

SUPERINTENDENT'S PRACTICAL INTELLIGENCE ACROSS HIGH AND
LOW PERFORMING SCHOOL DISTRICTS

by

SANDRA BRIGETTE WHALEY

Presented to the Faculty of the Graduate School of
The University of Texas at Arlington in Partial Fulfillment
of the Requirements
for the Degree of

DOCTOR OF PHILOSOPHY

THE UNIVERSITY OF TEXAS AT ARLINGTON

May 2014

Copyright © by Sandra Brigette Whaley 2014

All Rights Reserved



Acknowledgements

I would like to acknowledge the people who have supported me throughout this process. My husband, James, who has been an amazing partner who has loved me through thick and thin. My son, Bo, who never had a doubt I would finish. I have leaned on them a lot and could not imagine my life without them. I am excited for the three of us to start the next chapter of our lives.

I want to say thank you to my in-laws for their support and treating me like I belong. I want to thank my mom for checking in on me occasionally, my brother for his prayers, and my friends for their encouraging words and help along the way. I want to thank my dad and grandma who passed away along this journey. I miss you both terribly every day, but I know how proud you are of me and how much you loved me. I think losing you both was the hardest part of this journey.

Finally, I want to thank my committee. Although I lost family along the way, I feel like I gained some, too. Dr. Adrienne Hyle, my dissertation chair, has been amazing throughout this entire journey. I cannot imagine anyone else helping me through this dissertation process nor would I want to.

April 17, 2014

Abstract

SUPERINTENDENT'S PRACTICAL INTELLIGENCE ACROSS HIGH AND
LOW PERFORMING SCHOOL DISTRICTS

Sandra Brigette Whaley, PhD

The University of Texas at Arlington, 2014

Supervising Professor: Adrienne E. Hyle

The purpose of this study was to compare the practical intelligence scores of Texas superintendents in high performing and low performing school districts. The Tacit Knowledge Inventory for Superintendents used in this study was developed by Dr. Christian Mueller with demographic questions added by the researcher. Responses to the tacit knowledge inventory scenario items were rated using a Likert scale. Superintendents in exemplary and academically unacceptable school districts were invited to participate in this research. Independent-samples t-tests were conducted and examined for differences in the superintendents' mean scores in the tacit knowledge categories. There were no statistically significant differences in the mean scores in interpersonal, intrapersonal, or organizational tacit knowledge when the two groups were compared in each category. The demographic questions were analyzed using descriptive statistics. The demographic questions reveal the superintendents in the two groups have a remarkable amount of similarities, especially in their amount of experience. Of

the superintendents in the exemplary group, 57.1% have seven years or less experience as compared to 60.0% of the academically unacceptable superintendents. Of the superintendents in the exemplary group, 64.0% have been employed in their position five years or less as compared to 70% of the superintendents in academically unacceptable districts. The study concluded that the lack of differences in the superintendents' practical intelligence scores could be due to their numerous similarities.

Table of Contents

Acknowledgements	iii
Abstract	iv
List of Tables	x
Chapter 1 Design of the Study	1
Statement of the Problem.....	5
Purpose of the Study	6
Research Questions.....	7
Theoretical Framework.....	8
Methods	11
Data Needs and Sources.....	11
Participants.....	11
Data Collection	12
Instrumentation	12
Data Analysis	13
Reliability.....	14
Validity	14
Chapter Summary	15
Reporting	16
Chapter 2 Literature Review	18
Successful Leadership.....	18

The Superintendency	23
Intelligence.....	26
History of Intelligence	28
General Intelligence Testing.....	31
Other Intelligences	34
Tacit Knowledge and Practical Intelligence	36
Chapter Summary	39
Chapter 3 Methodology and Procedures.....	41
Research Design	41
Data Needs and Sources.....	42
Participants.....	42
Data Collection	45
Instrumentation	46
Data Analysis	48
Reliability.....	53
Validity	54
Chapter Summary	55
Chapter 4 Data Analysis	56
Research Question One: What are the demographics of superintendents in the best performing and poorest performing school districts in Texas?	56

Research Question Two: What are the practical intelligence scores of superintendents in the best performing and poorest performing school districts?.....	61
Research Question Three: Do statistical comparisons refute or accept the following hypotheses?	62
Research Question Four: Given the results of question three, how useful is practical intelligence for understanding the differences in district academic success?	67
Research Question Five: What other realities were revealed during the study about the relationship of superintendent practical intelligence and district academic success?	67
Summary	68
Chapter 5 Summary of the Study, Conclusions, Study Implications, Recommendations for Future Research, Significance of the Study, and Discussion	70
Summary of the Study	70
Conclusions.....	71
Implications	75
Future Research	79
Significance of the Study	80
Theory	80

Research.....	81
Practice.....	81
Discussion.....	83
Appendix A Consent to Participate.....	85
Study Title: Tacit Knowledge Inventory for Superintendents.....	86
Appendix B Survey Instrument	87
References.....	100
Biographical Information.....	114

List of Tables

Table 4-1 TEA District Ratings by Rating Category (excluding Charter Operators 43

Table 4-2 Number of Superintendent Responses by Week and Group. 46

Table 4-3 Research Questions and Methodology..... 52

Table 4-1 Central Administration Experiences before becoming a Superintendent 56

Table 4-2 Gender, Ethnicity, and Age 57

Table 4-3 Percentage of first time superintendents..... 58

Table 4-4 Areas of Certification 58

Table 4-5 Number of Years in Current Position..... 59

Table 4-6 Number of Years of Experience as a Superintendent..... 60

Table 4-7 Practical Intelligence Scores by Group and Categories 61

Table 4-8 Interpersonal Tacit Knowledge Item T-Test Results for Superintendents in Exemplary (Group 1) and Academically Unacceptable (Group 2) School Districts. 63

Table 4-9 Intrapersonal Tacit Knowledge Item T-Test Results for Superintendents in Exemplary (Group 1) and Academically Unacceptable (Group 2) School Districts. 64

Table 4-10 Interpersonal Tacit Knowledge Item T-Test Results for Superintendents in Exemplary (Group 1) and Academically Unacceptable (Group 2) School Districts.....	66
Table 5-1 Cronbach's Alpha for Tacit Knowledge Categories	77

Chapter 1

Design of the Study

A call to reform the American educational system and propel the United States (U. S.) to the top position in educational performance has been a topic in many political campaigns since The National Commission on Excellence in Education released the report *A Nation at Risk* (1983). That report cited the American educational system as inferior to that of other comparable nations. President George W. Bush included in his campaign platform the dire need for school reform. After elected, President Bush reenacted the Elementary and Secondary Education Act (ESEA) with changes such as mandatory state testing in public schools, and called it the No Child Left Behind Act (NCLB) of 2001. NCLB was a nationwide attempt by the government to ensure that every child in the U. S. had the opportunity to attain an exemplary education and to hold schools accountable to ensure students received the opportunity to get that education (No Child Left Behind [NCLB], 2002).

The Obama administration continued the call for school reform. President Barack Obama issued a challenge to states through a \$4.35 billion grant program called *Race to the Top* (The White House, 2009) that is rooted in school reform. Obama has also reenacted the ESEA with his own changes to NCLB, including making sure states and local school districts are accountable for student success

(U. S. Department of Education, 2010). Clearly, a national priority is education and school district accountability for student success.

Forty-three percent of students in the U. S. were economically disadvantaged and/or minority in 2009 (U. S. Census Bureau, 2009). The number of economically disadvantaged and minority students will grow in the U. S. as the overall student population does the same (Seashore Louis, 2003). The U. S. National Center for Education Statistics (2011) estimated that 55.5 million students were enrolled in pre-kindergarten through high school. With the population growth, the strain on the educational system will continue (Seashore Louis, 2003) and school districts will find it even more difficult to meet the demands of NCLB. To meet the needs of students in the growing disadvantaged and minority student populations, school districts need a plan for success.

With the recognition that schools must develop a plan for success comes the question of how to accomplish such an overwhelming task. In studies conducted by Glass (2001) for The Education Commission of the States, he concluded that many reformists indicated leadership is important for school success and the superintendency is the key leader to getting there. The State of Texas agrees. The beginning of the Texas Education Code (TEC) indicates that the superintendent is the leader of a school district and is responsible for the district (TEC, 1995). The code, § 11.201, gives an overview of a school

superintendent's role including 10 primary areas of responsibility. These responsibilities include, but are not limited to:

- 1) leading the district,
 - 2) authority and assessment for all district personnel except for self,
 - 3) recommending individuals for district positions other than self,
 - 4) beginning the process of removing a district employee from their position,
 - 5) overseeing the district's daily processes,
 - 6) creating a budget for the district's spending to be approved by the school board,
 - 7) creating district policy for board approval,
 - 8) determining the best way to implement new policies or statutes,
 - 9) student success, and
 - 10) arrangement and management of non-campus district employees
- (TEC, 1995).

The selection of a superintendent is extremely important; it affects not only students and personnel in the district, but it is also crucial to the district's success (Bigham, 2011). A school district's elected board of trustees is responsible for searching, hiring, and evaluating the superintendent of their district (TEC, 1997). School boards consider credentials, experience, reputation, and district needs while looking for a candidate for the position. A superintendent

is selected by the school board on the basis of how well the interview was perceived by the board; in other words, the board's belief that the individual they choose will do the best job (Glenn, Hickey, & Sherman, 2009).

Successful superintendents understand it is their responsibility to ensure that all students learn and progress (Leithwood, Louis, Anderson, & Wahlstrom, 2004). In a study of the 50 top superintendents awarded the honor of Superintendent of the Year, which had 48 of those 50 superintendents responding, 36 superintendents stated their position in the district was that of leader, not manager (Chan, Pool, & Strickland, 2001). It is students, teachers, and staff who are affected by their superintendent's decisions, so there is a great need to determine how to identify and employ superintendents who are great leaders (Chan et al., 2001).

Groholski's (2009) research of Texas superintendents and their school board presidents determined the two differ in their opinions on which leadership traits they believed are most important in the superintendent position, but they agree that visionary leadership is important. Raisor (2011) emphasized there have been many great leaders such as Winston Churchill in World War II, President John F. Kennedy during the Cuban Missile Crisis, and Mayor Rudolph Giuliani in the 9/11 Attacks, and all of these leaders are well regarded for their actions during the difficult times they faced. Successful superintendents, especially, demonstrate their leadership skills and expertise during difficult times (Raisor, 2011).

After interviewing the five most recognized successful superintendents in Indiana, Raisor (2011) determined they had some commonalities, including their outlook on situations, the people they hire, the relationships they build, their planning strategies, and the way they do not deviate from their goals or go into crisis mode. In other words, those superintendents thrived and were successful regardless of the circumstances they faced.

Flexibility, adjustability and situation selection are all behaviors reflecting intelligence applied in context which Sternberg and his colleagues refer to as practical intelligence (Sternberg, Forsythe, Hedlund, Horvath, Snook, Williams, Wagner, & Grigorenko, 2000). Sternberg and his colleagues describe practical intelligence as behaviors and the application of knowledge in real life and work situations. They believe that practical intelligence is reflected in one's life and work success. From this perspective, a superintendent's practical intelligence should correlate with school success.

Statement of the Problem

Student performance is the basis for school district success, and the superintendent is the leader of the district whose job it is to ensure the school district is successful. Nationally, all superintendents go through comparable preparation programs to become a superintendent. They must attain a Master's degree, enroll in a program that covers the competencies of the superintendency curriculum, be recommended to take the state certification test, and pass the test

(TEA, 2007). Typically, if they pass the test, the state deems them qualified to lead a school district.

However, not all superintendents perform equally, just as not all school districts are successful. Even with similar preparation, outcomes (e.g., student test scores, district accountability measures, etc.) can vary greatly just as individuals vary. Differences in school district success may best be explained by school leadership (Raisor, 2011). In other words, the superintendent makes the difference (Raisor, 2011).

The theory of successful intelligence (Sternberg, 1997, 1999c, 2002) would explain the difference in success of superintendents' leadership in terms of superintendent practical intelligence. Practical intelligence is a measure of tacit knowledge inventories (interpersonal, intrapersonal, and organizational). A better understanding of a superintendent's practical intelligence would lend itself to understanding how superintendents adjust, construct and respond to their environments.

Purpose of the Study

The purpose of this study was to examine the relationship between superintendent practical intelligence in successful and unsuccessful school districts as defined by their school district's TEA ratings.

Research Questions

To accomplish the purpose of the study, this research sought to answer the following questions and hypotheses.

1. What are the demographics of superintendents in the best performing and poorest performing school districts in Texas?

2. What are the practical intelligence scores of superintendents in the best performing and poorest performing school districts?

A. Interpersonal knowledge

B. Intrapersonal knowledge

C. Organizational knowledge

3. Do statistical comparisons refute or accept the following hypotheses?

H1: The interpersonal tacit knowledge means of the two groups of school superintendents will not be significantly different. (H1: $\mu_1 = \mu_2$)

H2: The intrapersonal tacit knowledge means of the two groups of school superintendents will not be significantly different. (H2: $\mu_1 = \mu_2$)

H3: The organizational tacit knowledge means of the two groups of school superintendents will not be significantly different. (H3: $\mu_1 = \mu_2$)

4. Given the results of question three, how useful is practical intelligence for understanding the differences in district academic success?

5. What other realities were revealed during the study about the relationship of superintendent practical intelligence and district academic success?

Theoretical Framework

Successful intelligence is defined by Sternberg (2005) as the ability to succeed in life, given one's own conception of success, within one's sociocultural environment. Two main concepts/components comprise the theory of successful intelligence: academic intelligence and practical intelligence. Sternberg and Hedlund (2002) equate academic intelligence to book smarts and explain academic intelligence as having to do with memory and general intelligence obtained in an educational setting. Due to the fact that superintendents must meet specific educational and certification requirements to serve in the position, it is difficult to argue that a superintendent is deficient in academic intelligence.

According to Sternberg's theory, successful leaders make the most of their strengths and compensate for, or correct, their deficiencies. This set of actions reflects the practical intelligence side of his theory (Sternberg, 2005). Practical intelligence is measured through tacit knowledge inventories created specifically for the position you want to study (Mueller, 2006). Tacit knowledge is an aspect of practical intelligence gained through daily experiences in which an individual acquires knowledge without cognitive awareness it is being learned (Sternberg et al., 2000). Tacit knowledge is not written down or something that can be taught and can be described as knowing what to do in a situation (Grigorenko, Sternberg & Strauss, 2006). Tacit knowledge is an essential part of being successful in every

facet of life; however it is independent of personality attributes (Grigorenko, Sternberg & Strauss, 2006).

Successful leaders figure out what they do well, and leverage their strengths in optimal ways. At the same time, they figure out what they do not do well, and either compensate by having others do these things for them or make adjustments themselves so they become good enough to get by (Sternberg, 2005). Frensch and Sternberg (1989) explain that when leaders do not know their limits or recognize when they have come to a dead end and need help, they fall short in their accomplishments. According to Sternberg (2005), many failures of leadership are caused by leaders' failures to recognize and compensate for their strengths and weaknesses from the perspective of practical intelligence. In sum, according to Sternberg et al. (2000), practical intelligence is as good, if not superior, to academic intelligence in predicting an individual's success.

