Pepperdine University

Graduate School of Education and Psychology

TWENTY-ONE LEADERSHIP RESPONSIBILITIES AND QUALITY MANAGEMENT IN

THE CONTEXT OF EDUCATIONAL BALDRIGE SYSTEMS

A dissertation submitted in partial satisfaction

of the requirements for the degree of

Doctor of Education in Organizational Leadership

by

Kimberly L. Ibach

March, 2014

Devin Vodicka, Ed.D.—Dissertation Chairperson

UMI Number: 3614471

UMI 3614471

LEADERSHIP AND CONTINUOUS IMPROVEMENT

This dissertation, written by

Kimberly L. Ibach

under the guidance of a Faculty Committee and approved by its members, has been submitted to

and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

Doctoral Committee:

Devin Vodicka, Ed.D., Chairperson

Linda Purrington, Ed.D.

John Latham, Ed.D.

LEADERSHIP AND CONTINUOUS IMPROVEMENT

<div align="center">Table of Contents   Page</div>

Page

LEADERSHIP AND CONTINUOUS IMPROVEMENT

LIST OF TABLES   Page

LIST OF FIGURES   Page

DEDICATION

To my forgiving and loving family who allowed me yet another great adventure.

Thank you, P.I. for granting space for my passions of study, learning and reflection.

ACKNOWLEDGEMENTS

During this particular great adventure, I appreciate all of those who have allowed me to stand on their shoulders. For without their conversations in person, through email or the printed text, this work would not have been as rich and rewarding.

I also pause and reflect on the impact of fellow educators and students in my own learning and toils. If you really know me, to laugh, share, learn and improve describes the very core of my being. To those who have tolerated and spurred on my own curiosities, I owe you so much more than a "thank you" in published text. Please know that I hold each of you within the highest regard. Aside from the text that follows, I hope my daily contributions to the learning and support of others rivals what you have given to me. I am deeply appreciative of past and current mentors.

Mark, I must take a moment and share my appreciation for your support, guidance, and patience. Through each set of data and every learning opportunity we work through, I grow towards capacity in serve for others. I hope you realize your impact on this learner.

Finally, I must thank the faculty in the ELAP program at Pepperdine and, especially, the dissertation committee who inspired, collaborated and cheered my studies. These fine people were drug along in my adventures, which included moving across the county twice, major hand surgery on both hands, and enduring my twisted sense of humor and tenacity in asking "why?"

Each of you represent treasures uncovered as a result of many experiences of which I would not trade for all the riches in the world. Many, many thanks!

VITA

Education and Certifications

Doctor of Education, Leadership, Administration, and Policy

Dissertation Topic: Leadership and Continuous Improvement Systems

Pepperdine University, Malibu, CA

Master of Arts in Teaching, American History

University of Wyoming, Laramie, WY 1999

Bachelor of Arts, Secondary Social Science/Education

University of Northern Colorado, Greeley, CO. 1991

Current Certifications in North Carolina, Wyoming & Colorado

Administration (K-12), Superintendent, Sociology and Secondary Social Studies

Employment

Principal, Meeker High School, Meeker Public Schools, CO

- Create an environment of personal and professional accountability for the educational process of a school

- Consistently present data and identify student achievement as the primary objective of the school

- Collaborate, design and lead district wide professional development based on research-based, best teaching practices

LEADERSHIP AND CONTINUOUS IMPROVEMENT

- Implement, monitor and assess the progress of the school/district strategic plan, at regular intervals and provide modification as needed

- Demonstrate design and delivery of instruction, based on individual student needs resulting in students meeting or exceed the standards

- Observe and record the quality and effectiveness of classroom teaching and assessment and work with teachers to improve instruction

- Identify and develop positive relationships with community support services which can assist students and their families

- Communicate about school policies, data regarding student achievement expectations, and other pertinent information to parents and other interested members of the school community and general public

Assistant Principal, Instruction, Ben L. Smith High School, Guilford County Schools, NC, September 2011 to July 2013

- Development and support of Professional Learning Communities

- Increased use of data collection and decision making in tracking Exceptional Children

- Collaborative development of student-leaders regarding anti-bullying and positive climate

- Facilitated implementation of Service-Learning netting 14,000 hours and over 36 special awards for graduating seniors of 2012

- School recognized with positive gains:

  - Composite score gain, 15 points
  - Graduation rate, 85%
  - Attendance rate, 94%
  - Reduction in discipline referrals, 11%

LEADERSHIP AND CONTINUOUS IMPROVEMENT

- High Growth School, 2011-2012
- Most Improved School, 2011-2012

K-8 Social Studies Curriculum Specialist, Guilford County Schools, NC, November 2010 to August 2011

- Engage, support and network social studies teachers in unwrapping standards and concept-based unit design

- Created data collection system through classroom observations discerning use of literacy strategies, technology & primary resources

- Trained 9 middle school social studies teachers (teacher representatives) in unwrapping, powering standards

- Mobilized and supported teacher representatives in their training of approximately 100 of their peers in new standards

- Collaborate, design and implement district wide professional development in literacy and technology

- Model and facilitate collection of online primary and secondary resources

- Engaging Learners and Celebrating Literacy, Presentation, GCS CF Meeting, 2010

- Non-Print Text, Curriculum Facilitator Meetings, Presentation, GCS CF Meeting, 2011

- Engaged as a member of the Standards Based Grading Deployment Team

- Contributed to vision and action steps and gathered and developed early drafts of communication elements

- Envisioned and created cultural infusion professional development for all secondary social studies teachers

LEADERSHIP AND CONTINUOUS IMPROVEMENT

- Developed a contextual narrative through data which addresses achievement gap concerns

- Choreographed the reorganization of over 1,600 books so each GCS library holdings hold a set of culturally reflective books

- Organize district wide 8th grade field trip to the International Civil Rights Center & Museum

- Collaborated with GCS Transportation and Civil Rights Center and Museum to facilitate historical tour

- Orchestrated the first 8th grade field trip for approximately 5,000 students in a two month period to CRC&M

Project Director, Safe Schools/Healthy Students, Natrona County School District, WY, July 2007 to October 2010

- Collaborated with district officials, work group peers, subordinate employees, steering committee, and community

- Identified objectives, outcomes and measurable benchmarks for district strategic goal regarding health & safety

- Facilitated coordinated efforts across work group areas to implement curricular and instructional programs

- Initiated development and supported district-wide suicide and anti-bully curriculum implementation

- Demonstrated the benefits of social-emotional curriculum in K-8 grades

- Generated 23% drop in district-wide discipline referrals, 2009-2010 school year

LEADERSHIP AND CONTINUOUS IMPROVEMENT

- Monitored data points including teacher feedback regarding implementation and need for professional development

- Communicated annual reports to superintendent, community, school board, and federal government

Interim Principal, Casper Classical Academy, NCSD, WY, Spring 2003, Fall 2005

- Developed lasting relationships with students, parents and staff

- Coordinated staff collaboration meetings

- Monitored staff, recorded observations and assisted with certified evaluations

Coordinator, Teaching American History Grant & Social Studies Curriculum, NCSD, WY

July 2004-June 2007

- Refined social studies benchmark assessments to reflect standards based grading and developed common scoring rubrics

- Incorporated technology and applications to introduce and influence use of online primary and secondary resources

- Envisioned and initiated Wyoming history online, http://www.wyohistory.org/ (essays, oral histories, field trips, resources)

- Influenced other content areas (science, math, ELA, arts) in use of technology including GPS, mp3 and online resources

- Facilitated teacher learning and implementation regarding best practice of lesson planning, backward design and assessment

LEADERSHIP AND CONTINUOUS IMPROVEMENT

- Experiential trainings: "Indian Wars," "Yellowstone," "Oregon Trail Reenactment" and "East Coast: Early American Wars"

- Designed, hired and coordinated experts for 24 weekend workshops over a period of three years

- Included over 120 individual participants over a period of three years

- Implemented model for teacher self-assessment, reflection and continuous improvement

- Consulted on three other successful TAH grants in Wyoming

- Contributed to development of K-12 essential social studies curriculum

Other Duties Accepted

Coordinator, Standards Based Report & Appeals System NCSD, WY

Teacher-Mentor and Founding Induction Board Member, NCSD, WY

Published Articles

Ibach, K. (March, 2009). *Growing Children into Greatness*. Printed in the Casper Star Tribune. Reprinted on Natrona County School District website located at http://www.natronaschools.org/story.php?id=91&story=343

Ibach, K. (April, 2009). *Immigrant vs. Native: Technology Makes a World of Difference*. Printed in the Casper Star Tribune. Reprinted on Natrona County School District website located at http://www.natronaschools.org/story.php?id=91&story=458

LEADERSHIP AND CONTINUOUS IMPROVEMENT

Ibach, K. (May, 2009). *Change to Engage*. Printed in the Casper Star Tribune. Reprinted on

Natrona County School District website located at

http://www.natronaschools.org/story.php?id=91&story=531

Ibach, K. & Moore, W. (Winter, 2001). The Emerging Civil Rights Movement: The 1957

Wyoming Public Accommodations   Statute as a Case Study. *Annals of Wyoming 73, 2-*

13.

Teaching Related Experiences

- Social Studies & Technology Teacher, Kelly Walsh High School, 9-12 Grade, Casper, WY

  1993-2004

- Adjunct Faculty, Casper College, History Department, Casper, WY, 2002–2004

- Swimming Coach & WSI, Casper and Gillette, WY, 1992-1994

- Social Studies Teacher, Campbell County High School, Gillette, WY, 1992-1993

Honors and Awards

- Guest Lecturer for Gardner-Webb Topic: PLCs, 2011-2012

- High Point University, Topic: PLCs, 2011-2012

- Nominated, GCS Employee of the Month, April, 2011

- Executive Board Member, Organization of American Historians, 2007-2009

- Top 40 Under 40, Casper Star Tribune, 2006

- We the People Judge, Natrona County, 2005-2008

- Co-Chair Natrona County School District History Day, 2005-2008

- Wyoming State Historical Society Outstanding Wyoming Teacher Award, 2004

LEADERSHIP AND CONTINUOUS IMPROVEMENT

- Reader, US History Advanced Placement/College Board (ETS), 2003-2005

- C-SPAN Interview, Historical Method and National History Day, 2003

- National History Day Teacher of Merit Award, one of eight finalists, 2003

- Mary K. Bonsteel Tachau Teaching Award, Organization of American Historians (Teacher of the Year), 2003

- Ellbogen Excellence in Teaching, WY State Top Teacher Award, 2001

Additional Presentations

- Educational Research & Writing for Senator Enzi's Office, 2010

- Social Emotional Learning Curriculum Showcase, Casper WY, 2009

- Forging Sustainable Partnerships, OAH/US Department of Education, NY, 2008

- Consultant to the Leadership of the Organization of American Historian, 2005

- Train the Trainer, McGrath's SUCCEED Training, 2005-2006

- 24/7's Classroom Walk-through Training (Data Walkthrough), 2005-2006

- Rights & Responsibilities: A Civil Rights Pilgrimage & History Day, 2003

ABSTRACT

This body of work presents the summary of findings; explanation of implications; discussion of conclusions; and recommendations about practice, policy and future research regarding principal leadership in school districts recognized as national Baldrige Award winners. This study widened the scope and definition of quality management in education by dissecting the roles of principal leadership as defined by the 21 Leadership Responsibilities (Marzano et al., 2005) of school leadership. These Leadership Responsibilities served as a vehicle for educators to report their observances of how principals express their roles in the context of their work. The study began with a dominant phase of quantitative data collection followed by a qualitative phase. The quantitative segment purposively sampled groups of employees, principals and their building staff, concurrently through electronic survey. The second, qualitative portion, consisted of interviews of principals who participated in the survey. To summarize, the quantitative data defined the "what" of building administration's work in a Baldrige system and the qualitative portion illuminated the "how" or the application of the 21 Leadership Responsibilities. Statistical analysis determined that principals reported expressing all 21 Leadership Responsibilities in their work. Staff observances correlated and supported the data reported by the participating principals. As a result of the principal interviews further observations were made regarding the work of Baldrige building level leaders. Considerations included innovation through shared leadership and process management to improve learning and services for students and staff. Principals appeared to express particular clusters of Leadership Responsibilities more than others to increase the student growth and school improvement. Participants included principals and

teachers from Iredell-Statesville Schools, NC; Jenks Public Schools, OK; and Montgomery

Public Schools.

Chapter 1: Introduction

Topic Overview

Theory and understandings through studies regarding leadership built a foundational framework for principals and central office administrators to create a structure and atmosphere in which the K-12 educational process can evolve to produce results that satisfy constituents and students. Evidence of the study of leadership exists as early as ancient Egyptian civilization and continues today (Hicks, Price, & Wren, 2004). The ancient Greeks including Aristotle and Plato contemplated leadership values, roles, and outcomes (Annas, 2001). Philosophers during the Age of Enlightenment, 1650-1700s, discussed the role of persons as citizens and political leaders (Gray & Ross, 2006). Modern theorists, mid 1800s-1900s, concentrated on political and military leaders but considered study of leadership also within bureaucracy and business management (Hicks et al., 2004). During this period, studies accounted for superficial attributes in deciphering leadership, such as height and eye color, in the 1800s towards investigating childhood education, and social groups in the early to mid 1900s. In the second half of the 1900s researchers paid particular interest to personality traits, which culminated into factors or "competencies of leadership" (Bass & Bass, 2008, p. 108).

Other theorists and researchers studied organizational traits and broke down the mechanics of management, which produced the understanding of organizational components and leadership roles (Bass & Bass, 2008; Bolman & Deal, 2003; Hicks et al., 2004; Schein, 2004). Researchers, such as Hawthorne in the 1920s and McGregor in the 1950s, developed management *theory X* and *theory Y* respectively. In theory X, workers require external rewards and supervision where, in theory Y, the employee and employer's goals align and the staff

member is intrinsically motivated and rewarded (Schein, 2004). Thus, people were enhanced

through leadership efforts in McGregor's theory Y due to the belief of the ability of leaders to

build other people's ability to learn and contribute to the organization. Another explanation of

distinction between the two theories included consideration to completion of task or management

(theory X), versus focus on the employee and his or her successes (theory Y), according to Likert

(1967). Viewing workers through a human resources frame, theorists and researchers studied

how organizations could be viewed through a lens of politics or structure to improve

organizational behavior (Bolman & Deal, 2003). Nuances such as work-group characteristics,

resources, product goals, and worker skills and knowledge, were brought to surface by the end of

the 1970 by Henry Mintzberg and created additional complexities in organizational studies

(Pietersma, VanAssen, & VandenBerg, 2003).

In the second half of the 20th century an organizational framework, quality management

(QM), developed from two important elements: the use of data to improve efficiency and

effectiveness and a human resources structure to guide and support employees. Managers who

applied the use of data to drive the changes in the workplace to improve performance utilized

what is known as continuous improvement. Continuous improvement as a "systemic approach

which engages the workplace associates in making small changes over time using quality audit

and control data to make processes work better" (Smith, 2010, p. 328). In the cycles of

continuous improvement, managers facilitated direction through goals and benchmarks so

employees understood the requirements to meet the needs of clients or consumers. Leading

authors on business practice, such as W. Edward Deming, Joseph Juran, and Philip Crosby,

discussed the process of developing targets of quality and highlighted the importance of

organizational training to support, grow, and align employees in strategic work of the organization (Akhtar, Farooq, Memon, & Ullah, 2007; Smith, 2010).

Americans noticed the productive results of the Japanese use of QM practices after World War II. In the last three decades of the 20th century, QM gained national attention in the United States and is still successfully practiced within many corporations (Garvin, 1988). Companies such as Colgate-Palmolive, IBM, Marriott Corporation, Motorola, and Xerox succeeded at implementation and sustaining improved results (Schargel, 1996). With these successes, Deming (2000) and other business leaders such as Drucker (1993) and Senge (2006) called on American public education to adopt QM. Schools and school districts engaged in some elements of QM with impressive results while some districts failed to implement QM measures (Schargel, 1996).

