go to for solutions. In research and in past experience, it has been known for a

principal to display a persona of knowing information even when they really do not know it. Therefore, it is possible the principals within this survey may have displayed this same charade with the answers they provided. As well as the possibility of inflated egos on the part of the responding principal, technical difficulties and limited amount of survey respondents might have had an affect on the results of the study.

The perception data were collected through a survey administered electronically to principals across the state of Michigan. Of the 2911 invites emailed, 306 started the survey, with 262 actually completing it. Survey items were based on the theoretical work of self-efficacy by Albert Bandura (1994) as well as Nescolarde-Selva & Uso-Domenech (2016) that further explains self-efficacy in humans as rational and abstract thought convened by the human as a social animal.

### **Conclusions**

A conclusion from the data of this study of 262 respondents reveals that the more years of experience a principal has the more self-efficacy they have. In other words, the longer the maze and the more learning they experience, an increase in self-efficacy was demonstrated. Interestingly, the certification of the principal, having special education over general education, only made a difference in a few tasks from the SELAS. Overall the principals with only general education certification scored similar to those with past experience in special education, so close that using chi-square became invalid for much of the analysis. This study revealed data that was uniformly distributed, the p value from the chi-square analysis was less than 5 which made the Fisher's Exact Test to possibly not be valid for many of the tasks in the survey.

However, there were clear areas in which having special education background clearly made a difference in the self-efficacy of performing the task. Providing effective professional development with special education was an area principals scored very low on, 37.64% out of 178. This result leads to the conclusion that having the experience and knowledge of the needs of special education provides more self-efficacy in providing the leadership it requires. There was also a significant difference for this task with the years of experience the principal possessed. With less than 5 years 27.12% held certain confidence but with 11 years or more that self-efficacy increased to 43.12%.

Another area that showed significant variation was facilitating an effective pre-referral intervention process. It appears having special education experience ensures more self-efficacy in this area, probably due to their extensive knowledge in this area. Those principals with special education certification scored 59.31% versus general education certification at 49.72%.

There were areas principals with general education certification scored higher than special education certified principals. What this data reveals would be an option for further research. For example, 48.04% of principals with general education certification state certain confidence with leading the development of and implementation of Individual Education Programs for students with disabilities, but only 46.55% of those with special education certification indicated a certain confidence in this area. It would seem that special education experience, doing this task as part of their everyday position, would be more beneficial and self-efficacy inducing. The percentage deviance is very slight, but it is an area of further exploration. Another area needing more research on is principals leading special educators in



implementing strategies that provide students with disabilities access to the general curriculum. Principals with general education certification indicated a 54.75% certain confidence and those with special education certification only 44.07% certain confidence. This is interesting because special educators are specifically trained in the area of strategy implementation to access the general curriculum for students with disabilities where general educators typically are not. So it would seem that having the background would fill one with more self-efficacy, but in this research that is not as clear.

### **Discussion**

Principal training, experience, and motivation are all relevant in self-efficacy. Bandura's theoretical framework establishes that self-efficacy of building principals who include students with special education disabilities results from having strong self-confidence in their ability. With high self-efficacy, a principal is motivated to do their best in the required areas of leading a building. Throughout the process of this research, conversations have been raised with practicing principals and the researcher, but not used within data collection. An unnamed principal stated that she did not know enough about special education when coming into her position as principal 7 years ago even though she had been teaching for 10 years prior. Being a principal was a motivating factor to learn more and she vowed to gain a better understanding of special education. She stated that she had very little training in principal preparation in regards to special education. She felt inadequate and didn't think she could lead staff members or the students unless she fully understood the subject area better. That determination and self-efficacy is a key factor in being a good principal capable to handle what comes their way.

Leaders that are going above and beyond, going through the journey or the maze to gain the knowledge of the entities of special education will have more self-efficacy to lead their building. A question this conversation adds to the research for further exploration is how much is self-efficacy a natural part of a person versus how much is grown through experience? The aforementioned building principal did not have the self-efficacy required to perform tasks involving special education and was able to identify that within herself, so she searched it out on her own, building the competency.

The general education principals who responded to this survey demonstrated similar levels of self-efficacy on the majority of the tasks taken from the SELAS survey compared to those certified in special education. The original intent for selecting tasks from the SELAS survey for this study was for comparative measure. Initially the instrument was designed and used with directors and coordinators of special education to determine their self-efficacy to perform the tasks related to the Special Education Standards provided by CEC. Currently, districts are finding it necessary to rely on principals to perform these tasks; this raised the question whether or not principals were as prepared to handle the tasks as those who trained specifically to be special education administrators. Principals are now tasked with providing instructional leadership for all students, yet not all principals are prepared as in depth as those with special education certifications. The data in this study assumes that principals are self-motivating and confident to handle most all tasks, including those that involve students with disabilities.