According to Sternberg's theory of successful intelligence (2000), superintendents who have been successful possess practical intelligence. They were able to adapt and reconcile their environments and use their expertise to be successful. Practical intelligence is equated to street smarts or common sense and is explained as having to do with the ability to solve real life problems through figuring out what works best for them (Sternberg & Hedlund, 2002). It is:

The ability that individuals use to find a more optimal fit between themselves and the demands of the environment through adapting to the

environment, shaping (or modifying) the environment, or selecting a new environment in the pursuit of personally-valued goals. (Hedlund & Sternberg, 2002, p. 145)

Practical intelligence is a core component of leadership and different from academic intelligence (Sternberg et al., 2000). Practical intelligence is necessary for an individual to be successful in daily situations regardless of the nature of the situation; hence assessing one's practical intelligence may explain success where other measures of intelligence, such as academic or general intelligence, have not (Sternberg et al., 2000).

According to Wagner's research (1987), tacit knowledge is comprised of three factors or measures: interpersonal, intrapersonal and organizational tacit knowledge. Interpersonal tacit knowledge refers to relationships between persons. It is about knowing how to manage and lead others by knowing their strengths and weaknesses and using that information accordingly. Intrapersonal tacit knowledge refers to governing oneself to ensure one works effectively and efficiently to maximize one's success. Organizational tacit knowledge focuses on the colossal organizational tasks that must be done that effect the success of the organization. All three of these factors within tacit knowledge were measured and compared to identify differences between the two groups of superintendents and determine if it correlated to their success.

Methods

This quantitative study examined and analyzed the practical intelligence scores of superintendents as it relates to their school district's student performance/success on state standardized tests.

Data Needs and Sources

Data needed for this study was superintendent practical intelligence scores. The sources of data were all superintendents in districts with exemplary and unacceptable TEA ratings in 2011 in the State of Texas. The focus on these districts was due to their high and low district ratings. District student performance data was also needed to classify superintendents.

Participants

Current superintendents in Texas from districts with exemplary and unacceptable ratings were participants in this study. Superintendents were separated into two groups. Group I included superintendents who are considered successful and Group II consisted of superintendents who are considered unsuccessful. Success was established using TEA ratings that were earned based on state mandated test results. There are four TEA ratings school districts can earn: exemplary, recognized, academically acceptable, and academically unacceptable (TEA, 2011). Group I consisted of superintendents with student performance ratings of exemplary. Group II was superintendents whose school district rating was academically unacceptable.

Data Collection

With the time demands of Texas school superintendents, an on-line survey allowed for easier participation for the superintendents. The survey method of research was chosen due to its efficiency to gather the most current, accurate responses allowable. The survey used for this study was based on the three aspects of practical intelligence. The three aspects of practical intelligence that were measured in this study were interpersonal, intrapersonal, and organizational tacit knowledge.

Practical intelligence scores were gathered using the online survey tool Survey Monkey. SurveyMonkey is an online survey company that allows for customizable surveys to be developed, collected, and analyzed. Access to the survey responses were not available to anyone other than the account holder(s). Also, survey respondents remain anonymous in the system unless one of the survey questions asks specifically for the respondent's name. SurveyMonkey allows for different types of questions or scenarios in surveys such as Likert scale and multiple choice, both of which this survey will contained.

Instrumentation

The Tacit Knowledge Inventory for Superintendents (TKIS) previously developed by Mueller (2006) was used for this study. Mueller developed and tested the TKIS to ensure it was an accurate measure of practical intelligence in

superintendents based on Sternberg's framework for creating tacit knowledge inventories. Mueller granted permission for the use of the TKIS in this study.

The survey was sent to all superintendents who lead districts in Texas with exemplary and academically unacceptable TEA ratings. The focus on these districts was due to their high performing or low performing status in the state of Texas. After one week, a follow up e-mail was sent to superintendents asking them to complete the survey if they had not responded to the initial request to participate. Participants were required to answer all questions or scenarios in the survey to eliminate the problem of missing or incomplete data.

Data Analysis

The SurveyMonkey program allowed the data to be imported into the Statistical Product and Service Solutions (SPSS); therefore, this was the initial step in the data analysis process. The superintendents' answers were coded in the SPSS program. An independent-samples t-test was used to analyze the data. This research was seeking to test for differences in the means of the two groups of superintendents to answer each of the hypotheses. The mean of Group I was compared to the mean of Group II to determine if there was a significant difference between the two groups means in each of the three tacit knowledge aspects.

Reliability

According to Giacobbi (2002), internal consistency is a common way of determining the reliability of survey data. The basis for this technique is that survey items measure the same thing and are eliminated if they do not. Mueller (2006) developed the TKIS based on the framework that Sternberg et al (2000) identified. Reliability of the TKIS used in this study was established through numerous tests with superintendents in Kentucky that Mueller (2006) researched. Mueller used Rasch modeling to ensure the TKIS was reliable when he created and tested it. Also, the study was reliable since all superintendents will took the same TKIS through the same method.

Validity

According to Gehlbach and Brinkworth (2011), expert validation is a recognized way to establish validity of a survey. The survey designer identifies experts on the topic being researched and asks them to determine if the survey items developed adequately represent a specific construct. This allows the researcher to clarify, eliminate, expand or add items in the survey to ensure relevance of the survey items and their measures. In addition, pilot testing can be used to administer the scale to participants to assess how survey items function within the construct (Gehlbach & Brinkworth, 2011). Pilot testing is very beneficial in identifying problematic survey items before the survey is sent to the

research participants. Mueller (2006) used expert validation and pilot testing to ensure the TKIS was valid.

Chapter Summary

This study sought to identify superintendents with a high level of practical intelligence and examine how it correlated to a school district's success. This is important due to the nature of the position of the superintendency and the consequences to a district of not hiring the correct person for the position. If a school board contracts with a superintendent and determines they are unhappy with the superintendent's performance, they must settle the contract with the superintendent before hiring a new superintendent. Depending on the circumstances, the district may have to pay an additional amount to the state for breaking the contract. This can have dire consequences for a school district's budget including its ability to pay and hire other employees, such as teachers, which also impacts students. The superintendent is integral to a school district's success and finding the right superintendent can be difficult because school districts have different needs based on their location, size, and student population. However, if a superintendent has a high level of practical intelligence, the theory would predict that they can adapt and prosper in any school environment regardless of the circumstances. To find a superintendent that can work in any school district would benefit education as a whole.

There has been a lack of correlation between practical and academic tests and it has been suggested that the most accurate way of identifying or predicting successful intelligence is by using both kinds of test as predictors (Sternberg et al., 2000). Since all superintendents in Texas must be certified through state testing, by passing the state superintendent exam, they have fulfilled the academic testing portion of successful intelligence which allowed this study to focus on the practical intelligence testing.

School districts are designed to facilitate student success. Some school districts are more effective at facilitating student success than others. Differences in school district leadership best explain why some districts are better at achieving student success than others; in other words, the superintendent makes a difference (Raisor, 2011). Why does the superintendent make a difference? The theory of successful intelligence (Sternberg, 1997, 1999c, 2002) would explain the difference in terms of the importance of practical intelligence and how it correlates to student success, which was the focus of this study.

Reporting

This chapter provided a condensed overview of the study. This chapter introduced the problem under study, the research design, the purpose of the study, including the problem statement, a brief overview of the background of the study, the rationale and importance of the study, the theoretical framework, the research questions and hypotheses, the research design, and the organization of the study.

Chapter 2 provides a review of related literature. The review of literature focused on research regarding educational leadership, the superintendency, aspects of intelligence, and practical intelligence. Chapter 3 presents a detailed description of the methods employed in the study. It describes the population being studied and how participants were selected, the research questions and hypotheses, a description of the study, procedures for collecting data, and the process of data analysis. Chapter 4 presents the study's findings. Chapter 5 presents a summary of the findings, conclusions, recommendations for future research and, a discussion.

Chapter 2

Literature Review

In this chapter, I examine current literature related to this research; successful leadership, the superintendency, and intelligence. Successful leadership has branched out in a variety of areas and those areas will be examined, followed by a look at how the superintendent position was founded and has expanded over time. Next, an overview of intelligence and intelligence testing demonstrating how testing has evolved over the last century and how its origin is rooted in the educational system is examined. Finally, practical intelligence will be examined to understand its relevance to this research and the role tacit knowledge plays in practical intelligence.

Successful Leadership

Covey (1989) suggests there are seven specific habits that can help leaders be successful. He emphasized that while all the habits are important, without habit seven, the ability to keep yourself balanced, the others would not be feasible. The habits can be categorized as intrapersonal and interpersonal. Habits one, two, three, and seven are intrapersonal and begin by looking within ourselves while habits four, five and, six are interpersonal and turn our focus outward on others. Covey states that highly effective leaders:

1. Are proactive – Take the initiative to make decisions that will have a positive effect on your life and be willing to accept the outcomes of those decisions.
2. Begin with the end in mind- Know what your values and goals are and develop a plan for success.
3. Put first things first-Prioritize your life and focus on what is important.
4. Think win/win- Respect and consider what is best for everyone's needs and goals.
5. Seek first to understand, then to be understood- Really listen, focus, and try to understand others when they speak and they will in turn do the same.
6. Synergize- Know the strengths of others and use them to collaborate and accomplish more together than apart.
7. Sharpen the saw- Keep yourself balanced emotionally, physically, socially and spiritually to be the best person you can be.

Covey's habits emphasize it is important to create a lifestyle that is well balanced and thoughtful in which you must take care of yourself before you can take care of others. In addition, a person should strive to continually improve themselves and feed their soul (Covey, 1989).

Chopra (2002) believes leadership is a spiritual bonding between the person leading and the people being led. Chopra's beliefs can also be categorized

as either intrapersonal or interpersonal. Leaders are successful based on their understanding of themselves (intrapersonal), understanding those they are leading (interpersonal), and being able to fulfill the needs of both (Chopra, 2002). Hoyle states “Without a spiritual side, a leader lacks depth in understanding human motives and can destroy organizations and innocent lives” (Hoyle, 2002, p. 1). Hoyle, like Chopra, also expressed that leadership has a spiritual side. Hoyle also agreed with Covey’s (1989) assessment of how to become an effective leader.

Prentice (2004) describes leadership as “the accomplishment of a goal through the direction of human assistants” and a great leader as “one who can do so day after day, and year after year, in a wide variety of circumstances” (Prentice, p. 102 para 2). He goes on to suggest successful leaders must understand individuals and their motivations and be able to help those individuals satisfy some of their interests (Prentice, 2004). This concurs with Goleman (1995) in his deduction that successful leadership is dependent on specific interpersonal and intrapersonal traits. Goleman, in an article republished by the Harvard Business Review (2004), identified the five traits that successful leaders must possess:

1. Self-Awareness
2. Self- Regulation
3. Motivation
4. Empathy

5. Social Skill

Goleman explains the reason that a leader who is very intelligent and skilled fails while a leader who does not seem remarkable soars in very similar circumstances is due to a difference in their traits. Intrapersonal traits (one, two, and three above) and interpersonal traits (four and five above) must be well-understood and practiced for a leader to be successful (Goleman, 2004). It is important to know yourself and understand your motivations so you know how you feel about something and control the way you handle the situation. However, equally important is understanding and reacting to how others in the organization feel. Determining what makes a person an effective leader has been of interest to many, which is evident by the number of books and articles written on the topic.

The superintendent's leadership is vital to student success. "Leadership is second only to classroom instruction among all school-related factors that contribute to what students learn at school" (Leithwood, Louis, Anderson, & Wahlstrom, p.5, paragraph 2, 2004). Leadership is clearly important to the success of an organization. What is not clear is what kind of leadership is best for an organization. There are an abundance of books and research studies on leadership.

Leithwood, Louis, Anderson, and Wahlstrom (2004) suggest preparation of superintendents cannot be limited to developing a style of leadership, but rather develop a wide range of problem solving abilities. The emphasis of problem solving abilities is gaining significance due to the concernment of a

superintendent and their organization's context. While a specific leadership style might be successful in a rural district, it may not work at all in an urban district.

Bonnici (2011) wrote about becoming a successful leader using a practical approach rather than a theoretical approach. He based his suggestions on his expertise and tacit knowledge rather than on a research study he conducted.

Bonnici states there are 14 points of operation that successful leaders keep in the forefront of their minds in their day to day activities:

1. Always be an example regardless of the situation
2. Try to lighten instead of heighten an intense situation
3. Listen more than you speak
4. Own up to mistakes and give credit where credit is due
5. People come first
6. Trust your employees to do their jobs until they give you reason otherwise
7. Know what is important and necessary for employees to perform well
8. Lay the foundation before the collaboration to produce successful outcomes
9. Know employees' strengths and weaknesses
10. All communication from within and outgoing must be clear, correct and concise
11. Everyone should be respected
12. Little things can mean a lot

13. Follow policy

14. View your employees as extended family members

There exists nearly as many different findings as there are number of publications suggesting what makes a leader successful. Leithwood, Louis, Anderson, and Wahlstrom (2004), suggest organizational context such as location, socioeconomic status, district size, and culture have significance regarding successful leadership. In a meta-analysis, Waters and Marzano (2006) conclude that district leadership and tenure positively correspond to student achievement. They suggest in their analysis that successful superintendents create district goals, collaborate with all stakeholders in determining those goals, and allow campuses a defined amount of independence.

The Superintendency

One room schools that served students up to eighth grade were the norm in the early to mid-nineteenth century, but when cities began to grow, naturally, schools did, too (Candoli, 1995). Schools began to grow beyond the one room classroom and develop into districts. A city seeing rapid growth needed someone to oversee the developing public school system, which is why in Louisville, Kentucky in July of 1837, the first public school superintendent was selected to ensure the growing district received the supervision necessary to prepare students to become productive citizens (Reller, 1935). Regardless of whether legislation

had been established to support their decision or not, 27 school boards had selected a superintendent by 1860 (Reller, 1935).

While larger school districts with multiple campuses saw the need for a superintendent, rural areas were small and many continued with the one room classrooms. As the U.S. continued to change and develop, new circumstances led to necessary changes in rural school settings. Some changes were due to legislation and court rulings that made schools change the way they did things (Candoli, 1995).

There have been numerous court cases in the United States involving the public school system, especially as public schools were developing and becoming organized. A few of the more notable cases that have had a major impact on public schools are *Pierce v. Society of Sisters* (1925), *Minersville School District v. Board of Education* (1940), and *Brown v. Board of Education* (1954) that deal with liberty, religion, and, racial discrimination, respectively (Legal Information Institute, 2014).

Two cases in particular contributed to the expansion of public schools. The decision in *People v. The Board of Education of Detroit* (1869) reinforced the General School Law of Michigan and reiterated that the Detroit public school system could not deny a student of color the opportunity to a free and equal education (Jones, 1966). This decision contributed to the civil rights for all students to gain an education (Jones). In *Stuart v. School District No. 1 of*

Kalamazoo (1874), the Michigan Supreme Court made a landmark decision to allow school districts to levy taxes on property owners in order to support their local school district (Jones). These cases compelled small and rural districts to unite to be able to meet the needs of students in elementary and secondary schools (Candoli, 1995) and provided a means of funding schools furthering the need for a district leader. These two Michigan court cases were significant on a national basis in relation to the development of the school system as a whole and the need for a superintendent to manage and eventually lead a school district.