State level initiatives existed in the last decade to support schools and districts in training and implementation of the continuous improvement model (Cooley et al., 2006; Illinois State University, 2004). In 1991 the National Alliance of Business joined with the American Productivity and Quality Center to connect successful QM businesses with school districts in Illinois, Indiana, Maryland, New Mexico, Ohio, and Texas in their efforts to support the schools in implementing and sustaining the Baldrige model (Siegal, 2000). Educational leaders from Pinellas county, Florida; Brazosport Independent School District, Texas, and over half of the districts in North Carolina implemented QM models in the 1990s as a result of the support offered by the BiE IN or Baldrige in Education Initiative in the 1990s (Siegal, 2000). BiE IN schools were reported to have become more scientific in producing results and supporting children in their academic growth in the last known report regarding the pilot group (Noeth & Walpole, 2002). According to the ACT Policy Report, other states chose to create initiatives to

support school districts, in Florida, New Jersey, New Mexico, New York, North Carolina, and Tennessee. Some states offered school districts start up assistance kits, professional development, QM business partners, and materials. Michigan and Arizona joined the ranks of supporting school districts as well. Many of these states have become Baldrige affiliates and offer one or more types of Baldrige recognition awards (Alliance Performance Excellence, 2010).

In 1995 New Mexico's Department of Public Education began implementing a continuous improvement model with 73 school districts encompassing more than 500 schools (Schumpelt, 2010). A 2006 study of 131 schools that did not make Adequate Yearly Progress and identified as needing corrective action by the state of New Mexico reported that two-thirds of 48 elementary schools demonstrated increases in reading scores while the reading scores declined with the remaining third (Winograd, 2007). One of the suggestions as a result of this 131 school study, performed by the Director of Educational Accountability for the State of New Mexico, was to look further into the implementation procedures of the Baldrige initiative since the state sponsored the training through one specific consulting company. Other interventions such as teacher mentoring and supplemental education for students and treatments of different amounts of continuous improvement professional development were noted in the report. Studies such as this New Mexico effort are currently non-existent in journal databases such as ERIC, Emerald, Wilson, and JSTOR.

The Baldrige framework offers a path for management to reflect and plan strategically to meet the needs of students, community, and employees through a comprehensive system of continuous improvement. However, sustainability of QM in schools during the 1990s proved

difficult and challenged educators in their thinking and practice (Noeth & Walpole, 2002). In the words of Terry Holiday, the past superintendent of Iredell-Statesville Schools awarded the Baldrige award in 2008, "It's just dang hard work" (personal communication, February 18, 2008). John Conyers, superintendent of Community Consolidated District 15 at the time of that district's award, spoke of how people who feared change or were not educated well regarding Baldrige became obstacles in the process (Byrnes, Cokeley, Keely, & Markely, 2007). The challenge comes in leadership evolving from strategic to strategy focused (Sosik & Dionne, 1997) and purposefully aligning systems within an educational institution (Shipley, 2010). In applying Deming's work, a discussion of alignment with strategic goals on a district, building, and professional level is essential (Caldwell & Shipley, 2000). In Shipley's words, educational leaders need to "have all of the arrows pointing in the same direction" (personal communication, January 7, 2009). To elaborate, leaders and employees are all aligned with vision, mission, and goals that meet consumers' and taxpayers' demands. The leader's work facilitates alignment between the organization and each employee in the organization.

The specific gap in current educational leadership and management theory reflected an unfamiliarity regarding quality management or performance excellence (personal communications, Shipley, January 7, 2009 & Latham, March 25, 2011). Educational leadership studies have not focused on data digs regarding organizational practice and student performance followed by reflections upon how the data informs instructional practice and how the organizational components support efforts of continuous improvement. Studies which lead to written works such as "What Works in the Classroom" (Marzano, Pickering, & Pollock, 2001) tease out elements that are best practice in the classroom. Other written works, such as

"Leadership Capacity for Lasting School Improvement" (Lambert, 2003) presented the need

and examples of the development of teams of teachers reflecting upon practice based on student

performance. As early as 2002, Richard DuFour suggested principals should practice a

leadership style where the leader also demonstrated the learning process and opened up the

conversation to describe and promote the concept of teacher learning groups. These components

of classroom teaching strategies, teacher collaboration and leader-learners have been just that,

components. School districts need to address these elements to replicate and build capacity in

staff. Baldrige offers a set of standards to frame a system of support and replicate performance

excellence rather than perpetuate pockets of excellence (Anderson et al., 2000).

Problem Statement

Distilling an administrator's work of organizational alignment in the context of public, K-

12 education contributes to knowledge regarding best practice for selection, induction and

growth of administrators. Linking these leadership qualities to effect size of student achievement

increases the importance and application of these roles. Interviews with leaders of school

districts successful in implementing Baldrige framework exist (Byrnes et al., 2007; Conyers, &

Ewy, 2004). However, research and conclusions are yet to be drawn about what leadership

qualities successful building level administrators demonstrate. Researchers attempted to discern

if a set of personality attributes using the Myers-Briggs and other personality attribute-based

models exists and remain inconclusive. This is demonstrated when the researcher performed a

search in the ERIC data base that returned 916 results with the key words "leadership" and

"personality" with contradictory published work. At the time of this study, this researcher found

no other study that reviewed leadership qualities, with an effect size on student achievement, in

the context of building administrators working within the Baldrige framework. As a result, school districts reach out to consultants to support an organization implementing Baldrige but do not have internal systemic supports to grow, nurture and sustain the practice of administrators. Consultants would find this research of value, as the information will inform practice of support offered to their clients.

Purpose

The purpose of this multiple case study, through a mixed-methods explanatory design, was to determine to what extent, if any, did principals and teachers have a common perception of the 21 Leadership Responsibilities expressed through the work of principals in Baldrige school districts that have been recognized at the national award level.

Research Questions

The following questions guided the present study:

1. To what extent, if at all, did principals of schools implementing Baldrige self report the manifestation of each of the 21 Balanced Leadership Responsibilities in their work?

2. To what extent, if at all, did principals and their staffs agree about the principals' expression of the 21 Balanced Leadership Responsibilities in Baldrige schools?

3. Based on the responses of principals and staff at Baldrige schools, how were the 21 Balanced Leadership responsibilities implemented in the daily work of a principal?

Importance of the Study

This study widened the scope and definition of quality management by targeting the implications and involvement of administrative leadership, as defined by the 21 Leadership

Responsibilities of school leadership. Relatively new in the last 15 to 20 years, the study of

educational leadership roles working within the context of Baldrige principles of quality

management lacks empirical documentation and research. Deming's research suggests

educational systems that align leadership, strategic planning, customer satisfaction, improvement

data, workforce development, process management, and results orientation become higher

performing school districts under the Baldrige framework (Caldwell & Shipley, 2000). Earlier

studies identified the benefits of TQM in business and hospital systems (Douglas & Fredendall,

2004). These studies offered insight to sound research methods through structural equation

modeling and path analysis. Through these studies, researchers determined that leaders drive the

system and create results. A the time of completion of this study the author performed a search

regarding such studies and found there to be 95 results regarding the topics of "evaluating the

Deming management model of total quality management, educational leadership, principal" in

the Wiley Online Library. Of these 95 items higher education articles were posted, however

only one article remotely discussed public K-12 education by examining the development of pre-

service teachers. No studies regarding administrative leadership in the public education system

were returned in the search. More research in this area is needed. Identifying the application of

the 21 Leadership Responsibilities of school leadership by administrative leaders in districts and

how those roles are employed in the context of TQM could assist educators in awareness and

understanding of how to use a continuous improvement model in education reform. The

predominant leadership roles and appropriate situations in which to apply the roles, if any, could

be a key element in professional development of administrative leadership.

Delimitations

While assorted researchers and theorists studied alternatives to teasing out the essence of leadership, this study was delimited to focus on the 21 Leadership Responsibilities as expressed in a school district awarded the national Baldrige award. While numerous districts have been recognized with a state level award, the study focuses only on national level recognition. Schools in districts that were honored with the national Baldrige award that are no longer implementing the Baldrige framework were not considered for study. Although the perceptions of district level staff, volunteers, parents and students could enrich the data and offer alternative views, the groups are not considered for input during data collection in this study. Another source rich in information regarding leadership and educational systems implementing Bladrige includes colleges and universities. Three colleges or universities hold the distinction as a Baldrige awardee and in a simple search in the ERIC database using the words "college" or "university" and "Baldrige," the search returned seventeen results. Exchange the word "Baldrige" for "quality management" and the return is 339 results. The last purposeful exclusion consists of comparing school districts that are not or in the process of implementing the Baldrige framework or any other type of quality management. Perhaps after publishment of current research, other questions will arise, and this study can be replicated with school districts who are not national Baldrige awardees for comparison regarding leadership characteristics.

Limitations

Three limitations of this study that should be noted were the following:

1. As time passes, administrators and other personnel retire, accept employment elsewhere, or simply leave the profession. This study focused on the administrative leadership still employed in the district and who were employed in their respective district at the time of the Baldrige award. Unfortunately, this possible restriction could shrink the numbers of the sample.

2. Institutional forgetfulness or the passing of time (fading memories) may have hampered the study.

3. Some staff may have declined to participate in the gathering of data.

4. On a national level, only six K-12 public education systems earned the Baldrige award. This list includes Montgomery County Public Schools, MD, (awarded in 2010); Iredell-Statesville Schools, NC, (awarded in 2008); Jenks Public Schools, OK, (awarded in 2005); Community Consolidated School District 15, IL, (awarded in 2003); Pearl River School District, NY, (awarded in 2001); and Chugach School District, AK, (awarded in 2001), as shown in the Contacts and Profiles section of the award winners (Baldrige Performance Excellence Program, 2010b).

5. No single database that tracks educational Baldrige winners at the state level was in existence at the time of this study. The study may or may not include national and state level Baldrige winners.

Assumptions

Administrators provided self-reporting of their perception of how they express leadership roles and responsibilities in the district for which they currently work while implementing the Baldrige framework. If an administrator has already participated in McREL's Balanced Leadership Profile, it is assumed that the administrator attempted to do his best at focusing on filling out the survey for this study. An option in the Balanced Leadership Profile is for an administrator to invite staff and supervisor(s) to give input to formulate a 360 degree feedback. This is not an option for this study, but the researcher will invite building staff to participate. Another assumption is that participating staff focused with professionalism when completing the survey even if participation has been offered regarding the Balanced Leadership survey. It is also assumed that the responses from educational leaders were forthright and honest since surveys were completed through an electronic source. No principal or staff member was required to participate and could cease participation at any time without question. It was assumed that no supervisor would require any staff member to participate.

In regards to data and confidentiality, the assumption was made that where the researcher collected and stored the data, it was safe and was not be compromised, damaged or lost. As soon as the data was gathered in Survey Monkey and the survey window closed, the researcher downloaded and backed up the data on two external hard drives. Another assumption regarding data was the list of qualified participants from a qualifying school district received by the researcher were accurate and reached those designated as building level staff and principals. The assumption made was that every attempt to not loose or supply misleading data regarding a

qualified participant was made on the part of the researcher and human resources department

or single point of contact of the participating school district.

Definitions of Key Terms

For the purpose of this study, the following definitions were used as key terms:

- Administrative leadership: Administrative leadership was defined in this study as

  certified personnel holding a leadership position at the school or central office building

  level. An administrative position might include or one or more of the following:

  superintendent, associate superintendent, executive director, director, coordinator,

  building principal, or assistant principal. These positions were included because their

  "leadership is vital to the effectiveness of a school" (Marzano, McNulty, & Waters, 2003,

  p. 4).

- Balanced leadership: Marzano et al. (2003) quoted Burns' definition of leadership as

  "inducing followers to act for certain goals that represent the values and the

  motivation…of both leaders and followers" (p. 13). The meta-analysis from Marzano et

  al. investigated school leadership as practiced by principals whose work lay within K-12

  education in the United States. The study correlated student achievement and the

  leadership of the building principal. This study reported an estimated 14,000 teachers

  and 1.4 million students were involved. Through the meta-analysis, which reviewed 69

  studies from 1978 through 2001, Marzano et al. distilled 21 fundamental leadership

  functions and roles that have a statistically significant relationship to student

  achievement. These responsibilities were measured through McREL's balanced

leadership online survey through an agreement with McREL and the researcher for the

present study.

- Baldrige National Quality Program or Baldrige criteria: The National Institute of

  Standards and Technology (NIST), from within the U.S. Department of Commerce

  agency, is the organizing body of the Baldrige Criteria and Award (Baldrige Performance

  Excellence Program, 2010a; U.S. Department of Commerce, 2010). Through the NIST,

  both private and government representatives work to recognize entities that model the

  Baldrige criteria in exemplary fashion through rigorous scoring assessments and mentor

  other organizations on their path to implementing and achieving through the use of

  Baldrige criteria. The Baldrige criteria are a framework that guides an organization in its

  focus regarding continuous improvement and so-called performance excellence (Baldrige

  Performance Excellence Program, 2010b). Questions focused on seven categories

  including leadership; strategic planning; customer focus; measurement, analysis, and

  knowledge management; workforce focus; process management; and results serve as the

  criteria.

- The Malcolm Baldrige National Quality Award (MBNQA): This recognition attempts to

  recognize excellence in organizations that fully implement Deming's work. The NIST

  sponsors the MBNQA or Baldrige award, which aims for companies, health care,

  education, and non-profit enterprises to demonstrate total quality management strategies.

  The award is highly competitive and is not always bestowed to a recipient in every

  category. The namesake of the award, Malcolm Baldrige, served as the United States

  Secretary of Commerce during 1981-1987. He was known for his leadership and

contributions to efficiency within the government during his tenure. Public law 100-107 (MBNQA) was signed on August 20, 1987 and a partnership between the government and other private organizations established the supporting foundation (Baldrige Performance Excellence Program, 2007).

- Continuous improvement: The practice of the workforce of an organization engaging in repetitive cycles of studies to evolve and improve the quality of work is termed continuous improvement (Peterson & Reid, 1999). Employees engage in this work on a daily basis and reflect the plan-study-do-act model (Garvin, 1988). Included in this concept are benchmarks or short-term goals to facilitate meeting annual goals based on improvement of product and service (Drucker, 2009). The Japanese synonym for this concept is *kaizan* (Beecroft, Duffy, & Moran, 2003; Drucker, 2009).

- Double loop learning: The ability of a worker to question policy or practice of an organization allows for double loop learning (Argyris, 1991; Smith, 2009). If an employee works to solve a problem that involves questioning the culture, system of rules, or governance, it is necessary for the organization to support and learn with the employee. As a result, the learning can evolve the skills and knowledge of the employee and, in turn, improve the organization.

- First order change: This type of change moves slowly and involves the day-to-day skills and knowledge of a professional (Heifetz, 2003). Change might not be noticed until a long passage of time. An employee experiences little to no anxiety during a first order change (Grubb & Waters, 2004).

- Knowledge management: The term was derived from creating fresh knowledge out of current knowledge to innovate and solve problems (Drucker, 1993; Hargreaves, 2003). As a result, leaders and educational administrators work to manage this continuous creation and application of knowledge in the work place.

- Plan-do-study-act (PDSA): A cycle-based strategy used in continuous improvement and quality management models based in statistical control (Deming, 1986, 2000; Westcott, 2006).

- Principal or building level administrator: For the purposes of this study, the educational leader and manager of the school who is ultimately responsible for the performance of the school is termed either the principal or building level administrator. This position may also be considered as a part of the educational leadership of a school district. Only data regarding the 21 Leadership Responsibilities and responsibilities of principals or building level administrators will be tabulated and researched in this study. Assistant principals were not included in this definition.

- Professional learning community (PLC): The development of this educational model of PDSA stems from DuFour's work with K-12 education. This group of educators engages in a collaborative process of action research or cyclonic inquiry and focuses on student work or components of teaching (DuFour, 2002).

- Quality management: The term *quality* can be applied to a worker's output or physical product while it is management's responsibility to assist the employees (Garvin, 1988). In a larger sense this is defined as "conformance to requirement" (Crosby, 1979, p. 17). The concept of quality management (QM) allows leadership to provide feedback to

employees regarding performance and support employees to continuously improve

performance thereby assisting the organization in meeting strategic goals (Ho, 1995). A

cultural framework based on the alignment of employees with organizational

performance standards and indicators. Staff comes together to study data and make

informed decisions, which, with support and professional development, may evolve into a

learner-centered organization (Bransford, Brown, & Cocking, 2000).

- Second order change: The type of change that challenges the skills and knowledge of a

  professional (Heifetz, 2003). Change is noticed and causes a level of anxiety as the

  change is a break from past tradition or protocol (Marzano et al., 2003).

- Single loop learning: When an employee is challenged by a problem with the system or

  organization and questions practice or governance (Argyris, 1991). During the process,

  unlike double loop learning, the employee meets with resistance to change from problem

  solving efforts (Smith, 2009). Often the employee is not able to learn, evolve, or adapt.

  As a result, the worker experiences failure and cannot move forward in the problem

  solving process. At times, the system or organization can be at fault for not supporting

  the employee properly or the organization itself cannot evolve or adapt in response to the

  problem.