## **Implications**

The workload of principals has evolved into a very complex multi-task career. Motivation and strong self-efficacy is a beneficial characteristic for principals to have in order to handle all that is expected of this possession. Prior research reveals little evidence in adequate training in special education for principal preparation. Based on the responses in this research, principals are not receiving a well-developed foundation. The biggest influence in a building is the principal and all students can benefit or fall behind depending how confident and knowledgeable the principal is. This research derived from this study reveals a need for more professional development, experience and a better foundation for principals with little to no prior experience in special education.

One way to incorporate a stronger foundation would be to implement more requirements including special education in the principal preparation programs. More class hours as well as an internship would provide some added experience. To follow that up, additional hours and mandated professional development as a requirement for further licensing and practice would establish increasing self-efficacy and growth. With so many laws constantly changing and increasing expectations, building principals have a demand upon them to perform and lead achievement like never before. Therefore, as the expectation increases from all the federal and state academic changes, then so should the knowledge base of building principals. Education is a constant evolving entity and keeping up with it can be demanding. Having continuing credits and certifications be a part of the principal licensure would promote continued learning and develop the self-efficacy needed.

## Appendix A

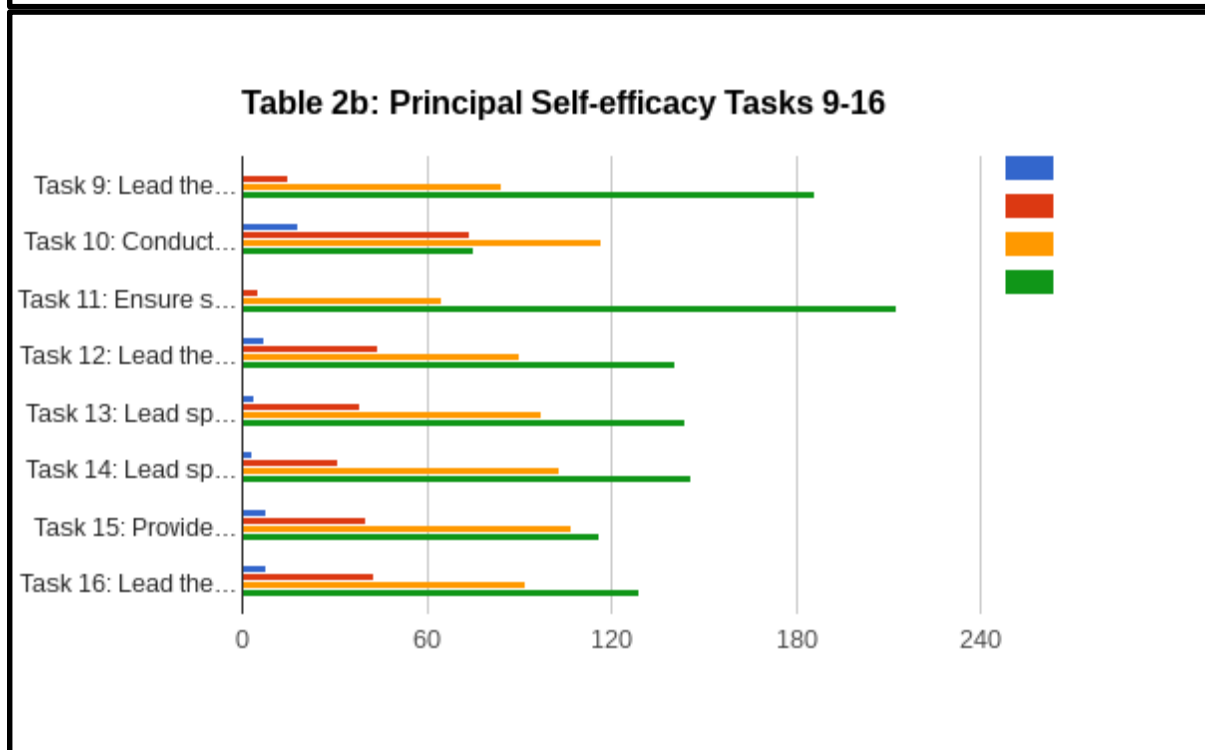
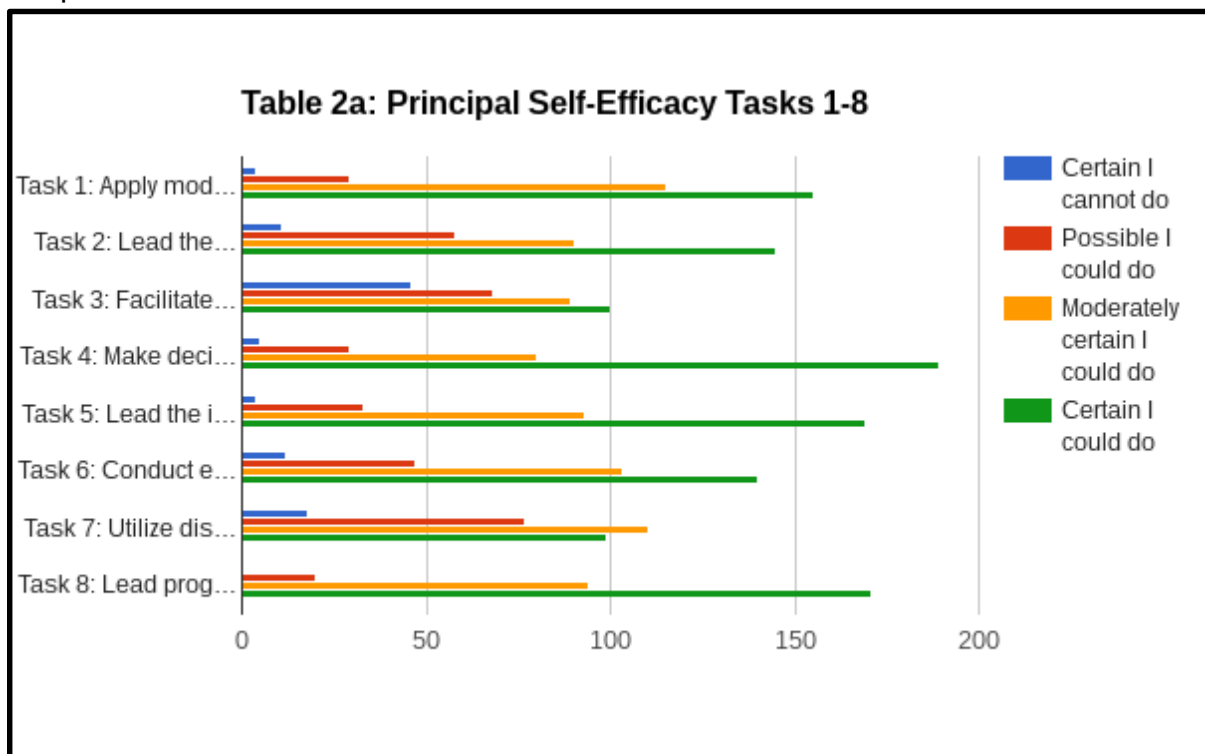
### All results for Table 2