The need for superintendents grew very quickly due to the expansion of schools from single classroom schools to school districts with multiple campuses. The expansion of schools was mainly because of the development of the automobile (Candoli, 1995). This was significant due to the fact that students could be transported by buses to schools rather than having to walk to the nearest school which led to a substantial number of unified school districts (Candoli, 1995).

While the initial role of the superintendent was to supervise while the school board made decisions that affected the school district, that role slowly began to change in the beginning of the twentieth century and superintendents gained the power to start making decisions for their districts as they fought to become professionals rather than schoolmasters (Candoli, 1995). Phases of the superintendency over the last century have changed from:

1. Master teacher and the leader of the students and other teachers in the school system.
2. Manager of the school system as a whole who answers only to the board.
3. Chief executive officer who manages the school organization which is seen as a business.
4. Leader responsible for developing and implementing a variety of different models to respond to the various stakeholders that make up the current school system.

While the necessity of the position has not changed, the role, expectations, and responsibilities of the superintendent position have changed radically and become vastly more challenging than when the position began.

Intelligence

Intelligence is a difficult term to discuss due to its variance in definition. It has been debated, discussed, tested, researched and dissected for centuries. Its ambiguousness has led to an abundance of studies, theories and literature. Baltes (1986) suggests the definition of intelligence is unclear and cannot be accurately explained. Brown and Campione (1986) determined that defining intelligence is a difficult undertaking because it is difficult to define. Some philosophers have attempted to define intelligence. Intelligence, defined by Baron (1986), is a set of mental processes or abilities that allows one to set and accomplish goals in the real world. Eysenck (1981) suggests we may agree that the general idea of

intelligence is simply cognitive ability, but there is not a definition for intelligence that is agreed upon, as is the case with many scientific concepts. Eysenck (1986) also suggests:

intelligence was defined in terms of learning capacity, memory, problem solving ability, reasoning, judgment, adaptation to environment, comprehension, the evolvment of strategies, and many other concepts, although clearly these are consequences of the application of intelligence, and therefore cannot serve as definitions. (p. 69)

Flynn (2007) suggests that although intelligence is thought of by many as mental acuity, that idea is too narrow. He confidently defines intelligence as a much broader term including:

all of the cognitive traits, habits of mind, contents of the mind, and attitudes that direct the investment of mental energy that make us good solvers of cognitively demanding problems. Clearly there are many other traits that contribute to cognitive problem solving, for example, like physical states, being healthy, not being deaf, being conscious, and so forth. (p. 54)

The notion of intelligence can be traced back to the ancient Greeks (Eysenck, 2007). “Socrates is the inventor of philosophy as a form of questioning practice; Plato is one of his disciples through whom we know Socrates as the philosopher who wrote nothing down” (Kohan, 2013, p.314). While Socrates may not have written anything down, much has been written and philosophized about him regarding his constant questioning of life. Socrates sought to know and understand himself (Kohan, 2013).

Plato and Aristotle are considered two of the greatest minds and they have had an immeasurable influence on the study of intelligence (Shields, 2013).

Eysenck (2007) discusses Plato's writing Phaedrus, in which he recognizes three elements of the mind; feelings, intellect and will. In Phaedrus, Plato included his teacher Socrates as a main character in his writing and discussed topics such as love, philosophy, truth, and rhetoric (Kohan, 2013).

Aristotle was Plato's student and studied under him in Greece (Shields, 2014). Aristotle's observations of human behavior also allude to intellect by way of an ability (Eysenck, 2007).

History of Intelligence

The study of intelligence has an extensive history that is filled with errors, disagreements, and debates. In 1641, Descartes, the philosopher and mathematician, wrote that the mind and body interacted with each other, but the cognitive process came from the mind not the body (Dellarosa, 1988). Goodwin (2010) explained that although Descartes' work to attempt to discern the mind-body problem was inaccurate, he is credited with the concept of distinguishing between responses from sensory and motor neurons. Hobbes (1656), a philosopher and political writer, disagreed with Descartes and contended that thoughts came from the entire body, not just from the mind (Dellarosa, 1988).

Philosophers were not the only ones to theorize about intelligence. A mathematician named Boole (1854) explained intelligence as a process of logic.

As a mathematician, he saw thought as connecting propositions, using mathematical expressions and symbols, and establishing rules. A formal system of logic was developed from mathematicians, specifically Bertrand Russell and Alfred North Whitehead (Dellarosa, 1988).

Ernst Weber and Gustav Fechner were both interested in the study of humans and the senses, in particular their reactions to stimuli and how it could be measured and simulated which established intelligence as a physiological cognitive process (Dellarosa, 1988). Fechner was one of the founders in the study of sensory points and limits (Goodwin, 2010).

Wilhelm Wundt went in a different direction regarding the study of intelligence although he believed the senses were not to be disregarded as he studied in this area like Fechner. Wundt believed that psychology as a science could not be an isolated measurement because the observer would never be able to separate their perceptions of what was being observed (Goodwin, 2010). Wundt is considered the originator of modern psychology and focused on social and experimental psychology (Goodwin, 2010).

Intelligence has taken different paths and theories. Many theories about intelligence emerged in the early 1900's. One of the more notable theories was that of Spearman (1904). Spearman theorized there was a measurable all-encompassing mental process that facilitated a person's ability to problem solve

and acquire knowledge, which he called “g” and considered a general factor of intelligence (Spearman, 1927).

Thorndike (1921) and Thurstone (1935), however, theorized there was more to intelligence than a general factor. Thorndike believed that other factors were to be considered as a part of general intelligence. He believed emotions, determination, physical abilities, morals, and senses are all factors of how he defined intelligence (Thorndike, 1921). Thurstone, too, insisted there were other factors that contributed to intelligence from his work with mathematics such as spatial, deductive, numerical, and verbal reasoning (Thurstone, 1935).

Sternberg and Kaufman (2002) suggest Spearman and Thurstone were both correct to some degree. There are different intelligences, but since they have a positive correlation, that would indicate a foundation for the specific intelligences such as a general intelligence from which the others derive (Sternberg & Kaufman, 2002). Spearman (1927) added to his general intelligence theory suggesting there is also a specific factor of intelligence, s, that can evolve which differs from his original general intelligence stance (Sternberg & Kaufman, 2002).

Given the information from Spearman and Thurstone, as well as others, while there may be an overall cognitive ability that allows us to function, there are also different abilities that can be argued exist. These abilities are demonstrated through reactions to stimulus, perceptions and experiences. In addition, while

there is not one best definition for intelligence, through extensive research in the field of psychology, Sternberg and Kaufman have summed it up best as “adaptation to the environment, broadly conceived” (Sternberg & Kaufman, 2002, p. 3).

General Intelligence Testing

Interests in intelligence testing can easily be traced back to the mid 1800's with psychologists such as Fechner (1860), Wundt (1862), Galton (1869), and Cattell (1890). Fechner's research focused on the theory of psychophysics, which is examining the correlation between physical stimuli that produces feelings and mental states. Early research on language and thought is contributed to the research conducted by Wundt. Wundt conducted experiments in his laboratory focusing on the senses and perceptions in which he measured participants' experiences and reactions (Goodwin, 2010). While Wundt was also intrigued with higher cognitive thought processing such as language and its acquisition, he believed their measurement could not be accurate due to the need for direct observation in which he felt would also reflect the observer's perceptions (Goodwin, 2010).

Cattell worked with Wundt and Galton (Plucker, 2013). While Cattell earned his doctorate from studying under Wundt, Galton seemed to have the greatest impact in Cattell's work through his use of measurement in mental testing

(Goodwin, 2010). Galton published information about studying development and heredity that credited him with the discovery of mental testing (Bulmer, 2003).

Mental testing was different somewhat from intelligence testing because of its dependence on sensory perception rather than cognitive ability or IQ, which was termed at a later time (Goodwin, 2010). Cattell contributed to the field of psychology by focusing on mental testing that determined measurements of the brain based on a series of sensory tests (Cattell, 1890). However, a study by Wissler, a student of Cattell, was conducted that demonstrated that the Galton-Cattell sensory testing did not equate with measuring cognitive ability (Goodwin, 2010).

The first well-known intelligence test, however, was the Binet-Simon Intelligence test published in 1916 by Alfred Binet and Theodore Simon (Becker, 2003). Binet believed the test would be able to help identify children in school with special needs who had impairments that did not allow them to keep up with their peers in the regular classroom environment (Jenkins & Paterson, 1961). This stemmed from Binet's observation of medical doctors that labeled students different terms for the same problem (Goodwin, 2010). Binet believed if children with special learning needs could be identified, schools could develop programs to help the children identified so they might eventually be able to mainstream back into regular classes (Minton, 1998). He also believed that the test did not

encompass intelligence as a whole, but rather focused on determining a mental age (Jenkins & Paterson).

Lewis Terman (1916), who was interested in Binet's work with intelligence testing, wrote *The Measurement of Intelligence: An Explanation of and a Complete Guide for the Use of the Stanford Revision and Extension of the Binet-Simon Intelligence Scale*. The measurement was termed the Stanford-Binet Intelligence Scale (Boake, 2002). Terman revised the Binet-Simon Intelligence test to expand testing to adults and changed the term to intelligence quotient, or IQ, rather than continuing the use of mental age used by Binet since the testing was expanded to adults (Boake, 2002).

The Stanford- Binet test has since undergone five revisions, but is still in use today (Becker, 2003). Binet and Terman had different ideas behind the worth of intelligence testing and how it should be used (Minton, 1998). Binet wanted to help students with special needs to mainstream back into normal classes and Terman wanted to remove these students from the normal classes to preserve society from what he viewed as degenerates or misfits (Minton, 1998). Although intelligence testing was conducted, it was not commonplace throughout society at this time.

The event that rapidly propelled intelligence testing into the limelight was the declaration of World War I. The U.S. Army determined it necessary to test soldiers to ensure they were competent before sending them off to war (Boake,

2002). Due to the fact that testing was performed by the U.S. Army, a governmental entity, it provided credibility to intelligence testing, thus helping to make intelligence testing more common for adults (Boake, 2002).

David Wechsler proctored tests for the U.S. Army during World War I and later developed the Wechsler-Bellevue intelligence test by borrowing from other tests already developed, including the tests administered while serving in the U. S. Army (Boake, 2002). Due to its army roots, the Wechsler-Bellevue test became widely accepted because of its credibility and familiarity and after some revisions, continues to be used (Boake, 2002). While the Binet-Simon, Stanford-Binet, and Wechsler-Bellevue tests of intelligence were widely used throughout the early 1900's, they only focused on general intelligence.

Other Intelligences

Some psychologists and researchers have argued there are other types of intelligences. Thorndike, like Wechsler, concluded through his research that there was more to intelligence than simply the cognitive function (Labby, Lunenburg, & Slate, 2012). Thorndike believed in the importance of social intelligence which he believed was the ability to interact with, relate to, collaborate with, and oversee others (Labby, Lunenburg, & Slate, 2012).

In the book *Frames of Mind*, Gardner (1983) wrote that there are seven intelligences; visual, kinesthetic, logical, musical, verbal, interpersonal, and intrapersonal. He determined interpersonal and intrapersonal were just as

important as cognitive intelligence (Labby, Lunenburg, & Slate, 2012).

Interpersonal intelligence is focused on reading and understanding others while intrapersonal is focused on understanding one's self (Gardner, 1993). Gardner, like the other psychologists mentioned, has acknowledged that there was more to intelligence than general cognitive ability.

While the definition of intelligence still varies upon whom you ask, there have been some researchers that agree on aspects of intelligence. According to Gardner (1983) and Sternberg (1985a), they both generally refer to intelligence as the ability to solve problems effectively. In 1985, Sternberg expanded on Polanyi's research and defined intelligence as the ability to problem solve and adjust to any situation. He believed that people who were successful in doing these things demonstrated practical intelligence (Sternberg, 1985). Sternberg conducted numerous research studies on practical intelligence including testing of children in America and Kenya. He expanded his research to include adults by creating tacit knowledge inventories for the following positions in society: custodians, military personnel, college professors, public school teachers, and business associates (Sternberg, Forsythe, Hedlund, Horvath, Snook, Williams, Wagner & Grigorenko, 2000). Sternberg et al. (2000) have concluded that practical intelligence when measured through tacit knowledge inventories reveals a significant difference in the abilities of novice and experts in the previously

mentioned positions. They (Sternberg et al., 2000) also explain that the difference is not dependent upon academic intelligence.

Tacit Knowledge and Practical Intelligence

Michael Polanyi (1968) introduced tacit knowing or tacit knowledge in the 1940's. He stated "All knowledge is either tacit or rooted in tacit knowing", (p.16) referring to everything we understand or learn is due to its acquisition through language and language itself is a "tacit operation" (p.16). Polanyi expanded our understanding of how knowledge is acquired and how it is an individual's problem solving process that is used to discover new theories and scientific concepts. Polanyi conclusively declared there are no formulas or rules to attain empirical knowledge (Polanyi, 1968).

Polanyi (1968), Neisser (1976), and Schön (1983) are among the well-known researchers that have written about tacit knowledge and its relevance to practical intelligence. They all acknowledge the imperative role experience plays in problem solving and daily decision making that leads one to be successful or not through their actions. Sternberg and Wagner (1986) claim that practical intelligence is reliant upon tacit knowledge. Tacit knowledge is the measurable part of practical intelligence (Cianciolo, Grigorenko, Jarvin, Gil, Drebot & Sternberg, 2006). They define tacit knowledge as knowledge that is gained without openly being taught. Wagner and Sternberg (1985) suggest tacit knowledge has three categories; managing one's self, other people, and lifework.

Neisser (1976) stated that intelligence tests use problems that contain all the necessary information to arrive at the one correct answer within a given amount of time that are irrelevant to life in general. In addition, Neisser (1976) suggested performing well on an academic test certainly does not ensure success in the practical world where problems are frequently undefined.

Sternberg and Wagner (1986) postulate that learning to solve problems in real world situations occurs outside of a classroom. They concur with Neisser (1976) that problems are not always formulated and there is often more than one possible solution, which is very different than the questions on an IQ test (Sternberg & Wagner, 1986). They also agree that IQ tests measure formal preparation which is only one aspect of intelligence (Sternberg & Wagner, 1986). Sternberg and Wagner (1986) contend that adept practical thinking includes:

1. recognizing there is a problem
2. forming the problem and the solution
3. flexibility and variation to solve the problem
4. combining attributes of the task surroundings
5. searching for the solution that will require the least amount of effort and expense
6. acquiring and applying setting-specific knowledge

Charlesworth (1976) describes practical intelligence as “behavior under the control of cognitive processes and employed toward the solution of problems

which challenge the well-being, needs, plans, and survival of the individual” (p. 150). Sternberg (2000) contends that successful leaders possess high levels of practical intelligence; they know how to find the right people and develop relationships with them to create a successful organization. Leithwood, Louis, Anderson, and Wahlstrom (2004) agree successful superintendents are dependent on others within the district which supports Wagner and Sternberg’s (1985) suggestion that professionals who possess high levels of practical intelligence know how to manage others. Also, they support the importance of practical intelligence because of the significance of organizational context as it relates to a superintendent’s success (Leithwood, Louis, Anderson, & Wahlstrom).