- Systems management or systems thinking: Leaders of an organization who implement the

  use of quality management to create a focus on learning from data, which provides

  feedback regarding progress towards organizational goals. As a result, a synergistic

  dialog develops as people share information and test suppositions (Bransford et al.,

  2000). Another description considers this process visible thinking, whereby colleagues

share thoughts and reasons based in data (Branson, 2008). The conversation also causes reflection that can validate and or make cause for improvement. As these collaborative discussions occur over time, interdependency among the members of the group develop and a so-called living system or learning organization develops (Senge, 2006). Some researchers, such as DuFour and Eaker (1998) term this system as a professional learning community where the participants are committed to engaging each other and experience empowerment through learning. Systems management or thinking occurs when the organizational framework supports human resources and the organization is supported by the workers through aligned professional and organizational goals (Branson, 2008; Drucker, 2009).

Definitions of Variables

For the purpose of this study, the following definitions determined by the Marzano et al. (2003), which is reflective of the Marzano et al. (2005) language, were used:

- Affirmation: This term refers to actions where the principal "recognizes and celebrates school accomplishments and acknowledges failures" (Marzano et al., 2003, p. 4).

- Change Agent: This term refers to an educational leader who is "willing to and actively challenges the status quo" (Marzano et al., 2003, p. 4).

- Communication: A principal who "establishes strong lines of communication with teachers and among students" (Marzano et al., 2003, p. 4) illustrates the communication role.

- Contingent Rewards: An educational leader who "recognizes and rewards individual accomplishments" (Marzano et al., 2003, p. 4) portrays the contingent rewards characteristic.

- Culture: The practice of an educational leader who fosters shared beliefs and a sense of "community and cooperation" (Marzano et al., 2003, p. 4) depicts the functions of the culture role.

- Discipline: An administrator who "protects teachers from issues and influences that would detract from their teaching time or focus" (Marzano et al., 2003, p. 4) performs the characteristic of discipline.

- Flexibility: A principal who "adapts leadership behavior to the needs of the current situation and is comfortable with dissent" (Marzano et al., 2003, p. 4) embodies the characteristic of flexibility.

- Focus: A leader who "establishes clear goals and keeps those goals in the forefront of the schools' attention" (Marzano et al., 2003, p. 4) demonstrates the role of focus.

- Ideals/Beliefs: An administrator who "communicates and operates from strong ideals and beliefs about schooling" (Marzano et al., 2003, p. 4) practices the functions of ideals/beliefs.

- Input: A leader who "involves teachers in the design and implementation of important decisions and policies" (Marzano et al., 2003, p. 4) executes input.

- Intellectual Stimulation: A principal who "ensures that faculty and staff are aware of the most current theories and practices and makes the discussion of these a regular aspect of

the school's culture" (Marzano et al., 2003, p. 4) incorporates the characteristic of intellectual stimulation into the school.

- Involvement (with curriculum, instruction, and assessment): An administrator who "is directly involved in the design and implementation of curriculum, instruction and assessment practices" (Marzano et al., 2003, p. 4) epitomizes the role of involvement with curriculum, instruction and assessment.

- Knowledge (of curriculum, instruction, and assessment): A principal who "fosters shared beliefs and a sense of community and cooperation" (Marzano et al., 2003, p. 4) characterizes the responsibility of knowledge of curriculum, instruction, and assessment.

- Monitoring/Evaluating: An administrator who "monitors the effectiveness of school practices and their impact on student learning" (Marzano et al., 2003, p. 4) portrays the function of monitoring/evaluating.

- Optimizer: An educational leader who "inspires and leads new and challenging innovations" (Marzano et al., 2003, p. 4) practices the optimizer role.

- Order: A principal who "establishes a set of standard operating procedures and routines" (Marzano et al., 2003, p. 4) demonstrates the role of order.

- Outreach: A principal who "is an advocate and spokesperson for the school to all stake holders" (Marzano et al., 2003, p. 4) typifies the characteristic of outreach.

- Relationship: An administrator who "demonstrates an awareness of the personal aspects of teachers and staff" (Marzano et al., 2003, p. 4) illustrates the role of relationship.

- Resources: The principal who "provides teachers with materials and professional

  development necessary for the successful execution of their jobs" (Marzano et al., 2003,

  p. 4) represents taking responsibility for resources.

- Situational Awareness: An educational leader who "is aware of the details and

  undercurrents in the running of the school and uses this information to address current

  and potential problems" (Marzano et al., 2003, p. 4) practices situational awareness.

- Visibility: An administrator who "has quality contact and interaction with teachers and

  students" (Marzano et al., 2003, p. 4) embodies the role of visibility.

Organization of Study

The body of this study consists of five chapters. Chapter One included an overview of

the history of leadership study, initial discussion of quality management and examples of public

school districts that implemented a framework that includes the element of quality management.

This initial chapter created the foundation to examine educational leadership roles at the building

level in the context of school districts that earned the recognition of the Baldrige Award.

The second chapter further investigates Quality Management and describes Professional

Learning Communities (PLCs) as an educational illustration of continuous improvement. Due to

the nature of constant change for employees working through continuous improvement, chapter

two identifies single and double loop learning. These conceptual models define how

professionals as well as organizations, when confronted with change, evolve or fail to evolve.

Baldrige is dissected to describe a comprehensive framework for leadership to support both

employees and the organization working in a constant state of continuous improvement. Results

of the educational Baldrige awardees are included within this section. Next, the chapter

distills the essence of leadership based on the 2003 Marzano and colleagues study.

Chapter Three elucidates the methods and design elements for this dissertation. In this

mixed-methods study, three research questions are defined. The sampling method, participants

and instrumentation are also identified. To give further explanation of the electronic survey and

follow up interview, the third chapter presents procedures for data collection. The chapter then

describes how specific analytic techniques break down the data in response to the research

questions. Periodic references are made to specific appendices for copies of tools and forms

applied in this research.

The discussion of results and summary of this study are presented in Chapter Four. The

analysis of the survey data will be graphically displayed through descriptive statistics through

bar graphs and Pareto charts to discern if any patterns exist. In regards to the qualitative portion

of the study, concepts developed from the process of qualitative content analysis will formulate a

narrative to address the how of a principal exhibiting the 21 Leadership Responsibilities in their

work. The final chapter will summarize and draw conclusions based on the findings from

chapter four. Appendices in this body of work illuminate contributors to the development of the

leadership responsibilities and Baldrige framework. These details facilitate a basic understanding

of concepts integral to understanding the development of the 21 responsibilities and Baldrige that

might not be known to educators or those interested in educational leadership or the Baldrige

criteria.

Chapter 2: Review of Literature

Overview

This literature review is divided into four major sections that defines Quality Management (QM), explores how change presents a challenge for professionals, defines Baldrige and criteria for educational excellence, and illuminates importance of educational leadership through leadership roles at the school building level. Quality management is a business model, which first surfaced in public education in the 1990s (Arif & Smiley, 2004). While different QM variations surfaced in the 1900s and grew in U.S. businesses after World War II, a systemic framework of improvement based in data lagged in public schools. In the 1990s, educators began to practice a component of QM known by the acronym PDSA or Plan, Do, Study, Act through learning circles. These learning circles are also known as Professional Learning Communities (PLCs). Research regarding PLCs describes the challenges of implementation and how difficult PLCs are to maintain without systemic support. In some cases, school district or building principals decided to implement a comprehensive QM framework termed Baldrige and found this work demanding and difficult as well.

After breaking out the components of the Baldrige criteria, the literature review zeros in on the importance of leadership. Researchers found the earliest notion of management and leadership in the writings of the ancient Egyptians and Chinese. Since those notations, the study of execution of administration continues to further define and explain the concept through different lenses. A general theme emerged that leaders frame the vision or direction of an organization and guide employees in meeting goals. In 2003, researchers demonstrated how educational leadership influenced student performance (Cotton; Marzano et al.). The Marzano et

al. (2003) study presented 21 Leadership Responsibilities each with a small effect size on student performance. The 21 characteristics were grouped into three categories: Roles associated with second order change, roles that negatively impacted second order change and the remaining roles utilized in day-to-day operations. This study uses the 21 characteristics from the Marzano et al. study as the lens in which to view leadership roles of principals in successful Baldrige school districts in attempts to create a profile of these leaders.

Quality Management

Introduction. The school administrator is the key element of successful organizational development and improvement (Datnow, 2005; Fink & Hargreaves, 2006; Lloyd, Robinson, & Rowe, 2008). The study of educational leadership is now at the point of deciphering components or the characteristics of successful administrators in QM systems because of the depth and breadth of research. This study plans to decipher the possible key roles practiced by successful educational leaders in an acknowledged quality managed school district through the Baldrige National Quality Award Program. This literature review seeks to define QM with some of the more noted QM frameworks as examples. Professional learning communities are described in this chapter and placed in the context of QM. The short analysis explains why a comprehensive, systemic system needs to be in place to improve the academic performance of students in K-12 education. W. Edward Deming, one of the earliest American QM experts, suggested such a system built on his 14 points that address management, inputs and outputs, professional development, cross departmental collaboration, removing job barriers, and decision making through data (Deming, 1982). These elements are the very fiber of Public Law 100-107, passed in 1987. From this act, the Malcolm Baldrige National Quality Award (MBNQA) utilizes seven

categories of criteria for an organization to demonstrate excellence (Cameron & Winn, 1998).

Past K-12 educational Baldrige award recipients and their successes demonstrated the power of

the Baldrige framework surrounding continuous improvement.

Unpacking Baldrige criteria assists in understanding components of systemic

improvement. Baldrige based systems use a continuous improvement model or cycles of PDSA,

thereby constantly implementing second order change. Second order change is a fundamental

change in operation or paradigm shift that challenges a person or organization of people (Kotter,

1996). Leadership appears to be a key component because of the need to orchestrate people and

resources in a second order change. While general leadership styles have been discussed in

theories and research, the specific roles or leadership characteristics have not been empirically

researched. Due to the lack of educational leadership studies in the context of QM with this kind

of detail, this researcher turned to a meta-analysis of educational leadership responsibilities.

This study performed by Marzano, McNulty, and Waters (2003, 2005), enumerated 21

characteristics of educational leadership that were correlated with a high impact on student

achievement. Each of the 21 Leadership Responsibilities are briefly discussed in this review

through the context of educational leadership and categorized with first and/or second order

change.

History. Generally, four historical periods of quality can be identified: inspection,

statistical quality control, quality assurance, and strategic quality management (Garvin, 1988).

The first period, inspection, resulted from factories as they worked towards standardization of

tools and interchangeable parts during the industrial era. Unfortunately, when a problem

surfaced with a product, it did not usually present itself until after the product was created and in

the hands of the consumer (Beecroft et al., 2003). In the case of military arms, this proved

problematic (Garvin, 1988).

Quality management evolved into an identified practice in the 1900s. Frederick W.

Taylor chronicled the work towards quality from his observations of manufacturing and how

management could effectively manage workers. Garvin (1988) credits the 1922 article, "The

Control of Quality in Manufacturing" by G. S. Radford, as the first of its kind to establish quality

as an integral characteristic of management. Statistical quality control developed in the 1940s

and placed an emphasis on managing quality through statistics. The burden of detection fell to

the engineering and manufacturing departments of a company. Again, defects presented

themselves too late in the process (Beecroft et al., 2003). Quality engineers in the northeastern

portion of the country began to connect and support each other as the field grew. This is also the

period when the American Society for Quality Control, now known as the American Society for

Quality, formed from the associations (Garvin, 1988).

W. Edwards Deming's assistance with Japanese economic recovery in post World War II

(WWII) era. Using a modified Shewhart planning cycle, plan-do-study-act (PDSA), Deming

(1982, 2000) created a continuous improvement model focused on customer satisfaction with

attention to aligning the goals of both worker and system. Another explanation of this systemic

approach is leadership's deployment of a comprehensive and supportive human resource

framework utilizing data and the voice of the customer in decision-making (Gunderson,

Marshall, & Pritchard, 2004). The use of PDSA and supporting employees in the work tie

together QM principals and organizational health to form an all encompassing system or total

quality management. Deming's work came to the forefront of American business during the

U.S. economic crisis of the 1970s and he refined his work through the 1980s and into the 1990s until his death in 1993 (Gleckner, 1994).

The emphasis of QM shifted from the product and focused on process and prevention methods in the 1980s and 1990s. Both students of QM, Deming and Juran agreed that if there is a problem with a product, 40% of the time the flaw rested with the design and 30% within production (Westcott, 2006). This type of data drove managers to focus on quality assurance in the 1990s to the present. In terms of QM, work groups were systemically linked to the quality of a product through planning, development, and production, according to Westcott. The current era, strategic quality management, includes data on the progress or satisfaction of the organization internally, the market and the consumer. The managers became key elements in ensuring each department of an organization contributes to the continuous improvement of the product.

Influenced by Deming's views and the progress made by businesses using QM, the educational quality management reform movement emerged in the late 1900s. During this time Deming, with other quality management theorists and practitioners, assisted public educators in their understanding and application of systems management (Gunderson et al., 2004; Leuenberger & Whitaker, 1993). Deming (1982) asserted educational leadership's purpose is to align and operationalize systems. To accomplish this, QM theorists called for transformative leaders to join forces with workers to collect and analyze data to fashion the next steps (Monk, 1993; Noeth & Walpole, 2002). Deming encouraged schools, as he did with other organizations, to "create a consistency of purpose toward improvements of product and service" (Demming, 1982, p. 23).

QM models. The International Standards Organization, better known as ISO, is a world wide, standard model where the emphasis has been placed on standards, documentation, and control of industry (Beecroft et al., 2003). In tracing the history of quality management, ISO emerged as one of the first frameworks to assist organizations in pursuit of QM. In looking from a customer-oriented view, with schools as the customer, ISO does not meet the needs of K-12 education as it lacks proactive and assurance measures in an educational context (T. Knight, personal communication, June 15, 2010). According to the International Organization for Standardization, there are five major components of ISO and over 130 particular smaller requirements to meet. ISO documentation is lengthy, cumbersome, and very "manufacturing focused" (Beecroft et al., 2003, p. 113) and seemed to overwhelm an educational system.

Six sigma and six sigma lean are QM models that received much publicity in the business realm. Six sigma instituted far-reaching change quickly without small or incremental steps (Beecroft et al., 2003; Keller & Pyzdek, 2009). Moving through change too quickly is especially unappealing to educators (T. Knight, personal communication, June 15, 2010). The other popular QM framework associated with six sigma is the term *lean*, which employs data to cut waste and demonstrate shorter processing time (Beecroft et al., 2003). Within six sigma there are levels of training and expertise, which complicate the attractiveness of this framework for educators: four levels of certification, earned through passing exam scores. These levels entail yellow belt as the introductory level; green belt as the entry level, sometimes certified and adept at facilitating projects; black belt as indicating one certified and able to train others at lower levels, familiar with methodology in all levels of business, and able to lead project management;

master black belt as top level, certifications met, implementation of methodology at all levels

and training or mentoring any lower level belt (Keller & Pyzdek, 2009).

Perhaps other contributing factors for the failure of these QM models to impact large

numbers of schools was due to the extensive training requirements, foreign vocabulary, and lack

of gradual change. In addition, educators have not appeared motivated to work through all four

levels of training of quality management to earn a master black belt (T. Knight, personal

communication, June 15, 2010). In addition, process improvement in QM relied heavily on

business terms (Bingham, Gryna, & Juran, 1974). The emphasis of business terms and models

appeared to frustrate educators and seemed to lack a personal or friendly vocabulary. While

training is imperative, it does not guarantee execution (Noeth & Walpole, 2002). QM requires an

intensive learning process to enculturate the vocabulary and habit of mind. Schools and districts

were deficient in supplying organized professional development, support, and motivation in this

learning. This researcher found no data tracking the number of educators earning any level of

six sigma training or ISO training.

Education's version of PSDA. Senge's (2006) definition of a learning organization or

living system included the concept of interdependent study among the members of a group.