|  | Certain I cannot do | Possible I could do | Moderately certain I could do | Certain I could do |
|--|---------------------|---------------------|-------------------------------|--------------------|
| Task 1: Apply models of effective leadership that provide a foundation for the administration of programs and services for students with disabilities and their families.            | 4                   | 29                  | 115                           | 155                |
| Task 2: Lead the development of and implementation of Individual Education Programs for students with disabilities.  | 11                  | 58                  | 90                            | 145                |
| Task 3: Facilitate an effective evaluation process to determine if students are eligible for special education and related services under IDEA.                                      | 46                  | 68                  | 89                            | 100                |
| Task 4: Make decisions within the boundaries of ethical and legal practices.   | 5                   | 29                  | 80                            | 189                |
| Task 5: Lead the implementation of processes to reduce unnecessary referrals.  | 4                   | 33                  | 93                            | 169                |
| Task 6: Conduct educational program evaluation.  | 12                  | 47                  | 103                           | 140                |
| Task 7: Utilize dispute resolution systems that support students with disabilities and their families.   | 18                  | 77                  | 110                           | 99                 |
| Task 8: Lead programs that are differentiated based on individual student needs.   | 0                   | 20                  | 94                            | 171                |
| Task 9: Lead the use of data for making decisions regarding students with disabilities.  | 0                   | 15                  | 84                            | 186                |
| Task 10: Conduct a district-wide needs assessment of services and supports for students with disabilities and their families.  | 18                  | 74                  | 117                           | 75                 |
| Task 11: Ensure students with disabilities receive ethical and legal discipline.   | 0                   | 5                   | 65                            | 213                |
| Task 12: Lead the implementation of programs and services for students with disabilities that are in compliance with IDEA 2004.  | 7                   | 44                  | 90                            | 141                |
| Task 13: Lead special education staff in implementing strategies that provide students with disabilities access to the general curriculum.   | 4                   | 38                  | 97                            | 144                |
| Task 14: Lead special education staff in using appropriate accommodations for students with disabilities on assessments.   | 3                   | 31                  | 103                           | 146                |
| Task 15: Provide effective professional development opportunities to increase regular and special education staffs' skills for working with students with disabilities.              | 8                   | 40                  | 107                           | 116                |
| Task 16: Lead the implementations of programs and services for students with disabilities that are in compliance with state regulations.   | 8                   | 43                  | 92                            | 129                |
| Task 17: Secure and implement the effective use of assistive technologies for students with disabilities.  | 16                  | 68                  | 117                           | 71                 |
| Task 18: Help individual education program teams gain the skills needed to correctly determine what students with disabilities will take alternative state standardized assessments. | 9                   | 60                  | 100                           | 102                |
| Task 19: Cooperate with various advocacy groups and their roles in supporting families.  | 1                   | 33                  | 93                            | 145                |
| Task 20: Lead programs that produce positive school outcomes for students with disabilities.   | 0                   | 23                  | 83                            | 166                |