Ceci and Liker (1986) believe intelligence exists as a human ability and suggest that intelligence and IQ are not necessarily intertwined. They state emphatically that intelligence varies among individuals. Ceci and Liker concur with Gardner (1983) that there are multiple intelligences. They concur with Neisser (1976) that when an individual takes an IQ test, the test is only measuring one part of intelligence because the test is defined by a specific well laid out problem set with one correct conclusion. In addition, Ceci and Liker suggested that just because a person has a low IQ does not mean they do not possess a high level of practical intelligence. They concluded from research they conducted from 1981 to 1984 on racetrack handicappers that experience is more important than IQ, but more experience does not necessarily equate with more expertise. Their

study was interesting in the fact that they analyzed the participants' complex decision making regarding handicapping at the horse track and administered the Wechsler Adult Intelligence Scale to measure their IQs. That conclusion suggests it is the synthesis of the experience or tacit knowledge that develops expertise.

Chapter Summary

There is a large body of research focused on leadership, superintendents and on intelligence, independently. There are only a few studies that have begun to combine all three of these research areas together (Nestor-Baker, 2001; Nestor Baker & Hoy, 2001; Mueller & Bradley, 2007). Nestor-Baker (2001) states "the tacit knowledge of superintendents has had little examination" (p.230). This study will add to the body of literature on practical intelligence and expand what is known about a superintendent's practical intelligence. In research conducted by Nestor-Baker and Hoy (2001), they found that tacit knowledge can be delineated into three categories: intrapersonal, interpersonal, and organizational. This research will continue along this line of inquiry. Mueller and Bradley's (2007) research, which described how the Tacit Knowledge Inventory for Superintendents (TKIS), expanded the research conducted by Nestor-Baker and Hoy (2001) and was the logical next step in the process of studying superintendent tacit knowledge. This study will continue the research on practical intelligence that is in the beginning stages of research. It is important to continue

the pursuit of understanding the problem-solving process that superintendents go through that lead to high performing or poor performing school districts.

Chapter 3

Methodology and Procedures

The purpose of this study was to compare the practical intelligence mean scores of superintendents in exemplary and academically unacceptable school districts in Texas public schools. Practical intelligence has been measured by Sternberg and his colleagues (Sternberg et al., 2000) using tacit knowledge inventories specifically created for the occupations they wanted to study. This chapter describes the methodology used in this study to examine the relationship between superintendent tacit knowledge, a measurable part of practical intelligence, in successful and unsuccessful school districts. School district success is affected by the leadership of the district (Waters & Marzano, 2007), therefore, according to Sternberg's theory (Sternberg et al. 2000), a superintendent's practical intelligence would have an impact on school district success.

Research Design

This study used quantitative methods to compare statistically the practical intelligence scores of the two groups of school superintendents to determine if they were significantly different. The mean scores were calculated for each group in organizational, interpersonal, and intrapersonal tacit knowledge. T-tests were used to compare the mean scores of each group in the three categories to

determine if there was a significant difference between the groups. In addition, demographics were collected and examined.

Data Needs and Sources

Data needed for this study was the practical intelligence scores of superintendents and their TEA school district rating. The data gathered was from superintendents in districts with exemplary and academically unacceptable TEA ratings in 2011 in the State of Texas. The reason behind using these ratings was due to their consistency and longevity as the standard of measure for Texas school districts. The focus on these districts was due to their high and low district ratings. District student performance data was also needed to classify the superintendents.

Participants

Texas public school superintendents were the population of interest in this research study. The Texas Education Agency (TEA) database AskTED was used to generate a list of school districts in Texas with the 2011 TEA district ratings. A list of superintendents was downloaded into an Excel spreadsheet. Using that list, districts were sorted according to four categories: exemplary, recognized, acceptable, and unacceptable. The districts with exemplary and unacceptable ratings in 2011 remained on the list while the other two groups were removed from the list. A second list was generated from AskTED to gather the names of current superintendents in Texas. That list was also downloaded into an Excel

spreadsheet. An exemplary list and an academically unacceptable list were created.

The current superintendents were matched up with their corresponding district and verified using identifying factors such as district name, county name, region number, and district number. The lists were checked twice for accuracy to ensure the superintendent and district matched and their district rating was confirmed.

There was not a list that contained all the necessary data to conduct this study, which was why it was done manually. Any missing data such as a salutation title, part of the superintendent’s name, or status as interim was researched at the individual school district’s website through a Google search. Districts that were not public school districts were removed from the list. Exemplary and Academically Unacceptable school districts each make up less than 5% of the school districts in Texas. The table below represents the initial number of districts reported in each category from the TEA website.

Table 3-1 TEA District Ratings by Rating Category (excluding Charter Operators)

Accountability Rating	Count	Percent
Exemplary	45	4.4%
Recognized	381	37.0%
Academically Acceptable	553	53.7%
Academically Unacceptable	50	4.9%

Table 3-1 continued

Not Rated: Other	0	0.0%
Total	1,029	100.0%

There were 45 school districts rated Exemplary and 50 rated Academically Unacceptable in 2011. Of the 45 schools rated Exemplary, three were removed from the list because the superintendents were interim superintendents. Of the 50 school districts rated Academically Unacceptable, five were removed. One school district was absorbed by a larger school district and four school districts had interim superintendents.

Coincidentally, all of the superintendents' school districts have less than 9,000 students except for one which had about 37,000 students. The list of exemplary school districts and their superintendents was labeled Group I while the list of academically unacceptable school districts and their superintendents was labeled Group II. There were a total of 87 superintendents invited to participate in this study. TEA ratings were earned based primarily on state mandated test results in 2011.

After receiving approval from the Institutional Review Board (IRB) to conduct the study, an email was generated and sent out electronically to the superintendents on the lists. The email included an explanation of the study, a request to participate in the study, and a link to the online survey (see Appendix A).

Data Collection

The survey method of research was chosen due to its efficiency and quick ability to gather current accurate responses. A letter addressing the study and condensing the consent to participate was generated to be the introduction to the survey. The full version of the consent to participate was below the survey link and clearly titled.

Survey respondents in this study were anonymous; no identifying information such as name or district was collected from the participants. The email was sent to each superintendent starting in January upon the return from winter break for Texas school districts. Five emails were sent over a six week period. Each week after the initial email, a follow up e-mail was sent to superintendents asking them to complete the survey if they had not already responded.

Surveys were completed and collected using an online survey service. Table 3-2 shows the distribution of surveys completed for each group. While this research examined superintendents in exemplary and academically unacceptable school districts, worth noting is how their response rates accumulated throughout the study as shown below. In the first week the survey was sent, the response ratio of superintendents from exemplary to academically unacceptable school districts was nine to one respectively.

Table 3-2 Number of Superintendent Responses by Week and Group.

Week	Superintendents in Exemplary Districts (Group 1)	Superintendents in Academically Unacceptable Districts (Group 2)
Week 1	9	1
Week 2	1	4
Week 3	2	1
Week 4	0	1
Week 5	1	0
Week 6	1	3
Total	14	10

Instrumentation

The Tacit Knowledge Inventory for Superintendents (TKIS), previously developed by Mueller in 2006, was used for this study. Mueller developed and tested the TKIS to ensure it was an accurate measure of practical intelligence in superintendents based on Sternberg’s framework for creating tacit knowledge inventories. This instrument was chosen primarily because no others exist. Additional demographic questions were added at the end of the survey. The demographic questions asked general information about the participants’ age, gender, ethnicity, and previous central administration positions. The rest of the demographic questions focused on their years of experience as a superintendent

and how many districts they have served as a superintendent which is important to know when examining the groups' tacit knowledge because it demonstrates their amount of expertise.

The TKIS consists of eight scenarios, each containing items to be ranked on a Likert scale. The scenarios in the survey developed by Mueller (2006) were based on the eight American Association of School Administrators (AASA) professional standards for superintendents (Hoyle, 1993, p.10):

1. leadership and district culture
2. policy and governance
3. communications and community relations
4. organizational management
5. curriculum planning and development
6. instructional management
7. human resources management
8. values and ethics of leadership

Mueller used case studies related to school leadership published by Sharp, Walter, and Sharp (1998) for scenarios one through seven while scenario eight was based a case study by Hoyle, English, and Steffy (1998). Each was adapted to align with the AASA standards.

Superintendents are asked to answer the items with their perceived most effective possible response option. Each item in the scenario required a response

from the participant. Each superintendent who participated in the study had to rate the response by choosing from:

1. Extremely ineffective
2. Ineffective
3. Somewhat Ineffective
4. Neutral or No Effect
5. Somewhat Effective
6. Effective
7. Extremely Effective

There were a total of 33 items that required a rating from the 1-7 Likert scale. After the 33 items were answered, superintendents were asked to respond to the 14 demographics questions. The superintendents took the same survey. However, question numbers 14 and 15 on ethnicity and age were reversed to differentiate the two groups of superintendents in Survey Monkey for comparison purposes. Participants were required to answer all questions in the survey to eliminate the problem of missing or incomplete data.

Data Analysis

The survey data was directly imported into the Statistical Product and Service Solutions (SPSS) from survey monkey. This was the initial step in the data analysis process. Since the groups were imported individually, they had to be combined into one group. The superintendents were grouped according to their

TEA district rating and dummy coded to differentiate the two groups. Also, answers to questions 14 and 15 were switched in the second group that was combined with the first group to align with the survey questions.

The scenario questions were re-coded in the SPSS program to reflect Mueller's expert panel's answers to the survey questions. The expert panel responded to the scenario items to allow Mueller (2006) to determine the best answer to each scenario item. Each scenario item had a specific best answer or answers according to Mueller's item scoring protocol and each answer received a specified amount of points for each correct answer and how far away the respondent's answer was from the correct answer. However, each item had a specific point total.

For example, scenario one, item one's best answer of three received three points; answers of two and four are one above or below the desired answer, respectively, and each received two points; while answers one and five are two places above or below the desired answer, respectively, and received one point; and finally, answers six and seven received no points. However, scenario one, item two had completely different point values. Specifically, if the respondent answered six on the Likert scale, they received three points, while answers five and seven, which are one above and below the desired answer, each received two points, the answer of four received one point, and an answer choice of one, two, or three received no points.

This research sought to answer the following questions and hypotheses.

1. What are the demographics of superintendents in the best performing and poorest performing school districts in Texas?
2. What are the practical intelligence scores of superintendents in the best performing and poorest performing school districts?
 - A. Interpersonal knowledge
 - B. Intrapersonal knowledge
 - C. Organizational knowledge
3. Do statistical comparisons refute or accept the following hypotheses?

H1: The interpersonal tacit knowledge means of the two groups of school superintendents will not be significantly different. (H1: $\mu_1 = \mu_2$)

H2: The intrapersonal tacit knowledge means of the two groups of school superintendents will not be significantly different. (H2: $\mu_1 = \mu_2$)

H3: The organizational tacit knowledge means of the two groups of school superintendents will not be significantly different. (H3: $\mu_1 = \mu_2$)
4. Given the results of question three, how useful is practical intelligence for understanding the differences in district academic success?
5. What other realities were revealed during the study about the relationship of superintendent practical intelligence and district academic success?

An independent-samples t-test was used to analyze the data in each tacit knowledge category: interpersonal, intrapersonal, and organizational. The first independent-samples t-test was conducted with all items in scenarios two, three, six and seven pertaining to interpersonal tacit knowledge to answer Hypothesis One. The second independent-samples t-test was conducted with items from scenario eight on intrapersonal knowledge to answer Hypothesis Two. Finally, an independent-samples t-test was conducted that included all items in scenarios one, four and five pertaining to organizational tacit knowledge to answer Hypothesis Three. This research was seeking to test for differences in the means of the two groups of superintendents to answer each of the hypotheses. The mean of Group I was compared to the mean of Group II to determine if there is a significant difference between the two groups' means in each of the three tacit knowledge categories which means the Sig (2-tailed) value in the t-test for Equality of Means in the independent-samples t-tests must be $p < 0.05$. The table below demonstrates how the research questions will be answered.

Table 3-3 Research Questions and Methodology

Research Questions	Methodology
1. What are the demographics of superintendents in the best performing and poorest performing school districts in Texas?	A descriptive statistical analysis was used to organize, summarize and analyze the demographics of the participants of the study.
2. What are the practical intelligence scores of superintendents in the best performing and poorest performing school districts? A. Interpersonal knowledge B. Intrapersonal knowledge C. Organizational knowledge	Descriptive statistical analysis was used to calculate the mean scores and summarize the data.
3. Do statistical comparisons refute or accept the following hypotheses? H1: The interpersonal tacit knowledge means of the two groups of school superintendents will not be significantly different. (H1: $\mu_1 = \mu_2$) H2: The intrapersonal tacit knowledge means of the two groups of school superintendents will not be significantly different. (H2: $\mu_1 = \mu_2$) H3: The organizational tacit knowledge means of the two groups of school superintendents will not be significantly different. (H3: $\mu_1 = \mu_2$)	An independent-samples t-test was used to analyze the data for each hypothesis with its corresponding tacit knowledge category.
4. Given the results of question three, how useful is practical intelligence for understanding the differences in district academic success?	This research question was answered through examination and consideration of the findings.
5. What other realities were revealed during the study about the relationship of superintendent practical intelligence and district academic success?	This research question was answered through examination and consideration of the findings.

Reliability

According to Giacobbi (2002), internal consistency is a common way of determining the reliability of survey data. The basis for this technique is that survey items measure the same thing and are eliminated if they do not. Mueller (2006) developed the TKIS based on the framework that Sternberg et al. (2000) identified. Reliability of the TKIS used in this study was established through several phases of development and piloting with superintendents and graduate students in Kentucky that Mueller (2006) researched. Mueller (2006) went through three phases in developing the TKIS.

In Phase I, the initial inventory was created by using a panel of eight current Kentucky superintendents who were deemed as having expertise in at least one of the AASA standards to create the scenarios and generate the possible outcomes. At least two superintendents were used in the development of each scenario. In Phase II, a pilot study and an initial Rasch analysis was conducted using three groups of participants: graduate students seeking to move into the superintendency, current Kentucky superintendents and the initial panel of superintendents who developed the assessment. Mueller (2006) examined both person's ability and item's difficulty for misfit and to determine if the three categories of tacit knowledge fit the ability level of the participants. In Phase III, the final version of the TKIS was developed and tested again. Again, graduate

students seeking to move into the superintendency as well as the initial panel of current superintendents participated in the last round of testing. Mueller (2006) used the partial credit Rasch model (Rasch, 1960) to ensure the TKIS was reliable overall. He examined the reliability index using the Winsteps statistical software program to determine how well the scenario items and participants are measured. Bond and Fox (2001) and Mueller (2006) strongly recommend using the partial credit Rasch model when developing new measures of cognitive abilities like tacit knowledge inventories. Mueller modeled the TKIS after Fox's (1999) development of the Practical Knowledge Inventory for Nurses in which Fox used the partial credit Rasch model.

Validity

According to Gehlbach and Brinkworth (2011), expert validation is a recognized way to establish validity of a survey. Also, Sternberg et al. (2000) suggested that using mean responses to create an expert profile for the protocol was highly recommended. To accomplish this, the survey designer identifies experts on the topic being researched and asks them to determine if the survey items developed adequately represent a specific construct (Gehlbach & Brinkworth, 2011). This allows the researcher to clarify, eliminate, expand or add items in the survey to ensure relevance of the survey items and their measures (Gehlbach & Brinkworth). In addition, pilot testing can be used to administer the scale to participants to assess how survey items function within the construct

(Gehlbach & Brinkworth). Pilot testing is very beneficial in identifying problematic survey items before the survey is sent to the research participants. Mueller (2006) used expert validation and pilot testing to ensure the TKIS was a valid measure of the complex abilities in tacit knowledge. His expert panel, while only having two experts, were both superintendents with at least 10 years of experience and one of the was named Kentucky Superintendent of the Year (Mueller, 2006).