Based on of the theory of quality management, this is another form thereof, but on a small scale

such as a unit or teacher workgroup within a school (Beecroft et al., 2003). In the last two

decades, educators increased the practice of combining Shewhart's concept of Plan-Do-Study-

Act (PDSA) with action research based on a series of collaborative discussions regarding

educational practice and student work (Wells & Keane, 2008). DuFour, DuFour, and Eaker

(2002) defined professional learning communities (PLCs) as a conceptual framework where a

group works collaboratively together and practices interconnectedly. The goal of the group was to make progress along agreed upon "shared mission, vision, values, and goals" (DuFour et al., 2002, p. 3) within the framework scaffold of PDSA. Both Senge (2006) and Fullan (2006) pointed to professional learning communities as key to school reform due to the generation of new knowledge to solve problems or improve performance. As teachers learned how to assist students in their academic needs, professional practice evolved, which created embedded professional development. This corresponds with the context of the information age or knowledge economy because of the use of knowledge used to create new knowledge. Hargreaves (2003) illustrated a knowledge economy or society as something akin to a large professional learning community. Hargreaves also described a state of constant flux and change, which produced innovation out of this process.

PLCs function by a similar means as PDSA but are often not so formal and lack a systemic support structure (Doolittle, Rattigan, & Sudeck, 2008; DuFour, 2007; Hathorn, Holmlund-Nelson, Perkins, & Slavit, 2008). An educational leader might call a group together and raise concerns about the third grade reading scores under the auspices of the school's mission statement. DuFour (2004) explained there are three questions a PLC would ask: "(a) What is it we want all students to learn? (b) How will we know when each student has acquired the essential knowledge and skills? And (c) What happens in our school when a student does not learn?" (p. 21-24). DuFour continued to discuss transformative elements that result from teachers holding one another accountable in a study of student work through the example at Adlai Stevenson High School in Lincolnshire, Illinois. Initially, roughly once a month each student was given a grade report. When an area of concern arises, staff delivered interventions

as well as contacted parents (DuFour, 2004). To assist a challenged student, multiple venues of support were offered through a teacher advisor, student mentor, or an academic tutor.

Similarities between QM and PLCs exist in the application of PDSA through this idea of continuous improvement. An example might be that the state test shows only 38% of third graders are reading at the third grade benchmark by the end of third grade. In a quality management system the group would come together under the auspices of a strategic goal. Formalities such as setting norms and reviewing purpose would take place. At the beginning of each meeting a scribe, timekeeper, note taker, and facilitator would be assigned or volunteer. Central office staff or any other staff who could contribute should be in the meeting to support the work. The discussion would move along a written and timed agenda for efficiency based on a PDSA format set at one of the initial meetings. Data surrounding the reading scores and other evidence would contribute to an understanding of what is occurring with the student data. Through a series of meetings, a PDSA regarding new reading programs might take place. The team would cross match their needs with the available programs to select a program (plan) and implement the chosen program (do). Each time the team met, they would look at data to reflect on implementation with fidelity or needed support (study). Central office staff would assist with statistics, interpretation, curriculum materials, or additional training. At the end of each meeting, the group would reflect on the positives of the meeting and how the meeting might be improved for the next time (act).

This arrangement exists in locations around the United States. Two specific examples are Freeport Intermediate School in Brazosport Independent School District (BISD) in Texas and Long Beach Unified School District in California (LBUSD). The executive leadership of BISD

set the parameters of working within Terry Richardson's continuous improvement steps (DuFour, DuFour, Eaker, & Karthanek, 2004). Principal Kristi Traylor explained the importance of the use of PDSA to create the atmosphere of collaboration among the staff (All Things PLC, 2010). The focus of study was student performance and the staff honestly confronted the data, which created an urgent sense to change practices (DuFour, 2004). To meet the needs of the PLC arrangement, Traylor assisted in data analysis, created collaborative time to meet, and assisted in facilitating deep topics of conversation all with the support of the infrastructure of district administration. LBUSD was another example where central office applied the Baldrige framework and building level administrators facilitated PLCs. Principals enacted use of the PDSA model based through reviewing student performance data. In this system, principals participated in their own PLC to help them improve their own practice, cross-pollinate what works, and prepare to lead PLCs within their respective buildings (David, 2009).

PLC: Not fully systemic. A QM system creates a comprehensive or systemic set of requirements, where PLCs have not reliably done so. Chief complaints of teachers regarding PLCs encompass lack of time to study, meet, and apply (David, 2009). DuFour (2007) acknowledged in the *Middle School Journal* that there are multiple challenges for U.S. schools to implement PLCs with fidelity. His observations demonstrated that many educators lacked understanding of how PLCs function. DuFour indicated attention to the wrong elements of "terminology, structures, and perceptions" (p. 5) in instances such as these. Observations from McLaughlin and Talbert (2006) regarding PLCs reported a mixed result of PLCs that supported QM and others reinforced uninformed practice.

A qualitative study of the use of PLCs in the high school setting, by Day and Lujan

(2010), affirmed the benefits of teacher collaboration in a set time under the guidance of a common mission, vision, and goals. Through a set of open-ended, one-to-one interviews of staff and observations of the school's PLCs in action, the researchers concluded conflict was easier to work through for the teachers in a PLC. Where a PLC was superficially focused on so-called housekeeping items rather than a solid study of addressing student work and progress, the principal needed to intervene (Day & Lujan, 2010). The report concluded the need for administration to ensure a dedicated collaborative meeting time, deeper study and training, or support for new staff to understand a PLC. The success of a PLC correlates with the involvement and support of the building principal (Doerr, 2009). Administrative roles needed to assist in creating a successful PLC included supporting collaboration, study topic, and data preparation and analysis. In a QM offers the support needed for successful PLCs (Hord, 2009). A study that encompassed 58 interviews with building administrators and teachers affirmed principals as the element that most influenced the success of a PLC (Hipp, & Huffman, 2002). Answers to open ended questions on the interviews highlighted the work of the principal from inception to planning action to studying results with PLC members. Through the life of a PLC the supportive administrator relates the work back to the school's mission and finds value in each group member's contribution (Hirsh & Hord, 2008).

DuFour (2002, 2004) acknowledged the need for perseverance and support since each PLC requires long, difficult work. The failure of PLCs has been the lack of alignment with district goals and no requirement of collaboration or support from the district level (Birenbaum, Kimron, Shilton, & Shahaf-Barzilay, 2009). While central office involvement is suggested, school districts often leave this option to chance. DuFour asserted that support for the faculty

and administrators participating in the PLC was supposed to come from the work itself.

Unfortunately, roles become convoluted and easier to abandon than support in the PLC it,

according to Birenbaum et al. (2009). In an attempt to solve these challenges, Freeport

Intermediate School in Brazosport Independent School District, Texas, created an Eight Step

Improvement Process to implement QM. The PLCs within the school can develop a deeper

understanding of systemic reform, offers support for effective teachers and administrators and

has to be built to promote collaborative PDSA.

For an educator, or any professional working in a knowledge society, QM is more than

learning, because it includes a web of support for organizational problem solving. The

educational institution is a system that reinforces the interests and needs of learners while

enhancing strengths through study and alignment of personnel (Arif, Kulonda, & Smiley, 2005;

Lambert, 2003). A network of total quality management according to Deming (1982, 2000) and

Drucker (2009), utilizes learning principles where leaders focus on employees; and, all

employees concentrate on facts, customers, and results. This emphasis not only supports

employees but also holds them accountable. Therefore, form follows function where QM

supports and ensures the success of PLCs so that all educators routinely and collaboratively use

data to assist in working towards goals.

To further explore the relationship between continuous improvement and support of

employees, QM requires the components of an organization to utilize methods allowing for

measurement, analysis, knowledge management, and valuing people (Deming, 1986, 2000). The

QM framework provides for the ability to continually monitor the progress of systems alignment

and the achievement of performance results systemically and individually (Fullan, 2006, 2009;

Senge, 2006). In application of QM, Deming asserted the challenge for management was not the employee, but the system itself: mal-aligned systems cause disunity between goals of workers and organizational goals (Deming, 1986, 2000). To create alignment, the organization first creates strategic goals, and then subsequent levels, including division, department, school, and classroom frame their goals. As work towards goals progresses, staff should report a perception of contributing to the organization and feel valued by the organization (Deming, 1986, 2000).

Professionals and Change

Acceleration of learning. At the end of the 20th century the advent of the electronic age and the Internet brought us to and through the information revolution (I. Jukes, personal communication, October, 2009). Compounding the speed with which humans access information and the notion of continuous improvement, Drucker (1993) and Hargreaves (2003) concluded our leaders must now apply current knowledge to learn what other knowledge must be developed to improve services and products. This use of knowledge to create new knowledge and solve problems is known as the knowledge society or knowledge economy, according to Drucker, as well as Hargreaves. Drucker termed the work of leaders as a so-called management revolution in the context of working in a knowledge economy. As the number of skilled laborers drops and the demand for employees who collaboratively problem solve increases, educators must respond by training youth to function in a knowledge society (Chobanyan & Emblemsvag, 2005). According to Drucker (2009), K-12 educators must re-examine the mission and develop a matrix defining quality education with measures in a knowledge society. Components of public education encompass access to current knowledge, building new knowledge, and supporting the

characteristics of collaboration, ingenuity, creating problem solving, flexibility, communication, and compassion (Hargreaves, 2003). Towards the end of his life, Deming also approached and encouraged educators in this work (Landesberg, 1999).

Drucker (1993) chronicled the shift to the knowledge society beginning with the industrial revolution, during the mid to late 1800s, where workers with skill knowledge ran steam engines. As venture capitalism flourished in the late 1800s and early 1900s, businessmen zeroed in on efficiency and mass production. Frederick Taylor created his theories about process management and management evolved from knowledge and skill to knowledge about procedures and supervision of resources. However, in a knowledge economy, all employees are focused on data that generates the need for continuous improvement and requires problem solving (Blanchard, 2007; Bolman & Deal, 2003; Peterson, & Reid, 1999). Management's responsibility is to ensure a system is in place that feeds appropriate data and allows the employee to challenge practice and current understandings to create necessary changes or improvement to practice and policy.

Strategic management and human resources are required to support the highly technical use of information including the development and dissemination of new information accompanying solutions to problems (Osterloh, 2007). Management evolved to include data in the use of company goals and strategy in the likes of professional learning communities or quality management systems. Leadership also influenced the workflow, use of resources, and measurement of the work (Wong, 2005). Human resources supported the learning and evolution of the work of employees with appropriate professional development and rewards. As managers intentionally used continuous improvement models, knowledge creation occurred and created a

situation where the members of the organization either accepted or denied the changes

required by the new knowledge (Firestone & McElroy, 2005). The creation of new knowledge

often challenged traditional operation, practices, and policies of organizations (Walczak, 2005).

The ability of leaders to evolve the norms and culture of an organization determined whether or

not employees moved forward and the company remained productive and competitive.

Single Loop Learning. Before an administrator ushers a system and its employees into a

congruent configuration with a strategic plan and goals, the leader must have a grasp of the base

essentials of organizational and employee change or restructuring (Drucker, 2009; Senge, 2006).

Argyris (1991) complemented Deming's work by examining organizational patterns of learning

when employees attempted to solve problems and improve effectiveness. Argyris stated that first

order change creates a motif of success for the professional until the professional experiences

failure. Previously, the professional had not learned from failure and does not understand how to

take knowledge and build upon that knowledge to rework the system and bring the problem to

resolution. This represents the single loop learning cycle in Figure 1 where governing variables

(or norms and rules) rejected the employee's action strategy (or attempts of doing something

different based on new knowledge). As a result, the worker experienced failure by not being

able to challenge or question the practice of the system to cause change or resolution. The cause

of the failure, in the view of management or upper organizational structure, was placed with

the employee.

Figure 1. Single and Double Loop Learning.
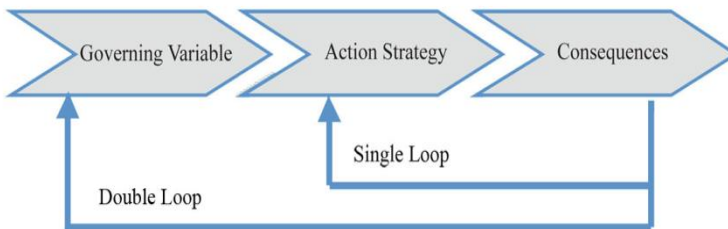
Argyris (1991) illustrated the impact of lack of experience of failure by most

professionals, including upper management. They did not have the coping skills and stopped

producing professionally. Rather than learning and working towards improvement though

processing the break in work and circumstances of the failure, the professional could not work to

change the flawed system. The worker did not have the experience or necessary skills to

question the behavior of the system. In this single loop environment disengagement and loss of

locus of control of the worker was likely to repeat, according to Argyris.

Traditional teaching can be considered much like single loop learning in Argyris' (1991)

model. First order change evolved slowly and created a sense of control in daily job functions

for staff (Kotter, 1996). Heifetz (2003) explained first order change as technical, or something

for which a professional has the skill and knowledge to handle. He equates this order of change

as the ability of the worker to apply a diagnosis within the parameters of operating procedure in a

kind of so-called mechanical means (Heifetz, 2003, p. 74). Whatever the work is, first order

change fits within current culture and the experts dispatch the issue (Grubb & Waters, 2004).

Teachers and administrators spent most of their professional life accumulating educational

credits that contribute to their expertise. The development of expertise allows them to solve

real-world problems (Argyris, 1991, p. 4).

In the setting of a knowledge society, the traditional educational model no longer is

applicable and educators work in a constant state of continuous improvement or second order

change. In the difficulty of recognizing second order change, many employees misinterpreted

the situation and extrinsically attempted to correct the perceived motivational problem by

restructuring rewards and sanctions, while no definitive research supported these actions

(Argyris, 1991; Deming, 1982; Drucker, 2009; Earl & Fullan, 2003; Sergiovanni, 2007).

Generally educational professionals, when confronted with second order change, concluded that

reallocation of job functions, alteration of job performance assessments, and additional training

or compensation are positive measures to correct second order change, yet these measures

continue to fail (Argyris, 1991).

In the past two decades other educational researchers commented on the lack of learning

ability of adults in the educational institutions (Fullan, 1994; Senge, 2006). Observations

included defensiveness and victimization followed by the professional experiencing negative

repercussions (Argyris, 1991; Smith, 2010). The perception of the situation by the employee

appeared to be more than a mistake, because it felt like failure due to the negative reaction of the

organization (Argyris, 1991). When professionals experience this kind of anxiety, they are in

second order change. Marzano et al. (2005) defined second order change as "anything but

incremental" (p. 66). Kotter (1996) described it as a "multistep process that creates power and

motivation sufficient to overwhelm all of the source of inertia" (p. 20). Another term for this

kind of change is *adaptive*, where standard operating procedure cannot correct a complicated

situation and the daily rituals of the organization are disrupted (Conley & Enomote, 2005; Heifetz, 2003).

The term *learning disabilities* in regards to organizations was applied by an assortment of researchers to describe single loop learning systems. This term was also used to describe organizations that fail because learning from failure was not a part of the culture (Argyris & Schön, 1978; Deming, 1986). Argyris' (2000) explanation of culture in education, or any institution that hinders learning or continuous improvement, brings out the dysfunctions of a broken system. Senge (2006) also discussed the inability of some systems or organizations to learn and offered guiding principals in *The Fifth Discipline* to assist leaders to a paradigm shift or understanding of how to move a corporation to become a learning organization. In *The Real Reason People Won't Change*, Kegan and Lahey (2001) asked leaders to search out "competing commitments" (p. 87), which people believed were formal or informal institutional or cultural beliefs. Allowing staff to uncover the "big assumptions" distilled the fear, developed trust, and allowed an opportunity to process what would happen if a change were not made. This method created a safe zone to test and reflect upon change for effectiveness. Kegan and Lahey added this was and is arduous work; however, leaders continue to use this tool as it continues to facilitate movement through second order change.

Double loop learning. The differences between single and double loop learning explain why some educators experience difficulties when first entering into a QM model or a framework of continuous improvement including PDSA, action research, or a professional learning community. Argyris (1991) reminded us that professionals need organizational support to question and learn how to solve a challenge or second order change. Double-loop learning, on

the other hand, created a shift by questioning some of the basic tenets of why failure happened

in regards to an entity's infrastructure, governance, or culture (Argyris, Putnam, & Smith, 1985).

The collaborative problem solving style created new learning or a "cognitive restructuring"

(Schein, 2004, p. 325). Cognitive restructuring, reframing the way one thinks, allows a person to

reframe the mental maps already created in a person's mind regarding the progression of

thoughts and processes (Argyris & Schön, 1978). Through the questioning of the system, the

system adjusted to accommodate the needed change and the flow of work resumed, as shown in

Figure 1 (Argyris et al., 1985). This work produced anticipated expectations of the institution

and caused it to transform (Latta, 2009). Recovering from failure through the double-loop model

lends it to assisting employees in working through the second order change and can promote

institutional advancement (Deming, 2000).