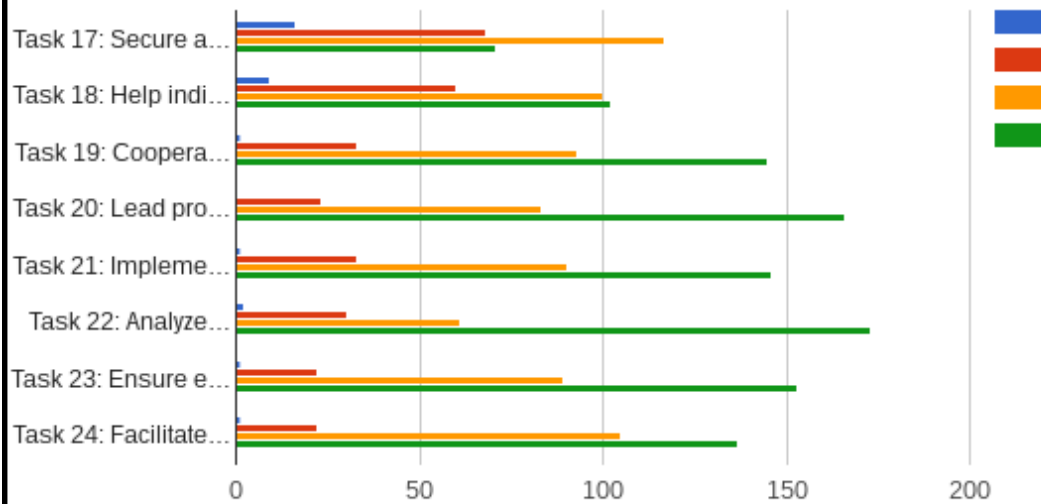
|  |    |    |     |     |
|--|----|----|-----|-----|
| Task 21: Implement research-based practices related to support of special education teachers.  | 1  | 33 | 90  | 146 |
| Task 22: Analyze subgroup data from state standardized assessments.  | 2  | 30 | 61  | 173 |
| Task 23: Ensure effective mentoring occurs for new special education teachers and staff.   | 1  | 22 | 89  | 153 |
| Task 24: Facilitate effective pre-referral intervention processes.   | 1  | 22 | 105 | 137 |
| Task 25: Evaluate educational research that is related to special education program delivery.  | 6  | 43 | 107 | 109 |
| Task 26: Prepare for compliance monitoring conducted by the State Education Agency (SEA).  | 24 | 79 | 88  | 73  |
| Task 27: Advocate for students with disabilities in the school and the community.  | 0  | 6  | 59  | 201 |
| Task 28: Work effectively with various health, social, and educational providers who interact with students, families, and educators.                                      | 0  | 12 | 59  | 195 |
| Task 29: Recruit and hire special education teachers and staff members.  | 1  | 7  | 48  | 204 |
| Task 30: Direct a continuum of services and supports across grade levels for students with disabilities.   | 1  | 27 | 104 | 127 |
| Task 31: Implement evidence-based programs that account for the diversity of the students with disabilities in the program.  | 1  | 39 | 99  | 120 |
| Task 32: Evaluate teaching staff effectively.  | 0  | 4  | 45  | 211 |
| Task 33: Develop comprehensive professional development plans aligned with district wide and special education strategic plans.  | 4  | 27 | 97  | 131 |
| Task 34: Work as an integral part of the district and building administrative teams so that special education is perceived as an essential part of the educational system. | 0  | 3  | 65  | 190 |
| Task 35: Influence the development and implementation of district policies that are responsive to the needs of students with disabilities and their families.              | 1  | 20 | 94  | 142 |
| Task 36: Lead special education staff to deliver specialized instructional services that are connected to educational standards.   | 4  | 30 | 89  | 136 |
| Task 37: Stay current with the new research practices in the field of special education.   | 4  | 36 | 112 | 107 |
| Task 38: Provide instructional staff with ongoing supervision that leads to improvement in their instructional practice.   | 1  | 14 | 86  | 158 |