Chapter Summary

The purpose of this study is to compare the practical intelligence scores through the use of the TKIS. To attain their practical intelligence or tacit knowledge mean scores for each group in organizational, interpersonal, and intrapersonal tacit knowledge, independent-samples t-tests were conducted to statistically compare the practical intelligence scores of the two groups of school superintendents to determine if they were significantly different. Finally, demographics on the participants were collected and examined for similarities and differences.

Chapter 4

Data Analysis

Research Question One: What are the demographics of superintendents in the best performing and poorest performing school districts in Texas?

Superintendents in the exemplary and academically unacceptable districts had many similarities in their demographic data. A total of 42.9% of superintendents in exemplary districts and 70% of superintendents in academically unacceptable districts did not work in central administration prior to becoming superintendents (see Table 4-1). The superintendents who worked in central administration primarily had roles as assistant superintendents and directors.

Table 4-1 Central Administration Experiences before becoming a Superintendent

Central Administration Positions Held	Superintendents in Exemplary Districts (n=14)	Superintendents in Academically Unacceptable Districts (n=10)
Associate Superintendent	7.1%	0.0%
Assistant Superintendent	57.1%	10.0%
Coordinator	7.1%	0.0%
Specialist	0.0%	10.0%
Director	35.7%	20.0%
Manager	0.0%	0.0%
Academic/Instructional Coach	0.0%	0.0%
Other	0.0%	10.0%
Does Not Apply	42.9%	70.0%

Data collected on gender, ethnicity, and age is similar to the national 2010 decennial superintendent study conducted by Kowalski, McCord, Peterson,

Young, and Ellerson (2011). The majority of superintendent respondents were male, white, and between 51 to 60 years old. This also aligns with the Texas superintendent demographics reported by Fenn and Mixon (2011). Table 4-2 displays the superintendents by gender, ethnicity and age. More than half of the superintendents that responded to this survey were male and all but one was white. While the age range is spread out for both groups, exactly 50% of each group is between 51-60 years old. Both groups also have about 40% of the superintendents between the ages of 36 to 50 years old.

Table 4-2 Gender, Ethnicity, and Age

Demographics	Superintendents in Exemplary Districts (n=14)	Superintendents in Academically Unacceptable Districts (n=10)
Male	71.4%	90.0%
Female	28.6%	10.0%
White	100.0%	90.0%
American Indian	0.0%	10.0%
36-40 years	7.1%	10.0%
41-45 years	7.1%	30.0%
46-50 years	28.6%	0.0%
51-55 years	35.7%	20.0%
56-60 years	14.3%	30.0%
61-65 years	7.1%	10.0%

An interesting demographic for these two groups of superintendents was the percentage of respondents who were first time superintendents. This is an important factor to consider when comparing the tacit knowledge of the

superintendents because it relates directly to their experience. Table 4-3 shows the percentages of first time superintendents by groups.

Table 4-3 Percentage of first time superintendents.

First Superintendency	Superintendents in Exemplary Districts (n=14)	Superintendents in Academically Unacceptable Districts (n=10)
Yes	71.4%	80.0%
No	28.6%	20.0%
Total	100.0%	100.0%

While most of the superintendents are serving as a superintendent for the first time, those numbers increase even more when expanding the number of districts served into two; 85.7% of the superintendents in exemplary districts and 90% of the superintendents in academically unacceptable districts have served in two districts or less.

Another area in which the superintendents have similar backgrounds is in their areas of certification. Table 4-4 illustrates the certifications obtained by the superintendents who responded to the survey. All superintendents have their principal and superintendent certifications. All of the superintendents in the academically unacceptable districts have their secondary certifications while 85.7% of the exemplary superintendents also have their secondary certification.

Table 4-4 Areas of Certification

Areas of Certification	Superintendents in Exemplary Districts by Percentage and Number	Superintendents in Academically Unacceptable Districts by Percentage and
------------------------	---	--

Table 4-4 continued

	(n=14)	Number (n=10)
Elementary	42.9% (6)	20.0% (2)
Secondary	85.7% (12)	100.0% (10)
Generalist	21.4% (3)	0.0% (0)
Principal	100.0% (14)	100.0% (10)
Superintendent	100.0% (14)	100.0% (10)
Other	7.1% (1)	10.0% (1)

The questions asked in the survey instrument focused on the superintendent's experience due to the relationship between experience and tacit knowledge. The demographic information in Table 4-5 contains the superintendents' number of years in their current position.

Table 4-5 Number of Years in Current Position

Years	Superintendent's in Exemplary Districts (n=14)	Superintendent's in Academically Unacceptable Districts (n=10)
0 years	7.1%	0.0%
1 year	0.0%	20.0%
2 years	14.3%	30.0%
3 years	7.1%	0.0%
4 years	7.1%	0.0%
5 years	28.6%	20.0%
6 years	7.1%	0.0%
7 years	0.0%	0.0%
8 years	14.3%	10.0%
9 years	0.0%	10.0%
10 years or more	14.3%	10.0%

Sixty four percent of superintendents in the exemplary districts and 70% of superintendents in academically unacceptable districts have five (5) years or

less in their current position. Table 4-6 shows the number of years of experience for the superintendents.

Table 4-6 Number of Years of Experience as a Superintendent

Years	Superintendent's in Exemplary Districts (N=14)	Superintendent's in Academically Unacceptable Districts (N=10)
0-3 years	21.4%	40.0%
4-7 years	35.7%	20.0%
8-11 years	21.4%	20.0%
12-15 years	14.3%	10.0%
16-19 years	0.0%	0.0%
20 years or more	7.1%	10.0%

In table 4-6, in the exemplary group, 57.1% of the superintendents have 7 years or less of experience while that number is 60% of the academically unacceptable superintendents. Similarly, when examining the superintendents with 11 years or less those percentages increase to 78.5% and 80% respectively. Examining the numbers of superintendents in tables four and five, an important point to make is that the two groups have a very similar amount of experience. This is a crucial observation in this study because tacit knowledge is measured in terms of experience (Mueller, 2006). The majority of respondents in this survey not only had seven years or less experience, most have been in their current position for five years. This was true for both groups of superintendents.

However, they did have one area that varied greatly, the area of their previous experience in central administration before attaining a position as a superintendent. The data in Table 4-1 illustrated this area of difference.

Research Question Two: What are the practical intelligence scores of superintendents in the best performing and poorest performing school districts?

This study examined the practical intelligence scores through a tacit knowledge inventory developed for superintendents by Mueller (2006) with the purpose of comparing the mean scores of Texas superintendents in three categories: organizational, interpersonal, and intrapersonal tacit knowledge. Before analyzing the TKIS data, new categorical variables were created. The interpersonal category was created by including all items from scenarios one, four and five. The items in scenario eight were used to create the intrapersonal category. The organizational category was created using the items in scenarios two, three, six, and seven. The scores are illustrated in the table below.

Table 4-7 Practical Intelligence Scores by Group and Categories

Reporting Categories	Group 1 Mean (n=14)	Group 1 Standard Deviation	Group 2 Mean (n=10)	Group 2 Standard Deviation	Significance (p-value)
Interpersonal	1.74	0.30	1.97	0.29	0.07
Intrapersonal	2.26	0.46	2.23	0.55	0.89
Organizational	1.89	0.21	2.00	0.18	0.19

Research Question Three: Do statistical comparisons refute or accept the following hypotheses?

H1: The interpersonal tacit knowledge means of the two groups of school superintendents will not be significantly different. (H1: $\mu_1 = \mu_2$)

H2: The intrapersonal tacit knowledge means of the two groups of school superintendents will not be significantly different. (H2: $\mu_1 = \mu_2$)

H3: The organizational tacit knowledge means of the two groups of school superintendents will not be significantly different. (H3: $\mu_1 = \mu_2$)

To answer the hypotheses in this research study, the mean score in each category for each group was calculated so the groups could be compared.

Interpersonal Tacit Knowledge. An independent-samples t-test was conducted to compare the interpersonal tacit knowledge of superintendents in exemplary and academically unacceptable school districts. There was a not a significant difference in the scores for superintendents in exemplary school districts ($M=1.73$, $SD=.30$) and superintendents in academically unacceptable school districts ($M=1.97$, $SD=.29$); $t(22)=-1.90$, $p = .07$. These results suggest that both groups rated the interpersonal scenario items similarly and there is not sufficient evidence to reject the null hypothesis; H1: The interpersonal tacit knowledge means of the two groups of school superintendents will not be significantly different (H1: $\mu_1 = \mu_2$).

Due to the lack of significance in the interpersonal category, further examination of the individual items in scenarios one, four and five were conducted to determine if there were a significant difference between the groups for any items. Scenario one, item four showed a significant difference in the scores for superintendents in exemplary school districts (M=1.50, SD=0.65) and superintendents in academically unacceptable school districts (M=2.20, SD=0.79); $t(22) = -2.38, p = 0.03$. This was the only item in the interpersonal category that showed a significant difference in the two groups of superintendents' mean scores (see Table 4-8).

Table 4-8 Interpersonal Tacit Knowledge Item T-Test Results for Superintendents in Exemplary (Group 1) and Academically Unacceptable (Group 2) Districts.

Interpersonal Category Scenario Number- Item Number	Group 1 Mean (n=14)	Group 1 Standard Deviation	Group 2 Mean (n=10)	Group 2 Standard Deviation	Significance (p-value)
1-1	1.07	0.92	0.80	0.92	0.48
1-2	1.57	1.02	1.90	0.99	0.44
1-3	1.86	1.17	2.10	1.29	0.64
1-4	1.50	0.65	2.20	0.79	0.03
1-5	1.50	0.85	1.80	0.79	0.39

Table 4-8 continued

4-1	2.07	0.83	2.20	0.63	0.69
4-2	1.36	1.39	2.10	0.99	0.16
4-3	1.93	1.38	2.70	0.95	0.14
4-4	1.71	1.44	1.40	0.84	0.54
5-1	2.29	1.23	2.00	1.41	0.61
5-2	1.93	0.92	2.30	0.82	0.32
5-3	1.64	1.28	1.60	0.70	0.92
5-4	2.14	0.66	2.50	0.53	0.17

Intrapersonal Tacit Knowledge. A second independent-samples t-test was conducted to compare the intrapersonal tacit knowledge of superintendents in exemplary and academically unacceptable school districts. There was not a significant difference in the mean scores for superintendents in exemplary school districts ($M=1.2.26$, $SD=.46$) and superintendents in academically unacceptable school districts ($M=2.2$, $SD=.55$); $t(22)=.139$, $p=.89$. These results suggest that both groups rated the intrapersonal items from scenario eight nearly the same and there is not sufficient evidence to reject the null hypothesis the second hypothesis. T-tests were also conducted between the groups on individual items in the intrapersonal category and found no significant differences between the groups on any of the items (see Table 4-9).

Table 4-9 Intrapersonal Tacit Knowledge Item T-Test Results for Superintendents in Exemplary (Group 1) and Academically Unacceptable (Group 2) Districts

Interpersonal Category Scenario Number-Item Number	Group 1 Mean (n=14)	Group 1 Standard Deviation	Group 2 Mean (n=10)	Group 2 Standard Deviation	Significance (p-value)
8-1	2.07	1.33	2.10	1.29	0.96
8-2	2.36	0.93	2.30	0.95	0.88
8-3	2.36	1.08	2.30	0.67	0.88

Organizational Tacit Knowledge. Finally, an independent-samples t-test was conducted to compare the organizational tacit knowledge of superintendents in exemplary and academically unacceptable school districts. There was a not a significant difference in the scores for superintendents in exemplary school districts (M=1.89, SD=.21) and superintendents in academically unacceptable school districts (M=2.0, SD=.18); $t(22) = -1.37$, $p = .185$. These results suggest that both groups rated the organizational scenario items nearly the same and there is not sufficient evidence to reject the null hypothesis. To further analyze the data, another t-test was conducted to identify differences between the groups mean scores on any of the seventeen organizational tacit knowledge items. There were no statistically significant differences between the groups on any of the items (see Table 4-10).

Table 4-10 Interpersonal Tacit Knowledge Item T-Test Results for
 Superintendents in Exemplary (Group 1) and Academically Unacceptable (Group
 2) School Districts.

Interpersonal Category Scenario Number- Item Number	Group 1 Mean (n=14)	Group 1 Standard Deviation	Group 2 Mean (n=10)	Group 2 Standard Deviation	Significance (p-value)
2-1	1.50	0.76	1.60	0.84	0.77
2-2	2.29	.083	2.20	0.92	0.81
2-3	2.00	1.36	2.70	0.67	0.15
2-4	1.00	0.96	1.80	1.13	0.08
2-5	2.36	1.08	2.50	0.53	0.70
3-1	1.71	1.20	2.10	0.74	0.38
3-2	2.36	1.01	2.30	0.67	0.88
3-3	2.07	0.62	2.10	0.88	0.93
3-4	2.21	0.89	1.80	1.03	0.31
6-1	2.14	1.03	1.50	1.08	0.15
6-2	1.71	0.99	1.80	1.03	0.84
6-3	1.64	0.93	1.90	0.88	0.50
6-4	2.00	0.78	2.00	0.67	1.00
7-1	1.93	1.14	2.60	0.70	0.11
7-2	1.21	0.97	1.00	1.05	0.61
7-3	1.29	1.07	1.70	1.07	0.36
7-4	2.64	0.50	2.40	0.70	0.33

Research Question Four: Given the results of question three, how useful is practical intelligence for understanding the differences in district academic success?

There was a lack of significance between the mean scores between the two groups of superintendents in any of the three tacit knowledge categories. Due to these results, it would seem practical intelligence was not useful in explaining the differences in academic success of Texas superintendents. However, according to Sternberg et al. (2000) there should be a difference in performance between experts and novices. I thought there would be some measure of difference in the practical intelligence scores of these two groups of superintendents because it would seem experts would be leading successful schools while perhaps novices are leading the poor performing districts and have not gained the higher levels of tacit knowledge that an expert may possess. This study revealed most of the superintendents in these two groups are still considered novices because they have less than 10 years of experience (Chi, Glaser, and Farr, 1988).

Research Question Five: What other realities were revealed during the study about the relationship of superintendent practical intelligence and district academic success?

The success or lack thereof in a school district must also consider other factors. While this research did not reveal statistically significant differences in any of the three tacit knowledge categories, many other studies have found

differences in practical intelligence as measured by tacit knowledge inventories in other professions to suggest practical intelligence should be considered a factor in a person's success (Sternberg et. al, 2000).

The measurement of tacit knowledge in this profession as compared to the other professions in which practical intelligence has shown a significant difference in successful and less successful positions could be attributed to the lack of differences in the groups. This study revealed that although there is a difference in performance of a school district according to TEA ratings, it does not appear it is the performance of the superintendent that is driving this rating. The superintendent certainly has some sort of impact or contribution they make to the district otherwise TEA would not require a master's degree, principal certification, completion of a superintendent preparation program, satisfactory exam scores on the superintendent certification test and, superintendent certification (TEA, 2014). It would seem arbitrary and there would be no reason for the state to have such a demanding list of requirements if the superintendent did not influence the success of a school district.