Schön (1985) added depth by discussing how an individual's reflection about his or her

own practice enhances the practice of double loop learning and restructuring mental maps.

Schön's book, *The Reflective Practitioner*, discussed the premise of how "professional

knowledge is mismatched to the changing character of the situations of practice—the

complexity, uncertainty, instability, uniqueness, and value conflicts which are increasingly

perceived as central to the world of professional practice" (p. 14). As his writing progressed,

Schön made an argument to develop periods of research and reflection in one's own work and,

eventually, workplace and society. Senge (2006) and Argyris (1991) overlap other elements of

Schön's writings, such as feedback, collaboration, consensus decision-making, and leveling silos

or territory in the workplace.

In essence, Schön expressed a need for learning that could be described as action research. In *Qualitative Research and Evaluation Methods*, Patton (2002) described action research as an element along a continuum of "theory-to-action" (p. 221). In collaborative settings, a group informally studies a problem and works to bring it to resolution while concurrently reflecting upon the actions of self and others, according to Patton. According to Anderson, Herr, and Nihlen (2007), participatory action research not only employs cycles of study but also requires reflection of the social and personal leadership aspects in the problem solving process.

An organization that formalizes study in alignment with its mission and tracks goals and benchmarks with data is implementing a continuous improvement model rather than action research (Peterson & Reid, 1999; Schmoker, 1999). In a 2010 study, "Investigating the Links to Improved Student Learning," continuous improvement was discussed and several variations scrutinized: Lambert's constructivist leadership, Reeves' learning leadership, and change leadership from Wagner, to name a few (Anderson, Leithwood, Seashore-Louis, & Wahlstrom, 2010). This researcher chose to delimit this literature review to listing these variations and focus on the leadership practices relative to QM. Leithwood identified two common threads in a 2010 qualitative and quantitative study lead: continuous improvement and systemic support for employees. The researchers created a data-base encompassing 180 schools in 43 districts. Administrators, teachers, classified staff, state politicians participated in surveys or interviews. Researchers also observed over 300 classrooms during the course of the six-year study and harvested data that reported Adequate Yearly Progress. Results of the leadership study were reported for each level of state, district and school. In regards to school level leadership, the use

of continuous improvement included sharing data and decision-making processes to continually improve the delivery of education for students. The district leadership created a larger support system that attempted to meet the needs of the buildings to support the academic success of students. The only notation regarding if any use of quality management in the study spanning a nine state area was attributed to the effort of Texas to support local districts (Anderson et al., 2010).

Baldrige Education Criteria for Performance Excellence

   Introduction. Quality management creates a burden of leadership upon administrators to align the values of the staff with the values of the vision and mission of the organization. In a QM position, leaders become the "bedrock of relationships and anchor of stability" (Bhote, 2003, p. 66). The challenge comes in leadership evolving from strategic to strategy focused and purposefully aligning systems within an educational institution (Shipley, 2010; Sosik & Dionne, 1997). In a QM model, discussions of alignment with strategic goals on a district, building, and professional level is essential (Caldwell & Shipley, 2000). Shipley, a Baldrige examiner or scorer, stated, "educational leaders need to have all of the arrows, inputs and outputs, pointing in the same direction" (J. Shipley, personal communication, January 7, 2009) in regards to strategic goals and plans. Theorists and researchers such as Blanchard (2007), Senge (2006), Bolman and Deal (2003) each discussed the importance of leadership's role in alignment of each employee's goals with the organization. Several studies with Leithwood reinforced the need for principals to support staff along the organizational goals, which reflects QM characteristics. Some literature states that administrative leadership is key in implementing QM successfully (Elmore, 2004; Getkin, 2009). In that regard, studying what characteristics these successful administrators

practice to facilitate alignment of employees' values and goals with that of the organization to improve is important. It allows leaders to study and grow.

As a result of needing to emphasize the importance of leadership, continuous improvement, and systemically supporting employees in their work, the federal government created the Baldrige National Quality Program to "recognize and advocate for" (Beecroft et al., 2003, p. 56) high performing organizations that implement systemic quality management. The U.S. Department of Commerce collaborated with private enterprise in a non-profit venture to encourage innovative practices under the guidelines of "advancing measurement science, standards, and technology" (Baldrige Performance Excellence Program, 2009, p. i). The National Institute of Standards and Technology, a U.S. Department of Commerce organization, united with the American Society for Quality (2010) to assist in the management of the Baldrige National Quality Program.

Initially the Malcolm Baldrige National Quality Award (MBNQA) was bestowed upon businesses to recognize and publicize use of the QM. The first set of Baldrige awards was announced in 1988 and presented to one small business and two manufacturing companies. Later other sectors of recognition, including health care and non-profit or government were created. The MBNQA, or Baldrige award, consists of seven categories that reflect Deming's 14 Points (see Appendix A). The category of education with criteria was added in 1999 (Karathanos & Karathanos, 2005). Current Baldrige Education Criteria is summarized in Appendix B. In regards to the Baldrige criteria (Figure 2), the overlap with Deming's 14 Points includes building capacity and efficiency; goal setting and effectiveness in meeting said goals; alignment of employee and organization towards comprehending and meeting customer

requirements; providing employees with the resources and latitude in decision making

(Anderson et al., 2000). Two K-12 school districts and one university were the first to win the

award in 2001.

Baldrige criteria explained. Criteria for the 2011-2012 application required, from the

applicants, an overview or profile and descriptions of the seven system operations: leadership;

strategic planning; customer focus; measurement, analysis, and knowledge management;

workforce or human resource focus; process management; and results, as shown in Figure 2
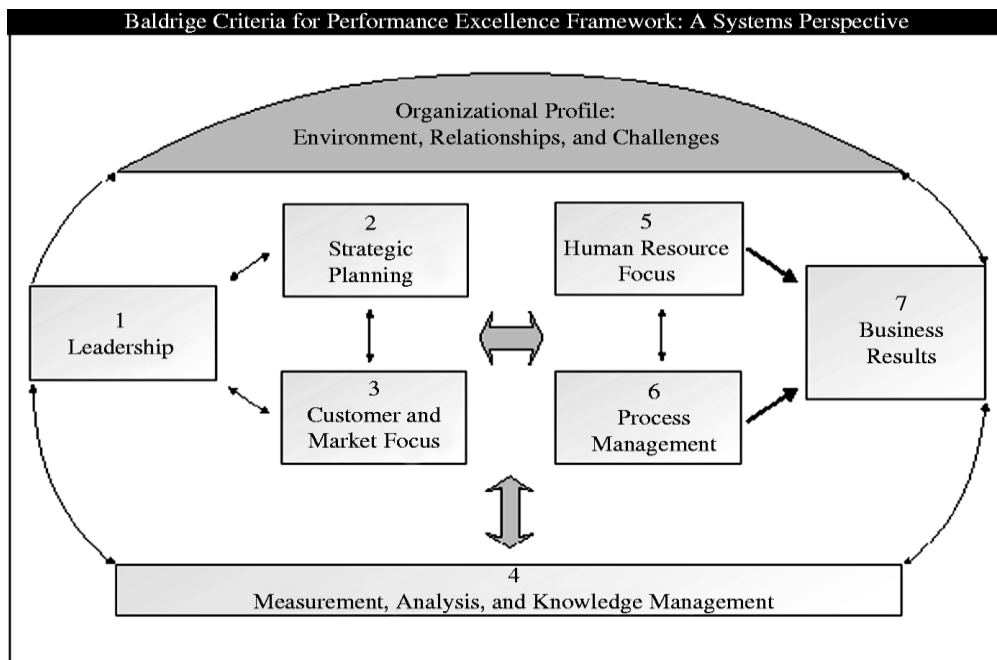
Figure 2. Baldige Criteria.

 (Baldrige Performance Excellence Program, 2009). These elements slowly evolved but have

not seen any major overhauls. A majority of the recent modifications for the educational criteria

included user-friendly educational vocabulary compared to the business version. Each category

of Baldrige criteria explained the construct and its components. When reviewing these criteria,

an overlap between areas exists. This redundancy demonstrates the fluidity of the components in

the system. The first section of the criteria requires an organizational profile to introduce the

key organizational characteristics (Baldrige Performance Excellence Program, 2009, p. 4). It

should be noted that the Baldrige criteria can be used as a tool for planning, management,

reflection, and organizational assessment (Shipley, 2010; Westcott, 2006). Many organizations

fill out the application as a reflection or assessment tool to mark the progress of an organization

(J. Shipley, personal communication, 2000; T. Knight, personal communication, June 15, 2010).

As members of an organization complete the Baldrige application, management ruminates upon

how to improve weaknesses and celebrate successes (Shipley, 2010; Westcott, 2006). Using the

application for growth or to apply for a state or national award involves a process of continuous

improvement and therefore all suggested elements and details of reporting are not necessarily

uniform throughout all applications for the Baldrige award.

The first three Baldrige system operations—leadership, strategic planning, and customer

focus—combine to make the "leadership triad" (Baldrige Performance Excellence Program,

2009, p. 1). When grouped together, the leadership triad assists upper administration in

envisioning future prospects and planning for the organization as a whole. This power of vision

and planning based on stakeholder (and customer) needs and strengthens and moves the

organization forward. Measurement, analysis, and knowledge management is the foundational

system operation that connects the leadership triad with the "results triad" (Baldrige Performance

Excellence Program, 2009, p. 1). The results triad consists of the last three operations:

workforce focus, process management, and results. The grouping concentrates on human

resource management based on results. Baldrige material clearly points to the necessary

interplay between the leadership and results triads. Throughout the entire Baldrige criteria, the

importance of leadership continues to surface. The first system operation solely concentrates on the leadership element and subsequent operations require documentation of leadership's decision-making processes.

Leadership. Organizations explain how the system of governance focuses on upper level management, and how the vision and core values of the organization are conveyed either directly or indirectly to the entire organization (Baldrige Performance Excellence Program, 2009). Criteria in this element also probe for leadership growth in upper management and stress the importance of growing and supporting leaders within lower levels of the organization. Another aspect of this component investigates how leadership monitors and enforces compliance to policy and strong ethical values. While evaluation of leadership continues to be important, risk management is another necessary function to document processes. Leaders need to demonstrate evaluative processes regarding program costs and other expenditures. This activity includes an analysis of green technologies and past use of community resources such as volunteers and services. The work also emphasizes development of economic, social and environmental sustainability.

Strategic planning. Strategic planning encompasses how leadership facilitates the development and sustainability of the overall vision, mission, and goals of the organization. Documentation of working with stakeholder groups and application of resources are usually included in this element. Indicators, such as data from goals and benchmarks, also provide explanations with regard to organizational performance. Data comparisons to similar organizations in the same market are also desired. Process measurements or completion rates are another valued reporting item. Evidence of two important concepts "competing and completing"

(Baldrige Performance Excellence Program, 2009, pp. 38-39) serves to demonstrate the strength of the action and support the strategic plan.

Action items and policies, which demonstrate the use of human resources to support the strategic plan, are typically recorded in this section. Completion rates or tracking process measures demonstrates the ability of an organization to move from vision to planning details with follow-through to completion of scheduled activities for employees (Baldrige Performance Excellence Program, 2009). Examples of work progress might include how the leaders communicated goals, clarified staff questions, and evaluated use of resources. The ability to track performance regarding employee positions, professional development, and technology use contributes to explaining implementation of the strategic plan (Baldrige Performance Excellence Program, 2009). Where positions become reorganized or extinct in the system, Baldrige examiners search for evidence regarding opportunities leaders created for staff to move to other positions. Addressing professional development used to support employees who experienced new job functions are also a part of this element.

Customer focus. Customer focus requires an organization to gather and review data centered on engagement of and needs being met for students and interested parties. Interested parties include employee groups, community, and government being serviced. Student and employee engagement is defined by how deeply students and employees are focused on their learning, performance, perceptions, and interactions (Baldrige Performance Excellence Program, 2009). Baldrige asserts that student engagement correlates with school culture and can aid in determining (a) whether the student or customer has been the focus of employees and (b) whether student learning has indeed taken place. Elements of documenting this culture include

methods for listening, learning, and performance. Programs offering support or interventions for students, staff, and parents should be explained. Administrators, when faced with competing interests regarding programming or support, can use this section to demonstrate relative data and how solutions best aligned with strategic goals (Baldrige Performance Excellence Program, 2009). Policies should be in place to explain procedures and disseminate information such as the description of a program. To facilitate understanding of why a program is added, eliminated, or altered, educational leaders need to continuously work to build and develop relationships. Baldrige criteria specifically ask for "voice-of-the-customer strategies" in multiple forms of collection or expression, according to the National Institute of Standards and Technology. The feedback from the stakeholders can cover, but are not limited to, curriculum, supports, budget, and improvements. Negative feedback should be compared to other data and used in the decision-making process as well.

Analysis, measurement, and knowledge management. The fourth system operation, analysis, measurement, and knowledge management ties into the leadership triad as it supplies the data from a central point in the organization. Usually this operation is labeled along the lines of an office of quality management, research services, systems management, quality improvement, quality control, or quality assurance. The function is to have a single point of data collection and dissemination so as to keep the data as clean as possible and the communication of the data clear (Shipley, 2010). The Baldrige criteria suggest that collecting data, data analysis, and use of data to make decisions is the essence of good leadership and this data collection point (such as a QM office) should meet these needs (Baldrige Performance Excellence Program, 2009).

Documentation of how educational leaders engage with divisions, departments, schools, and classrooms in discussions of how data demonstrates progress or lack thereof in meeting strategic goals is captured in this element (Baldrige Performance Excellence Program, 2009). These conversations align all levels of staff with the strategic goals and plan. Comparing data within an organization assists with benchmarking and improvement. Comparing similar data from other sources outside the organizations further push on the system to increase or reward performance. Drawing a distinction in data reinforces or refines goals and benchmarks in a continuous improvement model. This work also provides for the reasonable development of goal setting. Stretch goals, goals beyond expectation but possible to attain, are also welcomed in this element (Baldrige Performance Excellence Program, 2009). Stretch goals create higher expectations and allow innovation, resulting in forward movement of an organization. As the data improves and an organization improves, celebrations should also be heralded and best practices shared.

To assist in the use of data, the QM office or data collection point should be acutely aware of available information, strategic goals, and measurements. In a sense, this Baldrige criteria serves as part of the backbone of the system because it facilitates, supports, and feeds the knowledge economy of the organization. Decisions with data should follow a cause and effect rationale reflected in this system operation, thus depicting a continuous flow and application of knowledge. Likewise, decision-making processes follow a protocol. Clean, reliable data is necessary. To retrieve good data, as deemed by the strategic plan, this office should have necessary data pools, access programs, trained personnel, and capable software and hardware

(Baldrige Performance Excellence Program, 2009). With these items, the technical support to back networks and the people who use them should function well and be demonstrated.

Knowledge societies depend on communication and innovation in the electronic world. The speed at which data changes can test the capabilities of educational organizations. Leadership, employees, students, and community members must have access to the data from the QM office in a manner that the members of the community can gain a deeper understanding to move education forward (Baldrige Performance Excellence Program, 2009). Planning for the analysis and communication of this information is critical and should be demonstrated. For each of these stakeholder groups to fully apply data for direction, guidance of how the data is created should be in effect. Following that, plans should also be in place to access and use the data. Coordination of these guidelines for all of these protocols should align with the strategic goals and reflect an atmosphere of efficient and effective practices.

Workforce focus. The workforce focus component examines how members of the organization engage, manage, and support the work and growth of employees in alignment with the strategic goals of the organization (Baldrige Performance Excellence Program, 2009). Policies or processes that show management's value of employees for their talents and strengths are important in this category. Other specific supports regarding employees should be noted in workforce focus such as offering professional development, health and other benefits packages, child-care, counseling, unique leave (education, family, compensatory), or other employee services. These items should be reflected in acknowledgement through formal and informal recognition and in the compensation package offered to employees. To show progress in this element, many different data sets and process measures demonstrate progress towards meeting or

exceeding benchmarks and targets. Useful feedback to monitor this component includes

engagement and climate surveys, including topics such as absenteeism, longevity, insurance

claims, retirement, employee/employer relations, and grievances. Other safety and health

information are helpful here too, such as days without accidents or injury on the job and rate of

health insurance claims. Accountability and positive work environment enrich this criterion.

Process management. While workforce focus supports and aids in aligning the

employee to the strategic goals of the organization, process management looks for ways to help

employees accomplish their tasks. Specific qualities of this category include "operational

performance; cycle time; emergency readiness; and evaluation, continuous improvement,

innovation, and organizational learning" (Baldrige Performance Excellence Program, 2009, p.