## Appendix B

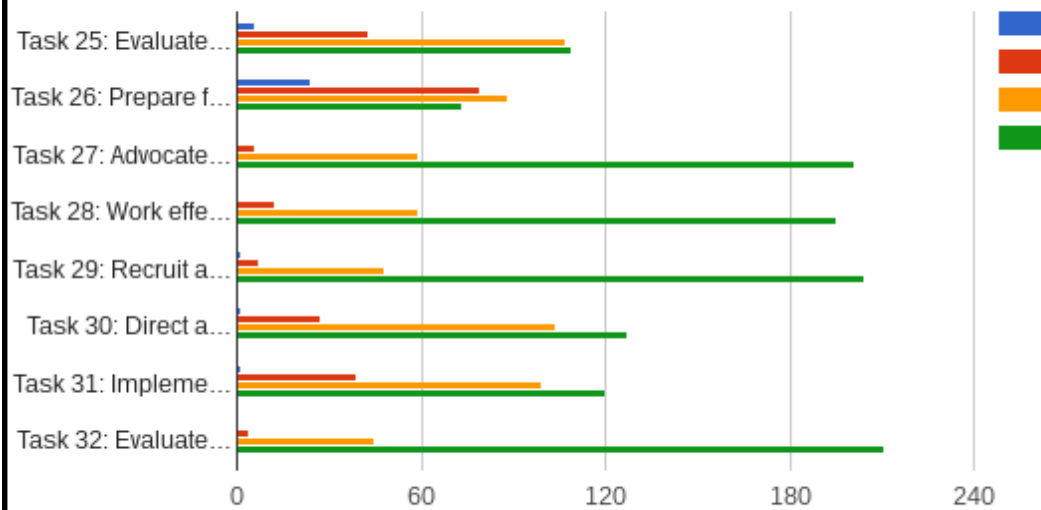
Graphs from Table 2



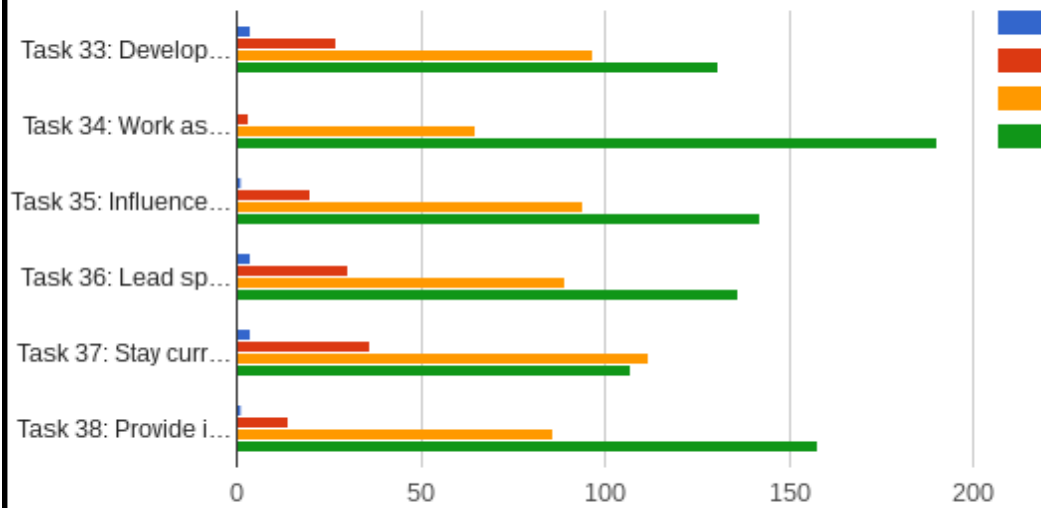
**Table 2c: Principal Self-efficacy Tasks 17-24**



**Table 2d: Principal Self-efficacy Tasks 25-32**



**Table 2e: Principal Self-efficacy Tasks 33-38**





## Appendix C

### The MEANS Procedure with Certifications

Note: We manually added the Rank column. We ranked each part of the questions based the weight for each Certification (Highest to Lowest). Each portion of the test consisted of 7-question section.