Summary

In this chapter the findings were presented. A review of the data indicated there was not a significant difference between superintendents in exemplary and academically unacceptable school districts in interpersonal, intrapersonal, and organizational tacit knowledge. While the t-tests conducted revealed no

statistically significant difference when looking at the two-tailed significance results between the two groups of superintendents, a factor that could have an effect on these results is the limited number of superintendent participating and their amount of experience. This study focused on exemplary and academically unacceptable school districts therefore, only eight percent of superintendents in Texas were invited to participate in this study. The data also revealed these superintendents have a similar amount of experience and have been in their current positions for a similar amount of time. A summary of the study, conclusions, implications for practice, and recommendations for further study are discussed in Chapter 5.

Chapter 5

Summary of the Study, Conclusions, Study Implications, Recommendations for Future Research, Significance of the Study, and Discussion

The purpose of this study was to examine and compare the practical intelligence scores, as measured by a tacit knowledge inventory, of superintendents in exemplary and academically unacceptable school districts. The research sought to determine differences or similarities in superintendent demographics and tacit knowledge mean scores between these two groups. In this chapter, I provide a summary of the study, conclusions drawn from this research, recommendations for future research, and a discussion.

Summary of the Study

Electronic surveys were sent to 87 Texas public school district superintendents of exemplary and academically unacceptable districts with all districts but one having less than 9,000 students. The number of students in these two groups of districts was remarkably small. The number of exemplary school districts with less than 1000 students was 31 out of the 42 districts or 73.8%. The academically unacceptable districts were similar with 32 of the 45 districts or 71.1% having less than 1000 students.

In the first part of the survey, the superintendents responded to interpersonal, intrapersonal and organizational tacit knowledge scenarios. The second part of the survey asked participants to provide demographic information.

The mean tacit knowledge scores for each group were calculated using an independent-samples t-test for interpersonal, intrapersonal, and organizational tacit knowledge. The results of the three separate independent-samples t-tests indicated there was no significant difference in the mean scores between the two groups in any of the three categories of tacit knowledge.

The item analysis revealed one of the scenario items had a significant difference between the groups of superintendents. Scenario item 1-4 showed a significant difference in the superintendent' mean scores. This item was in interpersonal tacit knowledge and focused on avoiding a board member in order to make sure unnecessary conflict did not arise from the meeting.

The results of the demographic questions for each group revealed that the two groups had many similarities. The superintendents were primarily white males and fifty percent of each group of superintendents was between 51 to 60-years-old. The superintendents in the exemplary school districts had nearly the same number of years serving as a superintendent and the number of school districts they had served in as the superintendents in the academically unacceptable districts.

Conclusions

While I thought there would be a significant difference in these two groups of superintendents, that was not the case. The superintendents in this study had remarkable similarities in their demographics as examined in research

question one. The amount of experience, number of superintendency positions, age range, gender, ethnicity and, district size were very similar. Due to their similarities, I conclude this likely affected the results of the superintendent's practical intelligence scores. It stands to reason, although the superintendents are managing districts with different ratings, the differences are not within their measure of tacit knowledge, at least not at this point in their careers because they have relatively similar experiences. Most of the superintendents in this study are considered novices and early in their careers.

I also conclude that the differences in the superintendents in this particular study and their district rating stem from something other than superintendent tacit knowledge. Some possible reasons that could be explored would be the size and location of the districts, the personnel in the districts, or the students' socioeconomic status. Most of these districts have less than 5,000 students and are in rural areas. The school personnel could have a lack of experience. Rural schools may have a hard time attracting teachers or principals because of their location and often low salaries compared to higher paying positions where there is an abundance of opportunities. The students' demographics and socioeconomic status may have affected the district's ratings. Sixty percent of students in Texas in the 2013-2014 school years were economically disadvantaged students (TEA, 2014). Students that are economically disadvantaged are labeled by the state as

“at-risk” which means their circumstances put them in danger of failing or dropping out. This does not mean that cannot be high performing.

According to Garcia (2003), district support, personnel quality and amount of student involvement affect the success of a district with high amounts of poverty. This could be another factor that should be considered when trying to get an overall understanding of what differentiates these two groups of superintendents and what factors lead to their success.

What differentiates these districts requires further examination in perhaps other lines of inquiry. In relation to research questions two and three, the hypotheses were confirmed and the mean scores of these two groups of superintendents were not significantly different.

Given the results of this survey and considering research questions four and five, practical intelligence, when measured by this particular TKIS, had no effect on a superintendent’s performance and their district’s ratings. It did not reveal what differentiates these two groups. Practical intelligence does not appear to be what separates these two specific groups of superintendents. I conclude the main reason for this lack of significance between their mean tacit knowledge scores is directly related to their demographics. The two groups of superintendents are too much alike. They have served in the same number of districts and have nearly the same amount of experience. Tacit knowledge is used to demonstrate differences in performance between novices and experts (Sternberg et al., 2000),

however, if most of the study participants are novices, it stands to reason there would be no difference between the participants practical intelligence scores.

Mueller's research was a start in the right direction in investigating this topic. However, as Mueller himself pointed out, it could be improved. Those improvements would be my next step in continuing this study. Now that the instrument has been tested by someone other than Mueller, it is ready to be improved. I think several steps could be taken to improve this survey instrument. According to Sternberg et al. (2000), people with higher levels of practical intelligence are able to identify problems and determine the best way to handle the problem. I think the scenarios in this survey need to span a wider range of ability or expertise to include scenarios that are not well-defined and are open-ended to allow participants to generate specific answers rather than giving them possible choices. Expanding this survey could be done through interviews in addition to using a survey. The next improvement I would make would be to reassess the expert panel. Without time constraints, a new panel of national experts could be used to create a better scoring protocol rather than relying on such a small group of experts regardless of how highly qualified they are regarding superintendent experience.

Also, expanding or changing the definition of high performing and low performing school districts to include other ratings or separate the groups by their experience rather than TEA ratings could be a new way of looking at this study.

There are many ways this line of research could be reconfigured because the study of superintendent practical intelligence is in its infancy.

Implications

Although the findings of this research did not reach statistical significance in the areas of tacit knowledge examined, it did begin an important first step in examining practical intelligence in the superintendency, which is long overdue. Positions similar to the superintendency have been studied and shown statistical significance between experts and novices (Sternberg et al., 2000) in positions in the military, education, and business. Improvements should be made and the research into this line of inquiry should continue.

Another line of inquiry that should be researched could be principal tacit knowledge and teacher tacit knowledge. It would be informative to examine not only superintendent tacit knowledge, but also principal and teacher tacit knowledge in relation to each other's mean scores in interpersonal, intrapersonal, and, organizational tacit knowledge within and between school districts. Garcia (2003) stated that school personnel make a difference in the success of a school.

Elliot, Stemler, Sternberg, Grigorenko and Hoffman (2011) have found significant differences in novice and experienced teachers' tacit knowledge. Elliot et al. (2011) found that experienced and novice teachers did not have a significant difference in identifying good responses to tacit knowledge judgments, however, that was not the same regarding identifying poor solutions when words such as

“comply” or “avoid” were used in the judgment of an effective or ineffective solution. This would support the finding that in the one interpersonal item that showed statistical significance among the superintendents in this study also had the word “avoid” in the wording of the item. This one area has implications which suggest the possibility that the wording of these scenarios is very important when developing a tacit knowledge inventory. To extend this thought, rewording the survey questions to include synonyms and antonyms of “comply” and “avoid” may push survey respondents to choose a side rather than stay neutral on some of the scenario items.

The results of the consistency of the scenario items in the survey suggest that the validity and reliability of the items should be re-evaluated. Validity and reliability are two essential features in the evaluation of a survey instrument and are closely related to each other (Tavakol & Dennick, 2011). Validity ensures a survey instrument measures what it was designed to measure while reliability ensures the survey instrument measures consistently, but in order for a survey instrument to be valid it must be reliable (Tavakol & Dennick, 2011). Cronbach’s alpha is frequently used in quantitative studies as an indication of internal reliability of a survey instrument (Tavakol & Dennick, 2011). The statistical program used in this study, SPSS, allows for easy calculation of Cronbach’s alpha to examine the reliability of a survey instrument with the acceptable values from 0.70 to 0.95 and should be calculated for each category being evaluated (Tavakol

& Dennick, 2011). In Table 5-1, Cronbach's alpha is presented for each of the three tacit knowledge categories. The SPSS program notes that when Cronbach's alpha is a negative number it is because there is a negative covariance in the items which violates the reliability of the model and suggests verifying the items have been coded correctly. The items were checked again and the results were confirmed and reported below. All of the categories of tacit knowledge measured by Mueller's TKIS have unacceptable Cronbach's alpha levels. Mueller (2006) acknowledged that the reliability index of the items in all three measures could be improved.

Table 5-1 Cronbach's Alpha for Tacit Knowledge Categories

Tacit Knowledge Category	Cronbach's Alpha
Interpersonal Tacit Knowledge	0.184
Intrapersonal Tacit Knowledge	-0.866
Organizational Tacit Knowledge	-0.249

Another implication for research in this area is the scoring protocol used to determine the mean scores of the superintendents. While Mueller justifies the use of the partial credit Rasch model of scoring, it would seem that the scenario items could alternatively be dichotomously scored, meaning there is either a right or wrong answer and anything rated as neutral could be eliminated. In other words, the scenario items' actions are either effective or ineffective regardless to the degree of effectiveness or ineffectiveness. Also, if an item was rated as neutral, on

some questions it received the maximum appointments available for that question. Another concern was that on some items, there were two possible correct answers. Item number five in scenario one is a specific example of an item that awarded the maximum number of points to respondents that answered with a three, somewhat ineffective, or to respondents that answered a four, neutral.

Lastly, an implication for this research was in the development of the expert panel used in this research. Mueller (2006) acknowledged in his work on the TKIS that a limitation in his study was in the development of the expert panel due to the small number of experts who were used to develop the protocol. Mueller (2006) sought superintendents for the expert panel who had at least 10 years of experience since according to Chi, Glaser, and Farr (1988) as well as Ericsson and Crutcher (1990) that is the minimum amount of time necessary for an individual to cultivate expertise in any field. Mueller (2006) assembled an expert panel of two superintendents who were willing to take the entire TKIS and used their responses to develop the scoring protocol. Mueller (2006) also noted this was a very small number of superintendents to make up an expert panel.

The declarations of using only two superintendents to develop the scoring protocol and the time of ten years of experience considered necessary in a position to be an expert in that field have implications on this study. Most of the superintendents in this study, 57.1% of the superintendents in exemplary and 60% of the superintendents in academically unacceptable school districts, had seven

years or less experience as a superintendent. Also, a consideration regarding the superintendents in this study was their experience and expertise, with 71.4% of the superintendents in exemplary and 80% of the superintendents in academically unacceptable school districts being first time superintendents.

Future Research

Future studies of tacit knowledge should focus on three areas: instrument, scoring protocol, and sample size. While Mueller (2006) made the first effort to develop a tacit knowledge inventory, he also noted there were strengths and limitations of his research. Using the AASA standards to develop the scenarios used in the inventory is a strength of this instrument; however, the item development should be developed by a larger sample of superintendents nationally with a wide range of experience and proven expertise to ensure items can be developed to measure the tacit knowledge of superintendents with high levels of expertise. Elliot et al. (2011) suggested an expert panel should consist of experts with proven success and seniority.

The scoring protocol could possibly be collapsed into a more narrow Likert scale and a much larger and national sample of superintendents with high levels of expertise is needed to ensure a true expert panel. This will produce the best possible results for the scoring protocol in which to compare the tacit knowledge of superintendents in various ways and populations.

This research study did not send surveys to a sample population. Rather the entire population of superintendents in the two groups of interest were asked to participate in this research. Another suggestion for future study is to seek out more female superintendents and compare them to their male peers to compare their tacit knowledge levels. With the advancement of technology, our ability to research larger populations or specific populations and disaggregate the data is becoming more feasible with programs such as Survey Monkey and SPSS.

Significance of the Study

This study extended the knowledge we have on the superintendency and its correlation to school district success in regards to practical intelligence. By advancing theory, research, and practice, school districts may have find success and a new kind of superintendent may emerge.

Theory

The theory of practical intelligence (Sternberg, 2000) is not new, but research has yet to focus on measuring tacit knowledge of an individual in an integral position in a school district, the superintendent position. This study expanded the importance of the theory of practical intelligence and gave it new consideration in education. The results of this study provided a different look at the superintendency by examining the responses of superintendents who are in school districts that are high performing and low performing. This type of

research should continue and could lead to new research and theory in education and perhaps other environments as well.

Research

Research is needed to make the task of employing the right superintendent less arduous. Through these kinds of research studies, outcomes will provide a better understanding of how leadership affects student performance. Specifically, this research attempted to expand the understanding of the role of practical intelligence in the success of school district leadership. How successful leaders demonstrate expertise, make sense of situations, and effectively respond in a wide variety of situations must continue. The quest to improve school leadership and increase school district success should never cease.

Practice

Educational research in K-12 public schools continues to emphasize accountability and student success. Finding the right superintendent for a school district impacts many stakeholders including students, teachers, parents, the local community, and the elected school board members. For practice, the results of this study was just a beginning in the examination of practical intelligence, and with more research along this line of inquiry could provide insight for school boards looking to hire a superintendent. Tacit knowledge is starting to be acknowledged as a “predictor of future performance” (Insch et. al, 2008). Tacit knowledge has been researched and credited with various organizations’ success

(Sternberg, Wagner, & Okagaki, 1993; Wagner & Sternberg, 1986). In Texas, school budgets have been cut significantly over the past two years by the state. Even though budgets have been cut, school districts continue to spend thousands of dollars hiring search firms to help them find a pool of candidates qualified to fill the superintendent position. Regardless of the expense, school boards deem the expense necessary due to the importance of finding the right superintendent for their district.

Finding the right superintendent who can lead a school district to success is a difficult task and it is often too late and costly to recognize that the school board's selection is not what they anticipated after the person they selected is under a multi-year contract with the district.

Also, a growing number of superintendents are realizing they must be more innovative within their organizations to utilize resources to create a new working system (Center for Mental Health in Schools at UCLA, 2011). If we can measure a superintendent's practical intelligence through tacit knowledge inventories and understand how they arrive at particular decisions, we can improve superintendent preparation programs. A superintendent's practical intelligence can have a significant impact on school performance, just as Sternberg et al. (2000) acknowledges has been the case for other positions like that of military personnel, teachers and managers. However, the two groups should be divided by experts and novices rather than school rating.

Discussion

After extensive research, I determined there were no other tacit knowledge inventories for superintendents published or referenced in any books or journals. Some limitations acknowledged by Mueller (2006) with the survey instrument itself effects this research study. Mueller (2006) suggests that the small number of intrapersonal items does not sufficiently cover the entire spectrum of intrapersonal tacit knowledge. Also, while there are an adequate number of interpersonal and organizational items, there is some overlap within each category and the items do not measure tacit knowledge at high levels of ability (Mueller, 2006).