65). Effective and efficient operations in the area of cost, facilities, and technology are usually

found in this section. Demonstration of adaptability to customer needs in reasonable time is

valued. Workforce Focus also seeks documentation of emergency preparedness, innovation, and

flexibility of the organization. With all of these components in mind, the system's inner

workings to engage employees, stakeholders, and students in continuous improvement are also

valued. Inputs, suppliers, and technology play an important part in success of planning and

organizational alignment. The protocol of how each contributing group works within, or as a

support to the district should be apparent and highly functioning (Baldrige Performance

Excellence Program, 2009). Student performance, organizational assessments, resource mapping,

capacity studies, benchmark progress, and workforce analysis are only a sample of possible

sources of evidence in this area.

Results. The last operation, results, highlights data from all Baldrige categories and compares the data to other similar organizations. It is the information leadership and employees use to judge progress in meeting goals. In the case of an educational institution, the primary goals are student growth and performance, community satisfaction, and engagement of employees and students (Baldrige Performance Excellence Program, 2009). Data should be compared to other similar organizations. Student information, formative and summative, should be disaggregated to analyze different student groups and their needs. Trends should be sought and discussed within the cycles of continuous improvement. With this data, analysis should take place to determine if content and delivery meet the needs of students (Baldrige Performance Excellence Program, 2009). Other means to understand student satisfaction include student retention, engagement, complaints regarding the system or employees, awards, recognition from other organizations, and number of courses offered and completed.

Other key reporting measures in and outside of the organization should be accounted for in this category with a review of strategic goal data. Much of the data from process management regarding employees can be included here too. Budget, cost effectiveness, fiscal responsibility, and accountability measures are also visited (Baldrige Performance Excellence Program, 2009). Comparisons should be made to similar districts as well as other educational institutions in all of these areas. An analysis of the use of vouchers or other types of schooling such as charter, internet, at home, religious, or private schools help the organization to better understand the interests of consumers and possible impact of other options for consumers. Ethics, governance, leadership, and accountability data is sought. The scope of employee and organizational

compliance, safety, licensure, accreditation, and other legal requirements should be reviewed and reported in this section.

   Baldrige Awardees and Results. While no comprehensive database exists of state winners, schools and districts are earning state level awards from state level affiliated Baldrige organizations. Only five K-12 school districts have received the national award (Baldrige Performance Excellence Program, 2010b). Each of these winners posted and continues to present impressive results by posting their comprehensive or balanced scorecard. Balanced scorecards are known as dashboard that reflects the overall progress regarding organizational goals (Hoque, 2012; Kaplan & Norton, 2000; Shipley, 2010). All five districts increased their graduation rates by at least 10%. Four districts raised the graduation rate up to 95% or 100% (U.S. Department of Commerce, 2001a, 2003a, 2005a) except Iredell-Statesville Schools, NC, which increased their rate 20 percentage points or 61% to 81% (U.S. Department of Commerce, 2008a). This is not to discount Iredell-Statesville Schools (U.S. Department of Commerce, 2008a); their average SAT scores were 1056 in 2008, the year of their award. This average score was higher than districts with similar demographics and rated higher than the North Carolina or national average, according to the Iredell-Statesville Profile (North Carolina Department of Public Instruction, 2008; U.S. Department of Commerce, 2008b). The district's dropout rate ranked in the top 10 of North Carolina districts rather than in the bottom, as was the case prior to instituting the Baldrige framework (North Carolina Department of Public Instruction, 2008).

   Iredell-Statesville Schools in North Carolina and Jenks Public Schools in Oklahoma were the last two Baldrige awardees in 2008 and 2005 respectively (Baldrige Performance Excellence Program, 2010). These two school districts boast results with all subgroups of students in areas

of assessment, engagement, and graduation rate. Iredell-Statesville Schools raised their

graduation rate 11% in 4 years, and their overall percentage of student testing as proficient or

high on their state assessment has reached 85% (U.S. Department of Commerce, 2008b). Jenks

Public Schools (2010) reported an average SAT score of 1725 at the end of the 2006-2007 school

year. The highest score a person could earn on the SAT is 2400, but the national average in 2007

was 1483 (College Board, 2007). Their students have earned the National Merit Semifinalists

Scholar award (133 students), National Merit Finalists Scholar, (123 students), and Presidential

Scholar (two students) in the last decade (Jenks Public schools, 2010). While National Merit

recognition assists a student in obtaining a scholarship for college, the award reflects the

academic rigor of the school or district in which the student studied (P. Platt, personal

communication, September 28, 2010). Jenks Public Schools showed a trend of 80% or more of

their graduating students attending college (U.S. Department of Commerce, 2005b).

Roughly a third of students from Community Consolidated School District, Illinois, fall

into one or more of the following subgroups: minority students, free and reduced lunch, and

English language learners (U.S. Department of Commerce, 2003b). At the time of their Baldrige

Application, 2003, the second grade students raised their reading 35 percentage points above the

national average. The turnover rate, 11.7%, at Community Consolidated School District was

almost half of the national average (U.S. Department of Commerce, 2003a). Other MBNQA

districts reported an increase in morale and engagement too. Pearl River School District, New

York, described the same staff and student satisfaction and engagement at the time of their award

(Pearl River School District, 2010).

The performance of Pearl River, New York, shows the past 7 years of graduation rates ranging from 90% to 96%, the same percentages for students entering college (Pearl River School District, 2010). Math and verbal scores on the SAT hover above the national average, 500 for each section. A 2001 Baldrige award winner, Chugach School District, Alaska, topped the state average in four subject areas of the state's High School Graduation Qualifying Examination (U.S. Department of Commerce, 2001c). Based on the district's profile and Baldrige award application, Chugach School District raised its results on the California Achievement Test in the second half of the 90s: from the 28th percentile to the 71st percentile in reading, from the 54th percentile to the 78th in math, and from the 26th percentile to the 72nd in language from 1995 to 1999. Half of the students in the Chugach School District are minorities. (U.S. Department of Commerce, 2001c, para. 3)

While not a Baldrige winner, Long Beach Unified School District employed the Baldrige management system and demonstrated how a district of over 90,000 students, 47% English language learners, 90% minority non-whites, could maintain a dropout rate of just over 3% and scores in the 700s out of 1000 on the California Department of Education rating scale. Seventy-five percent of LBUSD students have at least one parent not born in the United States (Ed-Data Partnership, 2010). In accordance to special education guidelines, only 8% of LBUSD students are on an individualized education plan or IEP. In the 2008-2009 Strategic Plan, Report to the Community, LBUSD celebrated the following: Five elementary schools received the National Title I Academic Achievement Award for outstanding gains in achievement. For a record tying for the fifth time, the Eli and Edythe Broad Foundation named the Long Beach Unified School District (2008) among the top five school systems in the nation.

Methods Used by Baldrige Award Winners for Improvement. Although no empirical studies exist regarding the rationale of how school districts achieve success in obtaining the Baldrige award, there are interviews and informational articles that contain information. Two elements appear prominent in successful Baldrige award-winning school districts that entered the framework and persistently achieved successes: (a) leadership and (b) a tipping point or majority of staff who invest themselves in the effort. Leaders saw the need for a planned, comprehensive, and systemic model and were able to persuade others of the need for the Baldrige framework in their respective organizations (T. Knight, personal communication, April 16, 2010). In "Transformation to Performance Excellence," researchers interviewed the leaders of four school districts and three post-secondary institutions about the efforts of their organization in pursuit of winning the national Baldrige award (Byrnes et al., 2007). A consistent theme in each interview was the importance of not only the executive leadership owning the vision of performance excellence but also middle management. In the case of the school districts, building level administrators were key in this process. John Conyers, superintendent at the time of District 15's award, eloquently stated, "It is my experience that Baldrige works best top down. Then, in high-performing organizations, it bubbles up" (Byrnes et al., 2007, p. 10).

Terry Holiday, past Iredell-Statesville Schools (ISS) superintendent and current Kentucky Commissioner of Education, explained that once leadership earns staff buy in, the Baldrige framework continues appears to perpetuate itself even if the superintendent changes (T. Holiday, personal communication, February, 2008). In the last 5 years, LBUSD hired a new superintendent. In speaking with LBUSD's Middle School Reform and Leadership

Development head, Kristi Kahl, the pressure from staff for leadership to continue with

Baldrige principals exists (K. Kahl, personal communication, April, 2010). Jim Shipley, of

Shipley and Associates and a scorer of Baldrige applicants, also noted that Baldrige, once

established, perpetuates itself. In searching for studies or empirical reviews regarding school

districts applying quality management, no such documents exist. This researcher found one

report regarding the implementation of ISO in Lancaster School District in Pennsylvania

(Bowen, 2009). No other database is known which tracks the implementation of Baldrige in

school districts. Those school districts that win the national or state level award are found on

either the Baldrige National Quality website or individual state Baldrige affiliates.

Importance of Leadership

The concept of leadership, in western terms, first appeared in the King's language during

the early 1800s regarding actions of the English parliament (Hicks et al., 2004). In

organizations, leadership is a key element for movement and progress, and studies continue to

dig deeper into defining leadership and its impact (Bass & Bass, 2008; Collins, 2001; Hallinger,

2003; Stewart, 2006). During the first half of the 1900s theorists and researchers attempted to

define leadership as an act or activity of attempting to control or influence behaviors and create a

result or change (Hicks et al., 2004). Elmore (2000) expresses leadership not as some charismatic

figure but a complex role where "guidance and direction of instructional improvement" (p. 13) is

based in skills and knowledge. Marzano et al. (2005) credit James Burns with first defining

leadership as the leader setting value and creating motivation for the followers, resulting in a

symbiotic relationship where leader and followers feed off of each other's values and

motivations. Since the mid 1950s scholars continue to attempt to delineate differences between

the terms *leader* and *manager*; however, Bolman and Deal (2003) declare, "there is a sense of confusion and disagreement about what leadership means and how much difference it can make" (p. 336).

Since the 1980s, extensive literature reviews revealed the development of two predominate educational leadership theories: instructional and transformational (Hallinger, 2003; Hallinger & Heck, 1996, 1998; Leithwood, 2005). There are other groupings of leadership styles and studies on personality traits that are delimited in this study. Hallinger and Heck defined the instructional model of leadership based on an empirical review of elementary principals of largely urban areas in the late 1970s and 1980s (Hallinger, 2005; Hallinger & Heck, 1996, 1998). This literature review, encompassing articles from 1980-1995, confirmed the importance of leadership in the instructional framework during this time (Marks & Printy, 2006; Spillane & Seashore-Louis, 2002). In response to the social and political pressure growing in the United States for student academic performance, studies regarding leadership and effective schools increased (Leithwood, 2005; Stewart, 2006). The research at this time revealed successful leaders focused on building level goals, building climate, and content and delivery of the course material (Stewart, 2006). Studies of instructional leadership, between 1980-1998, showed leadership characteristics to have an impact of 3% to 5%, on student learning (Leithwood, 2005).

Instructional leadership reflects a principal or building leader's role to focus the energy of teachers on student engagement and learning (Hallinger & Heck, 1998). The development of a school's mission statement, as informed through instructional leadership, assists the principal in the creation of a cohesive staff, according to Hallinger and Heck. Leadership studies from the 1980s also noted principals who worked with teachers in development, implementation, and

assessment of curriculum (Stewart, 2006). To offer guidance for current and future

administrators, the Interstate School Leaders Licensure Consortium (ISLLC) was created in 1994

and consisted of researchers, educators, and members from the National Alliance of Business

(Murphy, 2005). Two years later the work culminated in the Interstate School Leaders Standards

to guide current and new principals in leadership practices (Murphy, 2005). In an analysis of the

standards, researchers agreed there are two main thrusts: traditional leadership or management

practices from the business sector and instructional leader constructs (Banks & Knuth, 2006).

Research from Stewart (2006) revealed instances where administrators perceived their own lack

of knowledge of curriculum and pedagogy, which caused them to retreat from assisting teachers.

The literature review also showed that, at times, building level leaders were also overwhelmed

with the responsibility of balancing the interests of staff, students, parents, community, and

politicians (Stewart, 2006). Nowhere in the ISLLC standards were second order change or

transformational leadership qualities listed (Grubb & Waters, 2004).

Hallinger (2003) defined transformational leadership as the act of "developing the

organization's capacity to innovate" (p. 330) and gave credit to Leithwood for a bulk of the

educational research regarding transformational leadership in the 1990s (Hallinger, 2003;

Hallinger & Heck, 1996). In the early 2000s Leithwood added to the concept of transformational

leadership by comparing instructional and transformational archetypes. Through the empirical

studies with which he was associated, Leithwood determined that distributed or shared

leadership roles with teachers influenced the classroom (Leithwood, 2006; Leithwood, Mascall,

& Strauss, 2009). Other studies brought forth similar data and analysis regarding the work of

transformational leaders and how they obtained a deeper sense of commitment and contribution

of school staff to increase student achievement (Anderson et al., 2010; Leithwood, 2005; Leithwood, & Riehl, 2003).

In the history of transformational leadership, Hallinger (2003) also noted that transformational leadership evolved from the need to facilitate second order change in schools during the 1990s through the early 2000s. Transformational leadership was broken into at least three distinctive parts in as many major studies: Leithwood in 1996, Conger and Kanungo in 1998, and Hallinger and Heck in 1998 (Leithwood, & Mascall, 2008). The first element described vision, mission, and goals to lay the foundation by which a school is motivated. For the second aspect, these empirical studies illustrated how administrators grew leaders within the school to share management and curriculum roles. Reports of improved problem solving and decision-making were benefits. Individuals reported their strengths were better utilized (Leithwood, & Mascall, 2008). Once these two factors were in place, the administrator could facilitate restructuring the culture and organization of a school to allow double loop learning (Leithwood, 2005). To meet the challenges of double loop learning an administrator was faced with continuous improvement and innovation but could not fulfill these duties in addition to the day-to-day function of management and instructional support (Leithwood, 2005).

The work of these transformational administrators, a study completed by Gray and Ross (2006), reinforced the positive correlation between transformational leaders and increased teacher efficacy. Over 200 schools and 3,000 plus teachers participated in the study that used survey questions from previous studies regarding leadership and teacher efficacy. Schools whose teachers reported an understanding of the mission and how their work supported the vision for the school did show higher student achievement (Gray & Ross, 2006). Hertz-

Lazarowitz, Kurland, and Peretz (2010) conducted a similar study but with a heavier emphasis on linking how transformational leaders used the sense of purpose of staff to create a setting of continuous improvement. The conclusion drawn from the results demonstrated the power of transformational leadership in developing a learning organization that impacted student growth (Hertz-Lazarowitz et al., 2010).

Management experts, practitioners, historians, and researchers traced the evolution of leadership from managing resources and people, to managing processes, systems, and knowledge (Deming, 1982; Drucker, 2009; Senge, 2006). This historical context reflects the change in the work of schools from teaching students in an industrial educational model to preparing youth to function well in a knowledge society where they too create new knowledge from current knowledge (Hargreaves, 2003). In studying which districts were achieving and which were not, Leithwood (2005) and Lezotte (1992) found that districts making progress had general commonalities that promoted results and applied data. The research also promoted the two major categories of leadership: instructional and transformational. Other variations of leadership motifs surfaced such as servant, situational, and transactional leadership styles (Cotton, 2003; Leithwood, 2005; Marzano et al. 2005; Sergiovanni, 2007). This literature review is delimited to covering instructional and transformational leadership styles. However, investigating the characteristics of leadership appears to be the next generation of leadership studies (Leithwood, 2005).

Newer studies, which dissect the elements of leadership, have begun to connect these roles to student performance (Leithwood, 2005). McEwan-Adkins (2003) reworked her literature review from the mid 1980s into a formal interview of administrators of a school that reached or

maintained a high level of excellence as shown by student scores. Cotton's (2003) quantitative study reviewed 81 documents, of which over half were studies to define these administrative characteristics. Her study revealed 25 practices (see Appendix C) that affected student data in regards to student achievement, perceptions, behavior, dropout rates, and teacher attitudes and behavior. The 25 characteristics listed did not include individual notations about how each role influenced student performance nor did the study list student performance effect sizes.