Portion 1:

| Analysis Variable |      |        |
|-------------------|------|--------|
| Certification     | Part | Weight |
| GE                | 01   | 3.41   |
|                   | 02   | 3.22   |
|                   | 03   | 2.78   |
|                   | 04   | 3.54   |
|                   | 05   | 3.41   |
|                   | 06   | 3.22   |
|                   | 07   | 2.96   |
| SE                | 01   | 3.33   |
|                   | 02   | 3.21   |
|                   | 03   | 2.81   |
|                   | 04   | 2.36   |
|                   | 05   | 2.48   |
|                   | 06   | 3.29   |
|                   | 07   | 3.02   |

Portion 2:

| Analysis Variable |      |        |
|-------------------|------|--------|
| Certification     | Part | Weight |
| GE                | 01   | 2.52   |
|                   | 02   | 2.59   |
|                   | 03   | 2.87   |
|                   | 04   | 2.75   |
|                   | 05   | 3.25   |
|                   | 06   | 3.38   |
|                   | 07   | 3.35   |
| SE                | 01   | 2.54   |
|                   | 02   | 2.61   |
|                   | 03   | 2.86   |
|                   | 04   | 2.66   |
|                   | 05   | 2.24   |
|                   | 06   | 2.25   |
|                   | 07   | 2.39   |

Portion 3:

| Analysis Variable |      |        |
|-------------------|------|--------|
| Certification     | Part | Weight |
| GE                | 01   | 3.16   |
|                   | 02   | 3.23   |
|                   | 03   | 2.87   |
|                   | 04   | 3.08   |
|                   | 05   | 3.41   |
|                   | 06   | 2.51   |
|                   | 07   | 3.39   |
| SE                | 01   | 2.31   |
|                   | 02   | 3.22   |
|                   | 03   | 2.88   |
|                   | 04   | 3.00   |
|                   | 05   | 2.37   |
|                   | 06   | 2.51   |
|                   | 07   | 2.36   |

Portion 4:

| Analysis Variable |      |        |
|-------------------|------|--------|
| Certification     | Part | Weight |
| GE                | 01   | 2.58   |
|                   | 02   | 3.45   |
|                   | 03   | 3.40   |
|                   | 04   | 3.15   |
|                   | 05   | 2.75   |
|                   | 06   | 2.75   |
|                   | 07   | 2.68   |
| SE                | 01   | 3.46   |
|                   | 02   | 2.54   |
|                   | 03   | 2.53   |
|                   | 04   | 2.25   |
|                   | 05   | 2.78   |
|                   | 06   | 2.64   |
|                   | 07   | 2.73   |

Portion 5:

| Analysis Variable |      |        |
|-------------------|------|--------|
| Certification     | Part | Weight |
| GE                | 01   | 3.73   |
|                   | 02   | 3.39   |
|                   | 03   | 6.55   |
|                   | 04   | 5.60   |
|                   | 05   | 6.68   |
|                   | 06   | 5.42   |
|                   | 07   | 6.89   |
|                   | 08   | 3.36   |
|                   | 09   | 3.23   |
|                   | 10   | 2.53   |
| SE                | 01   | 2.74   |
|                   | 02   | 2.26   |
|                   | 08   | 2.32   |
|                   | 09   | 3.14   |
|                   | 10   | 3.49   |