A similarity to Mueller's (2006) research in this study was the confined range of abilities of the survey participants. The participants in this study were very similar except in two areas; their experience in central administration and their district's TEA academic rating. Most of the participants in both groups of superintendents were considered novices. To avoid this issue in the future, I would expand the study to include superintendents in each of the TEA rated areas. Given what I know now, I would have made adjustments and improvements in the survey instrument to expand the levels of expertise covered and developed a new expert panel for the scoring protocol.

Although there was no significance between these superintendents, I believe there is a difference in the practical intelligence in novice and expert superintendents as there have been in similar occupations. I still believe the

superintendent makes a difference in the performance of a school district; however there are other factors that need to be explored outside of practical intelligence. While there is not a magic formula, there is a combination of factors that are contributing to the success and performance of school districts. I believe that practical intelligence does explain success different from academic success and that more research should be directed in this area with an improved tacit knowledge instrument. I look forward to exploring this new area of educational leadership. I think there is a lot about practical intelligence and its relationship to educational leadership we have yet to discover.

Appendix A
Consent to Participate

Consent to Participate

Study Title: Tacit Knowledge Inventory for Superintendents

You are being asked to volunteer to participate in a research study. You may discontinue your participation at any time. Participation in this study is not expected to cause you any risks greater than those encountered in everyday life.

This research is being conducted to examine tacit knowledge gained through your professional experience, the knowledge that guides you in the decision making process.

The survey you are being asked to complete takes approximately 10 minutes. There are 8 hypothetical scenarios. You are asked to rate the outcomes on a 7 point scale. There are also some general demographic questions. There will be 94 superintendents asked to participate in this study. As you know, a superintendent is the key leadership position in a school district. Please consider sharing your wealth of knowledge and experiences. Your participation is important to improving superintendent preparation programs and helping superintendents new to the position.

The results of this study may be published and/or presented at meetings, but your information will not be linked to you in anyway; the survey is anonymous.

By answering the survey questions, you confirm that you have been informed about this study's purpose, procedures, possible benefits and risks and consent to participate in this research study.

This research is being conducted by S. Brigette Whaley from the University of Texas at Arlington. You can contact me through e-mail or phone at sandra.whaley@mavs.uta.edu or 817- 937-4065.

My faculty advisor is Dr. Adrienne Hyle in the Educational Leadership and Policy Studies program at UTA. You can contact her by email or phone at ahyle@uta.edu or 817-272-0149.

Please contact me or my faculty advisor with any questions you may have. Thank you for your time and participation in this study. If you consent to participate in this study please click the link above to proceed.

Sincerely,

S. Brigette Whaley

Appendix B
Survey Instrument

Tacit Knowledge Inventory for Superintendents

*** 1. A new board of education member is elected with a personal agenda, or "axe to grind", over a particular issue. The new board member is resistant to any kind of in-district orientation and demonstrates mistrust of the superintendent. She expressed firmly her desire to represent the interests of her constituents. She also frequently makes decisions based on input from those constituents rather than facts of the particular issue. You realize that this board member may not be in this role for very long and that you have historically had the support of the other board members. You feel that you can move the district agenda forward and still make decisions with the input from the rest of the board.**

	extremely ineffective	ineffective	somewhat ineffective	neutral or no effect	somewhat effective	effective	extremely effective
In spite of repeated refusals to meet individually with you to discuss differences, you continue to communicate with this individual to iron out differences.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You act polite to this board member and act as if there is no problem in order to avoid causing conflict.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You convene a meeting between yourself and all board members. You state that the only purpose of the meeting is to improve the working relationship between the board members and the superintendent (without referencing the individual difficulties mentioned above).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You decide to avoid this particular board member as much as possible in order to avoid undue conflict.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You continue efforts to communicate with the new board member, but only providing information necessary to make decisions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Tacit Knowledge Inventory for Superintendents

***2. You receive a call from the elementary school principal in your district regarding a teacher's continuous negative attitude and reluctance to efficiently perform his assignment. His assignment is a Title I reading teacher who works with small groups of students. The teacher is a senior teacher who has been in the same role for 8 years and who has the necessary age and experience to retire with full benefits. A pattern of negative attitudes has been evolving over a two-year period of time. The teacher is also certified to teach in another area at the elementary level and taught in the other area for several years. The teacher had previously requested his current position. There has also been substantial history over previous years with this teacher regarding conflict among colleagues. The teacher is obviously tenured and has been operating within a professional growth plan. The principal feels that the teacher has been given ample opportunity to improve and that his continued presence will harm student performance and staff morale. The principal is requesting help!**

	extremely ineffective	ineffective	somewhat ineffective	neutral or no effect	somewhat effective	effective	extremely effective
You reassign the teacher to the other certification area for the next school year.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You advise the principal to meet with the teacher and revise the existing professional growth plan.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You schedule a joint meeting with the principal, yourself and the teacher to discuss the situation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You meet with the teacher and recommend that he either be reassigned to his other certification area for the coming year or that he should retire.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You decide to wait and see if the situation improves.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Tacit Knowledge Inventory for Superintendents

***3. The food service director of the school district approaches you (as superintendent) to request that kindergarten students be included in the breakfast program. The district only has a half-day program for kindergarten students. All kindergarteners eat lunch at school. Breakfast would involve feeding kindergarten students prior to the start of instruction. Funds are available for students who qualify for free or reduced meals. The food service director explains that adding breakfast would enhance cash flow for the food service program. Approximately 45% of the students would qualify for a free breakfast. You are aware that this has been tried in the past, but was ultimately abandoned because of concern on the part of the Kindergarten teachers who complained that too much instructional time was lost having to prepare students to get to the cafeteria, eat, and return to the classroom. You agree with the food service director that the program is a good idea and the school desperately needs the additional cash flow.**

	extremely ineffective	ineffective	somewhat ineffective	neutral or no effect	somewhat effective	effective	extremely effective
You ask the food service director to prepare a presentation for the next administrative leadership workshop. The program is discussed at the workshop and is presented to the principals from all district schools. The program is implemented the following month.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You give the food service director the go ahead for the program and direct her to contact the principals involved to let them know.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You inform the food service director that you like the idea and will take it under consideration.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You authorize her to start the program at the beginning of next month. You then send an email to the principals involved, as well as to the central office informing them of the decision.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Tacit Knowledge Inventory for Superintendents

***4. For the past few years, your school district has allowed the local YMCA to "run" the county wide little league basketball program for 4,5,6 grades in January and February. Prior to January, the District has its own little league at each of its six elementary schools- playing a six game schedule in December. This scenario developed in the past because many principals did not want to be bothered with added responsibility of a little league program in January or February. Many concerns were expressed with the way the program was being handled.**

There have been many complaints: ranging from the age of the people supervising the program to the use of the local facilities to the officiating of the games. Two schools said that they did not meet the deadline for signups because they did not get the forms. The YMCA said that the forms were delivered.

Few students sign up for the program, while the school district has a county wide program that does not have enough students to participate. The YMCA offers an alternative little league program at its facility and offers to allow the school district's kids the opportunity to sign up for it. You are made aware of the situation and are asked to help resolve it.

	extremely ineffective	ineffective	somewhat ineffective	neutral or no effect	somewhat effective	effective	extremely effective
You requested the YMCA and the schools meet in order to get the enrollment necessary to have a league, and the "Y" continues to run the program.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Let the principals at each of the schools handle the problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You decide to get rid of the program altogether.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You form a committee to develop long range plans for all little league sports, including basketball, baseball and football.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Tacit Knowledge Inventory for Superintendents

***5. The district professional development committee recommended a comprehensive, three-year training plan designed to better prepare middle and high school teachers to design and implement standards-based assessments in all curriculum units. The committee provided funds in the district improvement plan to network with national experts on standards-based assessments and grading, and to fund teacher stipends.**

Targeted teachers were required to attend an intensive three-day workshop in the beginning of the program. At the end of the training they were expected to complete work on an assessment plan. A stipend of \$500 was to be paid once their assignment was rated as acceptable by the national experts.

You began to hear grumblings from teachers shortly after the start of the new school year. Many of the training participants had not completed their assessment products and were asking, instead, to be paid for the three days they spent in training. Some complained that the expectations of the product were too high; others complained that they didn't have enough time to do all the revisions that the expert reviewers were demanding. Many simply said that this professional development expectation was more than they bargained for and they were simply not up for the challenge.

You now face several e-mails asking for \$300 for the days worked in the summer. Others have questioned whether they can be "required" to continue their participation in the project. One teacher even resigned saying that the assessment work was overwhelming.

	extremely ineffective	ineffective	somewhat ineffective	neutral or no effect	somewhat effective	effective	extremely effective
You contact each of the teachers individually and listen to their concerns, but also reiterate that in order to get paid the stipend the assessments must be turned in prior to receiving any payment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You go ahead and agree to pay the teachers the \$300 for the three days they spent in the training and ask teachers to keep trying to develop the assessments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You put the whole professional development initiative on hold for the year and ask the committee to	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Tacit Knowledge Inventory for Superintendents

study the idea further and bring back a recommendation to the district planning team for the next school year.

You tell the teachers that they will be paid the full \$500 as soon as the assessments are turned in as previously agreed upon.

***6. You begin your tenure as a new superintendent in a school district and discover that the administrators have not been evaluated for the past several years. You are not only faced with that issue but also using an old out-of-date document that has no relevance to the present district emphasis on student achievement and respective assigned duties. You assume that too much change is not good, especially when the district is viewed as a progressive district. You have heard that administrators have been requesting feedback and need this in order to be effective instructional leaders.**

extremely ineffective ineffective somewhat ineffective neutral or no effect somewhat effective effective extremely effective

You decide to delay implementing an evaluation system of administrators until the following school year.

You delay any assessment until you, in conjunction with your team of Central Office administrators, can develop an evaluation document that outlines areas of the nine academic performance standards with selected indicators for each standard.

You decide to begin evaluations immediately using a document from a similar district and one that seems to be appropriate.

You immediately announce that all administrators will be evaluated using the current system.

Tacit Knowledge Inventory for Superintendents

***7. As a new superintendent in a school district it became evident immediately to you that the under-performing school district needed leadership training at all levels. The board had four of the five members in their first term and the board chair was a retired teacher whose preferred leadership style was to avoid organizational conflict. The district administrative staff, to a person, were opposed to the board's selection of an outside veteran superintendent. Their prior administrative experience was from a managerial perspective. These veteran administrators expressed outrage that you, as a new superintendent, stated early on that administrative staff would be held accountable for district schools that failed to meet their academic goals. The eight school principals were all relatively new with each under three years of experience except for the high school principal who had several years of experience in two states and several school districts. The SBDM Councils served primarily as "rubber stamps" for the building principals. The district was one of the lowest performing districts in the state in terms of percentage of improvement in state scores going back to the first year the state administered statewide testing system. The one positive was the district's board, during the selection process, clearly articulated their support for you, as new superintendent, to create and be held accountable for reversing the trend of low district test scores. So, although you are being given freedom to improve the scores, you will also be held accountable if things ultimately do not improve.**

	extremely ineffective	ineffective	somewhat ineffective	neutral or no effect	somewhat effective	effective	extremely effective
You decide leadership training should begin with the board of education since they are to be held accountable for attainment of district goals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You decided on a more eclectic approach and begin leadership training with a small number of individuals: from the board, the SBDM, the principals, and district office personnel.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Focus only on professional development with district office personnel.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Focus leadership training with the entire district administrative staff, including the school principals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Tacit Knowledge Inventory for Superintendents

***8. You serve as superintendent of a high performing school district. All district test scores are in the top 10% in the state except for high school scores which have remained "flat" for the past five years. High school teachers and administrators are resistant to change and the high school principal flatly asserts that no change is needed except for more money, more staff, and additional resources from the central office. Parent complaints are flowing into your office and everything at the high school seems to be centered around maintaining the status quo for teachers rather than what would be best for students.**

	extremely ineffective	ineffective	somewhat ineffective	neutral or no effect	somewhat effective	effective	extremely effective
After considering the situation, you decide that the most effective solution is outright removal of the principal through demotion, reassignment, or firing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Turn the situation over to the Board of Education.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Talk with the principal about the issues and make suggestions for change.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

***9. How many years have you been in your current position?**

0 years
 1 year
 2 years
 3 years
 4 years
 5 years
 6 years
 7 years
 8 years
 9 years
 10 years or more

***10. How many years have you been a superintendent?**

0-3 years
 4-7 years
 8-11 years
 12-15 years
 16-19 years
 20 years or more

Tacit Knowledge Inventory for Superintendents

*** 11. What is your highest level of educational attainment?**

- Associate's
- Bachelor's
- Master's
- Ed.D.
- Ph.D.
- Other

*** 12. Your district is**

- Rural
- Urban
- Suburban

*** 13. What is your gender?**

- Female
- Male

*** 14. What is your ethnicity?**

- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Pacific Islander
- Two or more races

Tacit Knowledge Inventory for Superintendents

***15. What is your age?**

- 25 years or younger
- 26-30 years
- 31-35 years
- 36-40 years
- 41-45 years
- 46-50 years
- 51-55 years
- 56- 60 years
- 61-65 years
- 66-70 years
- More than 70 years old

***16. Is this your first superintendency?**

- Yes
- No

***17. Including your current district, how many districts have you served as superintendent?**

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 or more

***18. Did you work in central administration before becoming a superintendedent?**

- Yes
- No

Tacit Knowledge Inventory for Superintendents

*19. What positions have you held in central administration?

- Associate Superintendent
- Assistant Superintendent
- Coordinator
- Specialist
- Director
- Manager
- Academic/Instructional Coach
- Does not apply
- Other (please specify)

*20. If you worked in central administration prior to becoming a superintendent, what areas?

- Leadership
- Human Resources/Personnel
- Media
- Technology
- Student Resources
- Community Relations
- Finance
- Curriculum and Instruction
- Assessment
- Special Programs
- Does not apply
- Other (please specify)

Tacit Knowledge Inventory for Superintendents

***21. If you worked in central administration prior to serving as superintendent, how many years?**

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 or more
- Does not apply

***22. Please indicate all the certifications you have obtained.**

- Elementary
- Secondary
- Generalist
- Principal
- Superintendent
- Other (please specify)

References

- Agor, W. H. (1989). *Intuition in organizations*. Newburg Park, CA; Sage Publications.
- Aldrich, R., & Gordon, P. (1997). *Biographical dictionary of North American and European educationists*.
- Baltes, P.B., (1986). *What is intelligence?: Contemporary viewpoints on its nature and definition*. Ablex Publishing Corporation.
- Becker, K. A. (2003). *History of the Stanford-Binet intelligence scales: Content and psychometrics*. (Stanford-Binet Intelligence Scales, Fifth Edition Assessment Service Bulletin No. 1). Itasca, IL: Riverside Publishing.
- Blase, J., & Anderson, G. (1995). *The micro politics of educational leadership: From control to empowerment*. Teachers College Press, Columbia University, 1234 Amsterdam Ave., New York, NY 10027.
- Bigam, G. D. (2011). The brave new world of the interim superintendency. *School Administrator*, 68(4), 25-29.
- Boake, C. (2002). From the Binet-Simon to the Wechsler-Bellevue: Tracing the history of intelligence testing. *Journal of Clinical and Experimental Neuropsychology*, 24(3), 383-405. doi:10.1076/jcen.24.3.383.981

- Bond, T. G., & Fox, C. M. (2001). *Applying the Rasch model: Fundamental measurement in the human sciences*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Bonnici, C. A., & Cooper, B. S. (2011). *Creating a successful leadership style: Principles of personal strategic planning*. R&L Education.
- Bulmer, M. G. (2003). *Francis Galton: pioneer of heredity and biometry*. JHU Press.
- Candoli, C. (1995). The superintendency: Its history and role. *Journal of Personnel Evaluation in Education*, 9(4), 335-350.
- Cattell, J. M. (1890). Mental tests and measurements. *Mind*, 15, 373-380.
- Ceci, S. J., & Liker, J. K. (1986). A day at the races: A study of IQ, expertise, and cognitive complexity. *Journal of Experimental Psychology: General*, 115(3), 255-266. doi:10.1037/0096-3445.115.3.255
- Center for Mental Health in Schools at UCLA. (2011). *District superintendents and the school improvement problem of addressing barriers to learning*. Los Angeles, CA: Center for Mental Health in Schools.
- Chan, T. C., Pool, H., & Strickland, J. S. (2001). *Who's in charge around here? In the yearbook of the southern regional council for educational administration*, Statesboro, GA: Southern Regional Council for Educational Administration.