Balanced leadership study. The white paper, "Balanced Leadership: What 30 Years of Research Tells Us about the Effect of Leadership on Student Achievement" (Marzano et al., 2003), evolved into the 2005 publication, *School Leadership that Works: From Research to Results*, from the same authors. This meta-analysis, Marzano et al. (2005) explained, "refers to an array of techniques for synthesizing a vast amount of research quantitatively" (p. 7). Patton (2002) described this practice as a "meta-evaluation" where a study is performed on a collection of other studies on a particular topic (p. 211). This method is predominately used in medical and sociological studies where a systemic review is necessary. In addition, the conglomeration of studies surveyed is comparable to develop sufficient quantitative data to produce an effect size or generalized impact to increase the level of how confident a researcher can be in knowing there is a difference due to the variable introduced (Cohen, 1988; Weed, 2005). The effect size is a determined by taking the difference of the mean of the groups studied and divided by the standard deviation of the control group (Cohen, 1988). In essence, the scores of each characteristic of leadership were standardized in the process of the meta-analysis. For a more detailed discussion regarding the exact tabulation of the correlations in the meta-analysis, see Appendix D. The effect size quantifies a correlation between leadership roles and academic

achievement of students (Marzano et al; 2003). Marzano et al. (2005) reminded the reader that meta-analysis should be used to look at the overall trends of these qualities of administrators without judging the effect size of each role. In a brief review of each of the 21 responsibilities of leadership, the effect sizes range from 0.15 to 0.33. The average of all the roles was 0.25. For comparison purposes, when noting an effect size between 0.1 to 0.3, researchers deem this as a small effect size (Cohen, 1988).

The choice of framework for the Marzano et al. (2005) study was a meta-analysis to limit their biases and draw upon studies of the effect of educational leadership on student performance from 1978 to 2001. Other qualifying markers of the study included measured academic achievement with results translated into effect sizes and K-12 schools predominately in the United States. Of the 5,000 plus titles returned from electronic data base searches, 69 met the criteria. Within these studies over 2,800 schools were included and an estimated numbers of teachers and students involved in the study were 14,000 and 1.4 million, respectively (Marzano et al., 2005, p. 29). Just over half of the schools were elementary and the rest were a mixture of K-8, K-12, middle, junior, and senior high schools.

It should be noted that there are different ways to group these 21 characteristics: first and second order change and those roles that negatively affect second order change (Figure 3). The definitions of these two terms in the study were reflective of terminology from Heifetz (2003) as well as Argyris and Schön (1978). The addition to the definitions in *School Leadership that Works* delineated *magnitude of change*, which reinforced the difference already established between first and second order change (Marzano et al., 2005, p. 66). Certain leadership roles are better suited to manage different levels of change. Not surprisingly, all 21 responsibilities were

found to be important in the day to day functioning of a school; however, the Marzano et al.

study rank ordered them based on the effect sizes (See Appendix E). The mean of the 21 effect

Associated with First Order Change	Associated with Second Order Change	Negative Influence Second Order Change
• Affirmation • Contingent Rewards • Discipline • Focus • Involvement in Curriculum, Instruction, and Assessment • Outreach • Relationship • Resources • Situational Awareness • Visibility	• Change Agent • Flexibility • Ideals/Beliefs • Intellectual Stimulation • Knowledge of Curriculum, Instruction, and Assessment • Monitoring/ Evaluating • Optimizer	• Culture • Communication • Input • Order

Figure 3. 21 Leadership Responsibilities.

size was calculated to be .24 with the lowest effect size of .18 and the highest of .33. Marzano et

al., (2005) in an explanation regarding confidence level and r or effect size stated this:

> "…(P)robably the most important information depicted…is the 95
>
> percent confidence interval reported…Here we should simply note that a
>
> confidence interval that does not include the value .00 indicates that a correlation
>
> is significant at the .05 level. Recall from…Chapter 1 that when a researcher says
>
> her findings are significant at the .05 level, she is stating that the reported results
>
> could happen by chance 5 times in 100 or less if there is no real relationship
>
> between the variables under investigation" (Marzano et al., 2005, p. 62).

Also, a caution was given that the rank order was not necessarily the point, but

addressing the list was more advisable in looking at how to impact student performance overall

as an educational leader or principal. The second order change list included only seven roles:

Knowledge of curriculum, instruction, and assessment; optimizer; intellectual stimulation;

change agent; monitoring/evaluating; flexibility; and ideals/beliefs (Marzano et al., 2005, p. 70).

Four roles, culture, communication, order and input, emerged from the study as "negatively

affecting second order change." The authors cautioned that the relationship is causal in that

when second order change is in process, staff interprets these roles as not functioning smoothly,

according to Marzano.

Baldrige criteria supplies a framework to understand how educational leadership creates a

structure and atmosphere in which the K-12 educational process is reinvented to produce results

that satisfy constituents and students. Capturing the essence or characteristics of how principals

in Baldrige award winning school districts do this work can benefit other school districts

implementing and sustaining a total quality management system. Data should speak specifically

and definitively to what qualities educational leaders must develop and possess in supporting

staff through continuous change of systems work. And, with that, data should delineate what

roles allow for success and sustainability. The balanced leadership survey tool, administered in a

360-degree evaluation where staff, supervisor, and principal complete the reflective tool

regarding leadership roles, affords this data.

Roles associated with second order change. Drawing on the discussion regarding first

and second order change, the Marzano et al. (2003) study commented on the magnitude or levels

of change and found roles associated with each (p. 6). A factor analysis was completed by

Marzano et al. to develop data regarding the interrelationship between the 21 Leadership

Responsibilities (Marzano et al., 2005). An electronic response survey consisting of 92 items

with four multiple choice responses was available for principals to participate online. First and second order change for the schools of the participating building administrators were measured through the response items. A total of 652 principals participated as a result of unofficial recruiting. As each respondent completed the survey, he or she received results regarding his or her own observations about personal involvement and perceived levels of change for their organization. According to Cronbach's Coefficient Alpha, the survey tool's reliability was .92 (Marzano et al., 2005). The leadership characteristics that surfaced in the factor analysis of the survey that was associated with second order change included Knowledge of Curriculum, Instruction and Assessment; Optimizer; Intellectual Stimulation; Change Agent; Monitoring/Evaluating; Flexibility; and Ideals/Beliefs. In reviewing the explanations of these roles, the Marzano et al. study pointed to Ideals/Beliefs, Monitor/Evaluating and Knowledge of Curriculum, Instruction, and Assessment as important to both categories of change. The added the rationale for other second order roles was based on the association with innovation and low value in first order change such as change agent, optimizer, and flexibility (Marzano et al., 2005).

Change agent. Marzano et al. (2003) considers the change agent role to be "the extent to which the principal is willing to and actively challenges status quo" (p. 4). In his analysis of its impact on student learning, this role was found to have a small effect size of 0.25, indicating that 25% of the variance in student learning is shared with this role. Heifetz (2003) spoke more towards the concept of adaptive abilities where the leader's role is that of facilitator to assist employees through the second order change. To minimize staff anxiety, the administrator calibrated and adjusted the rate of speed of the change so as not to cause undue stress. In

addition, an educational leader used his or her comprehension of the stages of change to put names to what people perceived. As staff came to understand the elements of transition, tension eased in the process (Bridges, 2003). On a micro level of change, Fullan (2010) also encouraged leaders to let their employees fall forward through the "implementation dip" (p. 17).

Zimmerman's study (2006) outlines basic understandings of resistance to change; and administrators engaging change should understand origins of resistance. To ease staff through a second order change, a change agent holds the ability to logically forecast the possibilities or benefits of the change (McEwan-Adkins, 2003). Qualities that enhance a change agent are *futurist* or *visionary*. These leaders have a special quality to use data, theory, and the research of others to facilitate transitions (Buckingham & Clifton, 2001). *Strengths based leadership* encouraged futurists to also discuss the roadblocks seen that might hinder forward movement (Conchie & Rath, 2008). Leaders in this role work with each individual or group of individuals to identify and address the barriers to change. Thus these leaders create a balance for staff to accept and work throughout the change (Hyle & McLaughlin, 2001). This develops a collaborative approach, and participants perceive they are a part of the decision-making process of the change (Zimmerman, 2006). The principal who created change can also establish a stability team to distribute leadership and ownership of the change while supporting those who needed it (Cuddapah, Masci, & Pajack, 2008). In such work, staff appeared to cycle through varying amounts of perceived change and stability.

Staff perceptions often inform a change agent of their readiness and acceptance of change initiatives (Zimmerman, 2006). Change agents can articulate stages of change or transition and plan how to assist staff through the transition (Bridges, 2003). Knowledge of Tuckman's idea of

storming, norming, and performing, or something a bit more intensive, such as the Concerns

Based Adoption Model (CBAM) created by Fuller, are also effective tools of change agents to

judge where in the process a person is with change. The use of a professional learning

community by change agents is also appropriate to regulate the cycles of change and create a

sense of stability and sustainability (Zimmerman, 2006). Applying appropriate support to those

in the change process are also characteristics of change agents. These measures of support can

include being a good listener, networking resources, offering varying levels of professional

development, celebrating and rewarding successes, and trusting and valuing staff (Cuddapah et

al., 2008; Zimmerman, 2006).

Flexibility. The Flexibility role according to Marzano et al. (2005) is "the extent to

which the principal adapts his or her leadership behavior to the needs of the current situation and

is comfortable with dissent" (p. 49). The meta-analysis showed this characteristic to have a 22%

effect size on student learning. Both Cotton (2003) and Marzano et al. (2005) agreed educational

leaders must be agile in application of their roles. This is a direct result of the knowledge society

in which we now live. As a result, innovation constantly arises, which causes challenges and

improvements to the system. People ask questions, pull data, and ask more questions to create

yet another innovation. Then the innovation is studied for improvement and the process begins

again. In "Leading Educational Change," Hallinger (2003) reminds readers the importance of

"diffuse styles of leadership" (p. 340), which supports the need of a leader to share roles and

keep up with the pace of change. There is no way to stave off some failures during the process

of continuous improvement, but there is a way to acknowledge the learning and improve.

Rigidity will not save a leader, nor will defensiveness. The educational system must allow for challenges and double loop learning as Argyris (1991) suggested.

In empowering staff, a leader guides the effectiveness of the work and gauges the amount of learning and trust a subordinate requires in sharing in managerial or instructional roles (Hopkins & Higham, 2007). The organic nature of these relationships requires an administrator to apply patience and flexibility while allowing fledgling leaders practice new leadership roles (Huber, 2004). Moreover, while the role of subordinates evolves, so do the roles of the administrator, which is another characteristic of flexibility. In all situations, administrators must keep an open mind to data and varying points of view to allow for the best problem solving or decision-making to occur (Kise & Russell, 2009). In the ability to be flexible, administrators can respond to situations of a social, technical, strategic, or economic nature.

Ideals/beliefs. With a small effect size of .25, Marzano et al. (2003) defined

Ideals/Beliefs as the extent to which the principal communicates and operates from strong ideals and beliefs about schooling" (p. 4). To further elaborate, this role sense of purpose and communicating the purpose with details builds vision and, in this case, this role represents vision (Cotton, 2003; Sergiovanni, 2007). Other facets of this responsibility may include characteristics such as focus on culture for building a sense of purposeful community, attention given to setting and meeting goals, and relationships which network people and each of these characteristics together. If the leader is supportive of the beliefs of the group, members perceive a safe climate. When these components combine, Sergiovanni (2007) calls this transformative leadership. *The Necessary Revolution*, encouraged leaders to move beyond "the bubble" (Kruschwitz, Laur, Schley, Senge, & Smith, 2008, pp. 34-35), or the comfort of current circumstances that has

brought success during the industrial age. Kruschwitz et al. (2008) encouraged leaders to

become an *animateur*, a person who brings to life a way to look from outside the bubble (p. 147).

Ideals and beliefs fuel the leader's unwavering vision and direction for education. This type of

leader excites and inspires others.

While literature reviews support that no universal definition of ethics, practitioners and

researchers continue to study how leaders utilize beliefs and ideals (Begley & Stefkovich, 2007).

When in the decision making process, administrators focus on possible consequences. The

literature reviews agree that educational leaders innately apply ethics when making decisions and

have a tendency to employ a rationale of doing what is best for the student with difficult

decisions (Begley & Stefkovich, 2007; Frick, 2009). In arriving at a student-based decision

administrators often are caught in discourse of competing and viable interests of which have

termed a "clash of codes" (Frick, 2009, p. 68). Research also shows the use of the phrase "in the

best interest of students" has been strategically used to create consensus or manage staff into

compliance (Begley & Stefkovich, 2007). In these cases the ethics alone of supporting the

student rule out discourse or noncompliance.

Intellectual stimulation. Intellectual stimulation, defined by Marzano et al. (2003) as

"the extent to which the principal ensures that faculty and staff are aware of the most current

theories and practices and makes the discussion of these a regular aspect of the school's culture"

(p. 52). This characteristic with an effect size of 24% in the balanced leadership study was a

cornerstone in John Dewey's work in the early 1900s and Argyris (1991) firmly supported it.

Asking probing questions, sharing data and collaborative problem solving are integral elements

of this role. In a continuous improvement model an educational leader presents data that calls

into question past practice that causes double loop learning. Heifetz (2003) explains these acts as "orchestrating conflict" (p. 262). Central office employees should collaborate with schools to review and share district data as well. These activities are not limited to educational personnel only: leadership should include parents, students and community members (Schlechty, 2002).

An administrator uses other tools aside from data in order to challenge and restructure the thinking and operations of people in an organization. Examples include readings and gathering varying points of view. These tools assist larger activities such as action research, professional learning communities, or other means of continuous improvement (Day & Lujan, 2010; Ghere, Montie, Sommers, & York-Barr, 2001). These procedures assist educational leaders with introducing new ideas that assist faculty members to grow in their own practice (Ozaralli, 2002). Through the leader's ability to guide the actions of study and learning of teachers, creative resolutions for problems result (Hertz-Lazarowitz et al., 2010). In this work, teachers report they are more apt to participate and contribute to the organization.

   Knowledge of curriculum, instruction, and assessment. Marzano et al. (2003) expressed the characteristic of Knowledge of Curriculum, Instruction, and Assessment as "the extent to which the principal is knowledgeable about current curriculum, instruction, and assessment practices" (p. 4). Curriculum and instruction is at the heart and soul of a school and school district. Teaching and learning is what schools do best, and all resources are tied to this very function. Collins (2001) described this concept of purpose as "the hedgehog" (p. 18), or finding the single most important purpose of the organization. An administrator's role is to continue to promote, refine and support the staff in regards to the hedgehog. In the case of education, the function of schools is to educate students. Administrators are the leaders of the teaching and

learning in the schools through their interaction with teachers and use of data (Cuban, 1988; Stein & D'Amico, 2002). An administrator needs to have the ability to extract the knowledge and performance requirements of standards in the content areas and support the faculty in use of applicable programs (McTighe & Wiggins, 2007). Through these elements of understanding curriculum and instruction, the impact of this role was shown to have an effect size of .25 on student learning in the Marzano et al. (2003) study.

Also, with this skill comes the ability of an administrator to recognize how deeply or widely the content should be taught at particular levels (Hallinger, 2003). The application of data in these instances requires a principal to be able to close gaps and push for improved results. In reviewing the literature, researchers combine the knowledge of curriculum, instruction, and assessment with the role of involvement in the same. However, studies from both Hallinger (2003) and Stewart (2006) did show that where administrators did not feel comfortable with their own knowledge and ability regarding knowledge and application of content or pedagogical knowledge, these leaders withdrew from working with teachers in the classroom setting. Leithwood (2005) would add that in this administrative role, the leader uses formative and summative assessments to measure the application and student learning of curriculum taught.

Monitor/Evaluating. With an effect size of .27 regarding student learning, the Monitor/Evaluating characteristic describes "the extent to which the principal monitors the effectiveness of school practices and their impact on student learning" (Marzano et al., 2003, p. 4). Aside from observations, walkthroughs, and evaluations, the responsibility of the administrator is to work collaboratively with the staff to assist them in the application of data for planning and decision-making (Schmoker, 2006). This might look like a principal and teacher

tracking reading scores of a class and deciphering which students could benefit from specialized supports. Sergiovanni (2007) reinforced the need for educational leaders to move beyond management of staff and building to a supervisory role. When data shows areas in needs of improvement for the school, the administrator's responsibility is to research the problem and inclusively work with staff and stakeholders and facilitate resolution. This example of work creates professional dialog and lends itself to continuous improvement (Blasé & Blasé, 2004, p. 110). Embedded in this work is reflection upon practice, goals, and data. Each of these elements also contributes to growth plans for each faculty member to set professional work goals and enriches the evaluation experience.