## Appendix D

### The MEANS Procedure with School Size

Large = 700 or more students

Medium = 301 to 700 students

Small = 300 or less

| Portion: 1          |       |      | Portion: 2          |       |      | Portion: 3          |       |      | Portion: 4          |       |      | Portion: 5          |       |      |
|---------------------|-------|------|---------------------|-------|------|---------------------|-------|------|---------------------|-------|------|---------------------|-------|------|
| Analysis Variable : |       |      | Analysis Variable : |       |      | Analysis Variable : |       |      | Analysis Variable : |       |      | Analysis Variable : |       |      |
| group               | quest | Sum  | group               | quest | Sum  | group               | quest | Sum  | group               | quest | Sum  | group               | quest | Sum  |
| Large               | 01    | 2.40 | Large               | 01    | 2.52 | Large               | 01    | 2.36 | Large               | 01    | 2.68 | Large               | 01    | 2.76 |
|                     | 02    | 3.16 |                     | 02    | 2.60 |                     | 02    | 2.24 |                     | 02    | 2.52 |                     | 02    | 2.40 |
|                     | 03    | 2.52 |                     | 03    | 2.92 |                     | 03    | 2.00 |                     | 03    | 2.32 |                     | 08    | 2.56 |
|                     | 04    | 2.60 |                     | 04    | 1.80 |                     | 04    | 2.16 |                     | 04    | 2.29 |                     | 09    | 2.48 |
|                     | 05    | 3.13 |                     | 05    | 3.44 |                     | 05    | 2.28 |                     | 05    | 2.64 |                     | 10    | 2.48 |
|                     | 06    | 3.40 |                     | 06    | 3.40 |                     | 06    | 2.68 |                     | 06    | 1.84 |                     | 01    | 2.75 |
|                     | 07    | 2.92 |                     | 07    | 2.48 |                     | 07    | 2.56 |                     | 07    | 2.56 |                     | 02    | 2.34 |
| Medium              | 01    | 3.38 | Medium              | 01    | 2.55 | Medium              | 01    | 3.18 | Medium              | 01    | 3.55 | Medium              | 03    | 3.28 |
|                     | 02    | 3.26 |                     | 02    | 2.61 |                     | 02    | 3.18 |                     | 02    | 3.49 |                     | 04    | 2.80 |
|                     | 03    | 2.86 |                     | 03    | 2.87 |                     | 03    | 2.86 |                     | 03    | 2.50 |                     | 05    | 3.36 |
|                     | 04    | 3.48 |                     | 04    | 2.71 |                     | 04    | 3.03 |                     | 04    | 3.22 |                     | 06    | 2.71 |
|                     | 05    | 2.49 |                     | 05    | 3.22 |                     | 05    | 3.36 |                     | 05    | 2.70 |                     | 07    | 3.48 |
|                     | 06    | 3.22 |                     | 06    | 3.35 |                     | 06    | 2.50 |                     | 06    | 2.71 |                     | 08    | 3.34 |
|                     | 07    | 2.95 |                     | 07    | 3.35 |                     | 07    | 2.39 |                     | 07    | 2.67 |                     | 09    | 3.18 |
| Small               | 01    | 2.42 | Small               | 01    | 2.47 | Small               | 01    | 3.18 | Small               | 01    | 2.49 | Small               | 10    | 3.50 |
|                     | 02    | 3.15 |                     | 02    | 2.56 |                     | 02    | 3.31 |                     | 02    | 2.42 |                     | 01    | 3.67 |
|                     | 03    | 2.72 |                     | 03    | 2.83 |                     | 03    | 2.85 |                     | 03    | 3.33 |                     | 02    | 3.36 |
|                     | 04    | 2.49 |                     | 04    | 2.76 |                     | 04    | 3.09 |                     | 04    | 3.03 |                     | 03    | 4.42 |
|                     | 05    | 2.39 |                     | 05    | 3.24 |                     | 05    | 2.52 |                     | 05    | 2.91 |                     | 04    | 5.40 |
|                     | 06    | 3.22 |                     | 06    | 3.33 |                     | 06    | 2.46 |                     | 06    | 1.72 |                     | 05    | 6.57 |
|                     | 07    | 3.06 |                     | 07    | 3.35 |                     | 07    | 3.31 |                     | 07    | 2.79 |                     | 06    | 3.37 |
|                     |       |      |                     |       |      |                     |       |      |                     |       |      | 07                  | 4.75  |      |
|                     |       |      |                     |       |      |                     |       |      |                     |       |      | 08                  | 2.27  |      |
|                     |       |      |                     |       |      |                     |       |      |                     |       |      | 09                  | 3.16  |      |
|                     |       |      |                     |       |      |                     |       |      |                     |       |      | 10                  | 2.58  |      |