Charlesworth, W. R. (1976). Intelligence as adaptation: An ethological approach. In L. Resnick (Ed.), *The nature of intelligence* (pp. 147– 168). Hillsdale, NJ: Erlbaum.

Chopra, D. (2002). The soul of leadership. *School Administrator*, 59(8), 10.

Cornell University Law School, (2014). LII: Supreme court collection. Retrieved April 1, 2014.

http://www.law.cornell.edu/supct/cases/topics/tog_education.html

Cianciolo, A. T., Grigorenko, E. L., Jarvin, L., Gil, G., Drebot, M. E., &

Sternberg, R. J. (2006). Practical intelligence and tacit knowledge:

Advancements in the measurement of developing expertise. *Learning & Individual Differences*, 16(3), 235-253.

Copeland, M., & Chance, E. W. (1996). Successful rural superintendents: A case study of four long term superintendents. *Rural Educator*, 18(1), 24-28.

Covey, S.R. (1989), *The 7 habits of highly effective people*, Simon & Schuster Inc., New York, NY.

Evans, J. R., & Mathur, A. (2005). The value of online surveys. *Internet Research*, 15(2), 195-219.

Eysenck, H. J. (1997). Creativity and personality. *The Creativity Research Handbook*, 1, 41-66.

- Fechner, G. T. (1948). Elements of psychophysics, 1860. In Dennis, Wayne (Ed), (1948). Readings in the history of psychology. Century psychology series., (pp. 206-213). East Norwalk, CT, US: Appleton-Century-Crofts, xi, 587 pp. doi: 10.1037/11304-026
- Fox, C. (1999). An introduction to the partial credit model for developing nursing assessments. *Journal of Nursing Education*,34(8), 340-6.
- Gardner, H. (2006). Multiple intelligences: New horizons. New York: Basic Books.
- Glass, T. E. (2001). Superintendent leaders look at the superintendency, school boards and reform. Denver, CO: Education Commission of the States.
- Glenn, J., Hickey, W., & Sherman, R. (2009). Consultant perceptions of skills that school boards value in superintendent applicants. Retrieved from: <http://cnx.org/content/m33063/1.1/>
- Giacobbi, P. R. (2002). Survey construction and analysis, part II: Establishing reliability and validity. *Athletic Therapy Today*, 7(5), 60-61
- Goleman, D. (1995). Emotional intelligence: Why it can matter more than IQ. New York: Bantam.
- Goleman, D. (2004). What makes a leader? *Harvard Business Review*, 82(1), 82-91.

- Goleman, D., Boyatzis, R. E., & McKee, A. (2002). *The new leaders: Transforming the art of leadership into the science of results*. London: Little, Brown.
- Grigorenko, E. L., Sternberg, R. J., & Strauss, S. (2006). Practical intelligence and elementary-school teacher effectiveness in the United States and Israel: Measuring the predictive power of tacit knowledge. *Thinking Skills and Creativity*, 1(1), 14-33.
- Groholski, K. L. (2009). District superintendent and school board president perceptions regarding leadership characteristics for superintendents of Texas schools. Texas A&M University. ProQuest Dissertations and Theses, retrieved from <http://search.proquest.com/docview/305120205?accountid=7117>
- Hamidullah, M. F., Wilkins, V. M., & Meier, K. J. (2009). Looking for their Dick Vermeil: How prior performance influences the selection decision. *Public Organization Review*, 9(1), 1-14. doi: 10.1007/s11115-008-0062-7
- Hedlund, J., & Sternberg, R. J. (2001). Practical intelligence: Implications for human resources research. *Research in Personnel and Human Resources Management*, 19, 1-52.
- Hord, S. M. & Estes, N. (1993). Superintendent selection and success. In D. S. G. Carter, T. E. Glass, & S. M. Hord (Eds.) *Selecting, preparing and*

- developing the school district superintendent. Washington, DC: Falmer Press.
- Hoyle, J. R. (2005). *The superintendent as CEO: Standards-based performance*. Corwin Press.
- Hoyle, J. R., Bjork, L. G., Collier, V., & Glass, T. (2005). *The superintendent as CEO: Standards-based performance*. Thousand Oaks, CA: Corwin Press.
- Hoyle, J. R., English, F. W., & Steffy, B. E. (1998). *Skills for successful 21st century school leaders: Standards for peak performance*. Arlington, VA: American Association of School Administrators.
- Jackson, B. (2011). <http://www.greatschools.org/catalog/pdf/GreatSchools-2011-AR-final.pdf> accessed 6-12-12.
- Jenkins, James J. (Ed); Paterson, Donald G. (Ed), (1961). *Studies in individual differences: The search for intelligence.*, (pp. 81-111). East Norwalk, CT, US: Appleton-Century-Crofts, xiv, 774 pp. doi: 10.1037/11491-008
- Kowalski, T. J., & American Association of School, A. (2011). *The American school superintendent: 2010 Decennial Study*. Lanham, Md: Rowman & Littlefield Education.
- Kowalski, J., & Oates, A. (1993). The evolving role of superintendents in school-based management. *Journal of School Leadership*, 3(4), 380-90.

- Jones, A. (1966). Thomas M. Cooley and the Michigan Supreme Court: 1865-1885. *The American Journal of Legal History*, 10(2), 97-121.
- Kellerman, B. (2004). Leadership warts and all. *Harvard Business Review*, 82(1), 40-45
- Kippenberger, T. (2002). *Leadership styles*. Oxford, United Kingdom: Capstone Publishing.
- Labby, S., Lunenburg, F. C., & Slate, J. R. (2012). Emotional intelligence and academic success: A conceptual analysis of educational leaders. *International Journal of Educational Leadership Preparation*, 7(1), 1-11.
- Leithwood, K. A., Louis, K. S., Anderson, S., & Wahlstrom, K. (2004). *Review of research: How leadership influences student learning*. Toronto: University of Minnesota.
- Lewin, K., Lippitt, R., & White, R. K. (1939). Patterns of aggressive behavior in experimentally created social climates. *Journal of Social Psychology*, 10(2), 271. Retrieved from <http://ezproxy.uta.edu/docview/1290670609?accountid=7117>
- Lyons, J. E. (1993). Perceptions of search consultants of qualities school boards seek in superintendents. *Journal of School Leadership*, 3(3), 311-20.
- McDaniel, M. A., Morgeson, F. P., Finnegan, E. B., Campion, M. A., & Braverman, E. P. (2001). Use of situational judgment tests to predict job

performance: A clarification of the literature. *Journal of Applied Psychology*, 86(4), 730–740.

Minton, H. L. (1988). New methods for the diagnosis of the intellectual level of subnormals, From Binet, A. & Simon. T, (1905). The uses of intelligence tests, Terman, L. M., 1916. Retrieved from <http://psychcentral.com/classics/Binet/commentary.htm>

National Commission on Excellence in Education, (Washington, D.C.: U.S. Department of Education, 1983 A nation at risk: The imperative for educational reform.

Neisser, U. (1976). *Cognition and reality*. San Francisco: Freeman.

Neisser, U. (1976). General, academic, and artificial intelligence. In L. Resnick (Ed.), *The nature of intelligence* (pp. 135– 144). Hillsdale, NJ: Erlbaum.

Nerlich, B., & Clarke, D. D. (1998). The linguistic repudiation of Wundt. *History of Psychology*, 1(3), 179-204. doi:10.1037/1093-4510.1.3.179

Nestor-Baker, N., & Hoy, W. K. (2001). Tacit knowledge of school superintendents: Its nature, meaning, and content. *Education Administration Quarterly*, 37(1), 86-129.

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

- Plucker, J. A. (Ed.). (2013). Human intelligence: Historical influences, current controversies, teaching resources. Retrieved [January 26, 2014], from <http://www.intelltheory.com>
- Polanyi, M. (1968). Logic and psychology. *American Psychologist*, 23(1), 27-43. doi:10.1037/h0037692
- Polanyi, M. (1976). Tacit knowing. In M. Marx & F. Goodson, (Eds.), *Theories in contemporary psychology* (pp. 330– 344). New York: Macmillan.
- Prentice, W. H. (2004). Understanding leadership. *Harvard Business Review*, 82(1), 102-109.
- Raisor, M. L. (2011). What highly effective leaders do during difficult times. Indiana State University. ProQuest Dissertations and Theses, retrieved from <http://search.proquest.com/docview/868276694?accountid=7117>. (868276694).
- Rasch, G. (1960). Probabilistic models for some intelligence and attainment tests. Copenhagen, Denmark: Danmarks Paedogiske Institut. (Republished by Chicago: University of Chicago Press, 1980).
- Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York: Basic Books.

- Seashore Louis, K. (2003). School leaders facing real change: Shifting geography, uncertain paths. *Cambridge Journal of Education*, 33(3), 371-382.
doi:10.1080/0305764032000122087
- Sharp, W. L., Walter, J. K., & Sharp, H. M. (1998). Case studies for school leaders: Implementing the ISLLC standards. Lancaster, PA: Technomic Publishing Company, Inc.
- Shields, C. (2014). Aristotle. The Stanford Encyclopedia of Philosophy. Edward N. Zalta (ed.), forthcoming URL =
<http://plato.stanford.edu/archives/spr2014/entries/aristotle/>
- Spearman, C. (1927). The abilities of man. Oxford, England: Macmillan.
- Spearman, C. (1904). "General Intelligence," objectively determined and measured. *The American Journal of Psychology*, Vol. 15(2), pp. 201-292.
- Sternberg, R. J. (1985). Beyond IQ: A triarchic theory of human intelligence. New York: Cambridge Univ. Press.
- Sternberg, R. J. (1985). Implicit theories of intelligence, creativity, and wisdom. *Journal of Personality and Social Psychology*, 49(3), 607.
- Sternberg, R. J. (1997a). Successful intelligence. New York: Plume.
- Sternberg, R. J. (1999c) The theory of successful intelligence. Review of general psychology, 3, 292–316.

- Sternberg, R. J., Forsythe, G. B., Hedlund, J., Horvath, J., Snook, S., Williams, W. M., Wagner, R. K., & Grigorenko, E. L. (2000). *Practical intelligence*. New York: Cambridge Univ. Press.
- Sternberg, R. J., & Hedlund, J. (2002). Practical intelligence, g, and work psychology. *Human Performance*, 15(1-2), 143-160.
- Sternberg, R. J. (2005). The theory of successful intelligence. *Revista Interamericana de Psicología: Interamerican. Journal of Psychology*, 39(2), 189-202.
- Sternberg, R. J., Wagner, R. K., & Okagaki, L. (1993). Practical intelligence: The nature and role of tacit knowledge in work and at school. In H. Reese & J. Puckett (Eds.), *Advances in Lifespan Development* (pp. 205–227). Hillsdale, NJ: Erlbaum.
- Suciu, M., Bratescu-Ghitu, A., Ivanovici, M., Trocmaer, A., Avram, R., Avram, E., & Protopopescu, C. (2010). Knowledge dynamics: The learning cycle and intellectual capital. A basic framework for knowledge internalization. *Proceedings of the European Conference on Intellectual Capital*, 553-560.
- Terman, M. (1916). *The measurement of intelligence*. Boston, MA: Houghton Mifflin.
- Texas Education Agency, (2007). *District performance summary report definitions*.

http://www.tea.state.tx.us/index2.aspx?id=2147495059&menu_id=645&menu_id2=789

Texas Education Agency, (2007). Superintendent. Retrieved from

http://www.tea.state.tx.us/index.aspx?id=5740&menu_id=865&menu_id2=794

Texas Education Agency, (2011). Accountability manual. Retrieved from

<http://ritter.tea.state.tx.us/perfreport/account/2011/manual/index.html>

Texas Education Code, (1995). Section 11.201. Superintendents. Retrieved from

<http://law.onecle.com/texas/education/11.201.00.html>

Texas Secretary of State, (2011). Texas administrative code (TAC): Title 19:

Education. Retrieved from <http://www.sos.state.tx.us/>

Thorndike, E. L. (1921). Intelligence and its measurement: A symposium--I.

Journal of Educational Psychology, 12(3), 124-127.

doi:10.1037/h0064596

Thurstone, L. L. (1938). Primary mental abilities. Psychometric monographs,

volume 1.

Thurstone, L. L. (1935). The vectors of mind. University of Chicago Press:

Chicago.

- U.S. Census Bureau, (2009). School enrollment - Social and economic characteristics of students: Table 1 Retrieved from <http://www.census.gov/population/www/socdemo/school/cps2009.html>
- U. S. Department of Education, Office of Planning, Evaluation and Policy Development. (2010). ESEA blueprint for reform. Washington, D.C.: U.S.
- U.S. National Center for Education Statistics. (2011). Statistical abstract of the United States: 2011, Table 215. Retrieved from <http://www.census.gov/compendia/statab/>
- Wagner, R. K. (1987). Tacit knowledge in everyday intelligent behavior. *Journal of Personality and Social Psychology*, 52, 1236-1247.
- Wagner, R. K., & Sternberg, R. J. (1985). Practical intelligence in real-world pursuits: The role of tacit knowledge. *Journal of personality and social psychology*, 49(2), 436-458.
- Wagner, R. K., & Sternberg, R. J. (1986). Tacit knowledge and intelligence in the everyday world. In R. J. Sternberg & R. K. Wagner (Eds.) *Practical intelligence. Nature and origins of competence in everyday world* (pp. 51–83). New York: Cambridge University Press.
- Waters, J. T., & Marzano, R. J. (2006). School district leadership that works: The effect of superintendent leadership on student achievement. *ERS Spectrum*, 25(2), 1-12.

Waters, J. T. & Marzano, R. J. (2007). Primacy of the superintendent. *The School Administrator*, 3(64).

Biographical Information

Prior to completing a Doctor of Philosophy in Educational Leadership and Policy Studies at the University of Texas at Arlington, Sandra Brigette Whaley completed a Master of Education in Educational Leadership and Policy Studies at the University of Texas at Arlington. Before that, she earned her Bachelor of Science in Education at Oklahoma State University. She has a love of learning and has many research interests. Her research interests include educational leadership, school improvement, assessment and evaluation, and teacher education. She has worked toward school improvement during her 16 years as a secondary math teacher, instructional support teacher, and program coordinator. She plans to continue her educational journey into higher education as a professor in Educational Leadership or Teacher Education.