## Appendix E

### The MEANS Procedure with Years of Experience

Portion 1:

| Analysis Variable      |      |      |
|------------------------|------|------|
| group                  | ques | Sum  |
| Between 6 and 10 years | 01   | 2.43 |
|                        | 02   | 3.25 |
|                        | 03   | 2.75 |
|                        | 04   | 2.59 |
|                        | 05   | 3.42 |
|                        | 06   | 3.28 |
|                        | 07   | 3.08 |
| Less than 5 years      | 01   | 3.39 |
|                        | 02   | 3.32 |
|                        | 03   | 2.82 |
|                        | 04   | 2.46 |
|                        | 05   | 2.54 |
|                        | 06   | 2.46 |
|                        | 07   | 2.96 |
| More than 11 years     | 01   | 3.36 |
|                        | 02   | 3.15 |
|                        | 03   | 2.79 |
|                        | 04   | 3.42 |
|                        | 05   | 3.41 |
|                        | 06   | 3.17 |
|                        | 07   | 2.90 |

Portion 2:

| Analysis Variable      |      |      |
|------------------------|------|------|
| group                  | ques | Sum  |
| Between 6 and 10 years | 01   | 2.57 |
|                        | 02   | 2.63 |
|                        | 03   | 2.87 |
|                        | 04   | 2.75 |
|                        | 05   | 3.31 |
|                        | 06   | 2.45 |
|                        | 07   | 2.39 |
| Less than 5 years      | 01   | 2.36 |
|                        | 02   | 2.57 |
|                        | 03   | 2.93 |
|                        | 04   | 2.71 |
|                        | 05   | 2.29 |
|                        | 06   | 2.36 |
|                        | 07   | 2.36 |
| More than 11 year      | 01   | 2.54 |
|                        | 02   | 2.59 |
|                        | 03   | 2.86 |
|                        | 04   | 2.72 |
|                        | 05   | 3.19 |
|                        | 06   | 3.28 |
|                        | 07   | 3.34 |

Portion 3:

| Analysis Variable      |      |      |
|------------------------|------|------|
| group                  | ques | Sum  |
| Between 6 and 10 years | 01   | 3.20 |
|                        | 02   | 3.25 |
|                        | 03   | 2.92 |
|                        | 04   | 3.04 |
|                        | 05   | 2.46 |
|                        | 06   | 2.57 |
|                        | 07   | 2.51 |
| Less than 5 years      | 01   | 3.14 |
|                        | 02   | 2.25 |
|                        | 03   | 2.89 |
|                        | 04   | 2.07 |
|                        | 05   | 2.39 |
|                        | 06   | 2.50 |
|                        | 07   | 2.39 |
| More than 11 year      | 01   | 3.20 |
|                        | 02   | 3.20 |
|                        | 03   | 2.85 |
|                        | 04   | 3.07 |
|                        | 05   | 3.34 |
|                        | 06   | 2.47 |
|                        | 07   | 3.31 |

Portion 4:

| Analysis Variable      |      |      |
|------------------------|------|------|
| group                  | ques | Sum  |
| Between 6 and 10 years | 01   | 2.57 |
|                        | 02   | 2.48 |
|                        | 03   | 2.43 |
|                        | 04   | 3.21 |
|                        | 05   | 2.76 |
|                        | 06   | 2.74 |
|                        | 07   | 2.68 |
| Less than 5 years      | 01   | 3.54 |
|                        | 02   | 2.57 |
|                        | 03   | 2.36 |
|                        | 04   | 3.36 |
|                        | 05   | 2.89 |
|                        | 06   | 2.71 |
|                        | 07   | 1.79 |
| More than 11 year      | 01   | 3.54 |
|                        | 02   | 3.44 |
|                        | 03   | 3.44 |
|                        | 04   | 3.11 |
|                        | 05   | 2.71 |
|                        | 06   | 2.73 |
|                        | 07   | 2.69 |

Portion 5:

| Analysis Variable : weightp |      |      |
|-----------------------------|------|------|
| group                       | ques | Sum  |
| Between 6 and 10 years      | 01   | 2.79 |
|                             | 02   | 2.38 |
|                             | 03   | 3.32 |
|                             | 04   | 1.83 |
|                             | 05   | 3.36 |
|                             | 06   | 2.70 |
|                             | 07   | 2.46 |
|                             | 08   | 2.32 |
|                             | 09   | 2.27 |
|                             | 10   | 2.54 |
| Less than 5 years           | 01   | 2.86 |
|                             | 02   | 2.50 |
|                             | 03   | 4.64 |
|                             | 04   | 3.71 |
|                             | 05   | 3.14 |
|                             | 06   | 3.64 |
|                             | 07   | 5.21 |
|                             | 08   | 2.46 |
|                             | 09   | 2.36 |
|                             | 10   | 2.46 |
| More than 11 year           | 01   | 3.66 |
|                             | 02   | 3.31 |
|                             | 08   | 3.33 |
|                             | 09   | 3.13 |
|                             | 10   | 3.52 |

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