Another aspect of this role includes supervision and adjustment regarding policy implementation and whether or not to delegate or distribute leadership roles. Mentor and master teachers often assist in PDSA cycles and use of data. The work of an administrator consists of two segments: (a) fidelity of implementation and (b) results compared to initial objectives (Hope, 2002). Local, state, or federal requirements specify, at times, process and reporting measures. Educational leaders in this role utilize the appropriate information with staff to give feedback and support growth. With this work the correct application of formative and summative data assists in evaluation of policy and programming in schools (Hope, 2002). In a distributive leadership role, Elmore (2004) found that leaders deciphered and organized which employees had the strengths and talents to applicably contribute. In a literature review regarding professional learning communities, while leadership responsibilities were distributed, involved staff pressed for a hierarchical leadership, evaluation, and affirmation (Goldstein, 2004).

Optimizer. The Optimizer role in the Marzano et al. (2003) study was characterized as "the extent to which the principal inspires and leads new and challenging innovations" (p. 4) with a minimal effect size of 20% on student learning. Administrators have the difficult position of discerning level of change for the work group and each individual employee he or she supervises. Heifetz (2003) wrote of two levels of technical work. The first level looks like a leader or staff member utilizes learned expertise to make adjustments and correct the issue. The term *adaptive change* describes a situation where a problem or change that cannot be solved with specialized training calls for a systems-level change (Heifetz, 2003). A leader who is an Optimizer supports the work of the technical experts and helps others to understand this work. For those employees or systems facing an adaptive change, the educational leader seeks to grow people in their understanding of the situation and how contributions can be made in moving forward. This behavior is valued by staff rather than an authoritative or top down decision making process (Heifetz, 2003). An Optimizer also shares data to paint a picture for staff regarding the predicament and assists in decision-making (Marzano et al., 2005). From this data, staff is able to appreciate complications and focus on activities and functions rather than protect emotional turf. In essence, an Optimizer teaches people how to solve problems rather than seek solutions from authority figures (Heifetz, 2003).

In research from the past 15 years, the use of distributive leadership appears to support the role of an Optimizer (Harris, 2008). This stems from the use of professional learning communities, capacity building, and sharing current knowledge to build new knowledge and work in best practice, according to Harris. The power a principal has to support the innovation process is critical in regards to innovation because it requires a restructuring process or

reculturing (Fullan, 2009; Geijsel, Meijers, & Wardekker, 2007). While most people tend to resist innovation, the educational leader assists with clarifications and reinforcement of vision for guidance. These administrative actions enforce boundaries to assist staff in transition through implementation of innovative practices while monitoring the work (Geijsel et al., 2007; Marks & Printy, 2006). This work is a part of a delicate balance between mentoring and blatant use of power (Marks & Printy, 2006). Administrators adept with this role are able to use personal experience as an example for their staff and also design space and time conducive to allow conversation to inspire and support. In schools reported to be innovative, the staff report that their administrator(s) supported risk taking and agree there is no one right way to accomplish innovative practices.

Roles Negatively Influenced by Second Order Change.

Culture. Culture, one of the four roles that negatively influences second order change, embodied "the extent to which the principal fosters shared beliefs and a sense of community and cooperation" (Marzano et al., 2003, p. 4) and carried a 25% effect size. Through relationships, educational leaders build culture through their attentiveness to the goals and outcomes of a group's mission and vision (Fullan, 2001; Sergiovanni, 2007). From the visioning process comes an outward sign or representation through a mission statement. A theme of leadership is visioning and communicating concepts to those impacted or concerned. Senge (2006) recalled leadership as a "shared vision…a force in people's hearts, a force of impressive power" (p. 192). A force of which Senge speaks aligns people with the goals of the organization. If the vision inspires the group, some of the more difficult challenges of past rituals and norms can be replaced or left behind. *Getting Started* (DuFour et al., 2002) compares a typical, industrial age

school model with schools that live in the spirit of a PLC. The generic example of "We believe all children can learn" (p. 13) comes from the old school of thought, according to DuFour. This is contrasted to a PLC-focused organizational statement that explains the topics of learning, demonstration of learning, and how the environment will react or support the student if learning is sub par.

Cotton (2003) classified culture as the process in which a leader places a high value on interested parties in decision-making and action in fulfilling decisions. In a 2005 literature review, Leithwood observed that administrators who distribute leadership responsibilities see an increase in positive and responsive culture. Bass and Bass (2008) pointed out the charisma or personality of an administrator sets the cultural tone for an organization and represents a "cultural transmitter(s)" (p. 748). Other studies affirm this through measurements of teacher efficacy (Hertz-Lazarowitz et al., 2010; Ross & Gray, 2006). Researchers link the positive culture to the clear communication of mission, as well as vision and goals, which are other roles listed in this review. The importance of administration setting goals and maintaining a positive and productive culture consistently surfaced in a 1996 meta-analysis of leadership studies (Hallinger & Heck, 1996). Relationship building is a cornerstone of culture (Sergiovanni, 2007). Argyris (1991) reiterated that this leadership concept enriches the culture through more than "mere problem solving… [it is a] focus on identifying and correcting errors in external environment" (p. 192). Other studies also overlap the balanced leadership study roles with this responsibility, such as leaders mentoring teachers and developing professional relationships (Devos & Bouckenooghe, 2009). Elements of safe schools and communication are also components critical to good climate (Halawah, 2005).

Communication. Marzano et al. (2003) articulated the characteristic of

Communication, with an effect size of .23 regarding student growth, as "the extent to which the

principal establishes strong lines of communication with teachers and among students" (p. 4).

Shared decision-making and distributive leadership rests with the leader's application of

communication (Cotton, 2003; Grubb& Waters, 2004). Communication requires more than two

people conversing about an educational topic. This particular role includes developing networks,

sharing information, and developing relationships (Kotter, 1996; Sergiovanni, 2007).

Communicating collaboratively builds trust between employee and administrator. This action

also allows for dialog and discourse or double loop learning. Other forms of communication are

just as important as verbal communication. Successful leaders demonstrate positive leadership

characteristics through body language or "character clues" (Wren, 1995, p. 429). Another form

of communication is the ability of a leader to network people and groups together, facilitate

movement of a group when progress on work or discussion stymies, influence decisions, bring

unknown views or data to light, and raise expectations.

How and what educational leaders communicate is at the core of the research. Trust,

transparency, and credibility create contextual conditions for receptivity of the vision, mission,

goals, or conversation about a teacher's work (Bass & Bass, 2008; Geijsel et al., 2007).

Literature reviews continue to demonstrate that principals who share their own doubts in making

change or decisions earn the trust of their staff through being open and honest (Geijsel, et al.,

2007). While either verbally or in written form, the delivery of the communication carries

weight with receptivity of the message (Bass & Bass, 2008). The use of body language, humor,

demonstrating seeking to learn, and setting boundaries are also important elements of

communication leaders must understand and employ in their role. In essence, Communication

is a social, emotional, and process construct that influences staff performance (Geijsel et al.,

2007).

     Input. The expressed the function of Input or "the extent to which the principal involves

teachers in the design and implementation of important decisions and policies" (Marzano et al.,

2003, p. 4) was found to have an effect size of .25. Allowing faculty to share in some of the

leadership roles builds trust and develops future leaders (Moos, Krejsler, & Kofod, 2008). An

important skill in this area for an administrator to master is being able to remove the emotion or

personal turf that might come with input. Practicing the art of interests, options, and mutual gain

(Fisher & Ury, 1991) benefits educational leaders. These behaviors contribute to communication

and supports consensus decision-making. Within the organizational structure, different activities

may be used to gather input from stakeholders. A leader can employ one or more methods such

as survey, focus groups, evaluation, one on one conversation, or meeting groups. These

activities allow leaders to share and learn with stakeholders. In turn, a sense of ownership or

investment occurs in the decision making process (Byrnes et al., 2007; 2008; Fisher & Ury,

1991). These characteristics embody distributive or shared leadership by an administrator,

through including the advisement of faculty and other interested parties. This process influences

how others make decisions, decide to try new methods, share data, and work with colleagues

(Leithwood & Riehl, 2003). As more people participate over time, the experienced history is

shared resulting in a seamless institutional memory (Danielson, 2007a). Teachers or staff

members who possess the knowledge of the building's history create context for each new

administrator and assists the educational leader works towards decisions. The impact of Input

allows for the building of capacity among all levels of leaders and directly impacts student

learning (Hallinger & Heck, 2010).

    Order. Marzano et al. (2003) concluded, "the extent to which the principal establishes a

set of standard operating procedures and routines" (p. 54) best defined the role of Order, which

was found to an impact student learning with an effect size of 25%. Order is the collection of

details, rules, and regulations that sets the values and norms of a group (Lambert, 2003).

Sergiovanni (2001) reinforced this concept as the day-to-day management or supervision of

school operations. This includes working through technical issues of problem solving with a

group or instituting individual leadership solutions (Heifetz, 2003). To support this process, the

leader is required to distribute required resources, clarify board policies and regulations, and

ensure accuracy of records and reporting (Catano, Richard, & Stronge, 2008). Part of a

supportive environment includes respecting social norms, board policy, and administrative

regulations (Lloyd et al., 2008). Administrators in the role of Order recognize, attend to, and

facilitate resolution effectively and promptly, according to Lloyd and colleagues. A correlation

exists between high student achievement and agreement between students, staff, and parents that

the learning environment is safe and accommodating (Hallenger & Heck, 2000).

    Schools where the principal created the climate of a strong learning environment,

innovation, and reasonable risk taking realize higher student performance than those that do not

foster the same climate (Geijsel et al., 2007). Essential elements of these formal or operational

procedures, according to Lambert (2003), involve a cycle of inquiry complementary to

continuous improvement or PDSA. Lambert also adds that these inquiries of study should be

applied to development of goals, communications, and an interest-based agreement. With this

environment, the successful administrator keeps order by carrying on deep conversations regarding practice and continuous improvement. This can include out-counseling for a staff member who cannot conform to the culture, according to Geijsel and colleagues.

Remaining Leadership Responsibilities.

Affirmation. "The extent to which the principal recognizes and celebrates school accomplishments and acknowledges failures" (Marzano et al., 2003, p. 4) represented Affirmation, a small 19% effect size, in the balanced leadership study. "What gets rewarded gets done" (Sergiovanni, 2007, pp. 61-62). This quote represents an extrinsic motivator; each artful administrator knows tangible rewards do motivate staff. In the highest level of leadership, Level 5, of *Good to Great*, administrators gave the positive acknowledgment to other people or to faceless luck rather than to self (Collins, 2001, p. 35). Whether the reward was verbal or some other kind of tangible affirmation, staff used these as cues for recognition of alignment with goals (Blasé & Blasé, 2004). Communication of positive data with staff or individual faculty constituted praise and encouraged higher expectations (Moos et al., 2008). These rewards piqued teacher interests and caused a teachable moment where the educational leader might pass on supporting research or information about innovative pursuits (Schlechty, 2002).

Studies suggest that the successful use of the Affirmation role empowered and increased teacher efficacy, which resulted in increased enthusiasm, risk taking, unity, and interdependence (Louis & Wahlstrom, 2008). Teachers involved in continuous improvement processes reported a sense of intrinsic affirmation through their description of school culture (Hallinger, 2005). Through the use of action research or continuous improvement, staff was aligned to goals and the use of data (Day, Leithwood, & Sammons, 2008). Principals rewarded teachers with leadership

roles in this work to affirm and reinforce strengths (Hallinger, 2005). More importantly, intrinsic motivation increased for staff after the administrator recognized staff for a job done well. The pursuit of excellence perpetuated organizational culture. This parallels the results in the Leithwood and Mascall (2008) mixed study, which reflected this sentiment in high performing schools more so than lower performing schools. Principals were noted as the key influence for this development.

   Contingent Rewards. Contingent Rewards, in the work of Marzano et al. (2003), signified "the extent to which the principal recognizes and rewards individual accomplishments" (p. 4) carrying an effect size of .24 on student performance. A cornucopia of accolades and positive recognition exist to show approval and reinforce good work, including verbal recognition, tokens, or other tangible rewards. An administrator should strategically apply kudos so they do not become empty words or gestures (Blasé & Blasé, 2004). Studies demonstrated that this behavior caused staff to perceive value of their efforts from another's perspective and increased self-confidence and sense of worth. These perceptions ripple through a teacher's interactions with students and have shown to positively impact student performance (Blasé & Blasé, 2004; Catano et al., 2008). The same studies also showed that teachers perceived a lack of visibility of the leader as neglect, yet visibility did not necessarily cause reflection on practice, according to the Blasé and Blasé research.

   Discipline. Marzano et al. (2003) rationalized the role of Discipline as "the extent to which the principal protects teachers from issues and influences that would detract from their teaching time or focus" (p. 4). Although a small effect size of 27%, in general terms, the characteristic of Discipline is a bit higher than most of the roles. Danielson (2007b) captures the

sense of this leadership responsibility through the "highest sense of culture of learning" (p. 52). An administrator with this characteristic removes obstacles for teaching staff and promotes their work (Elmore, 2000; Kilbane, 2009). The principal's role is to promote the focus on learning and deflect the distractions from interrupting academic learning (Hallinger, 2003). Additionally, the administrator serves as a filter for staff so government regulations or local policies do not dominate staff time or academic learning (Leithwood, 2005). As an example, consider a case in which the central office needs particular survey information from students for a state report. Rather than allotting classroom time for teachers to fill out the forms, school office staff and administration complete the forms instead. Elmore (2000) called this role "buffering" (p. 6). The administrator's role in general safety and enforcing rules and regulations pertains, as this reduces disturbances too.

Another form of this role is to develop "logic of confidence" (Elmore, 2004, p. 46) where the general community reports that the quality of academic achievement is acceptable or better. Sergiovanni (2001) stated that, for these vary reasons, principals are caught between the teachers' need for academic time with students and the demands of government and parents. With the increase of accountability from stakeholders, this role has grown for administrators (Hallinger, 2005). In high performing schools, teachers reported administrators protected them from the pressure from government and community members (Heck, Marcoulides, & Lang, 1991). Part of this role coincides with the communication, outreach, and relationship roles.

Focus. The role of Focus, "the extent to which the principal establishes clear goals and keeps those goals in the forefront of the school's attention" (Marzano et al., 2003, p. 4), as portrayed in the study, garnered an effect size of .24 on student academic growth. Application of

goals in the classroom, school building, and district reinforces the mission of education and allows for purposeful measurement of successes (Hallinger & Heck, 1998; Leithwood, 2005; Moos et al., 2008). This work lends itself to informing community and parents regarding educational progress of its youth and can assist in informing and motivating these same groups (Moos et al., 2008). The data from this work, when compared to benchmarks, reinforces mission and points to adjustments or corrections in regards to teaching and learning (Schmoker, 1999). The application of short-term goals and meeting benchmarks rewards staff and students that assist in keeping focus and meeting long-term goals (Kotter, 1996).

An educational leader decides how the data should affect staff by either heightening concern or giving cause for celebration. This parallels Heifetz's metaphor of the pressure cooker or Senge's use of the metaphor of turning up the heat on a frog (Heifez, 2003; Senge, 2006). In the pressure cooker, the chef or educational leader gauges how high the heat is set to increase the pressure, hopefully, without blowing the lid and destroying the vessel. The latter example explained how a frog might start in water of a comfortable temperature and how, gradually, the water heats up without the frog ever noticing. By the time the water boils, the frog missed the change in water temperature and it is too late for the frog to react. With focus, leaders can incrementally transition staff through second order change without causing damage to the staff or system.

Involvement with curriculum, instruction and assessment. The Marzano et al. (2003) study illustrated a difference with curriculum, instruction, and assessment, by separating design and practices from the knowledge role and creating the characteristic of Involvement with Curriculum, Instruction, and Assessment. The responsibility was defined as "the extent to which

the principal is directly involved in the design and implementation of curriculum, instruction, and assessment practices" (Marzano et al. 2003, p. 4) and was found to have an effect size of 20%. While Schmoker's (2006) work supports the involvement of the principal, Stein and D'Amico (2002) added central office staff involvement as well. The level of participation of a school administrator in curriculum and instruction also affects the morale of staff and their respect for the administrator (Blasé & Blasé, 2004). Blasé and Blasé presented additional details for involvement such as coaching discussion with teachers, aligning staff development with best practices of teaching, observations with feedback of both constructive criticism and praise. Leithwood (2005) specifically mentions the responsibility of administration to provide content and pedagogical guidance. The constructive use of data and gearing up expectations of both students and teachers added more dimensions to this role (Blankstein, 2004). Hallinger's (2003) conceptual study created a comprehensive summary of this role into three areas: oversight and evaluation of teachers, curriculum coordination, and analyzing student data.

Outreach. The balanced leadership study depicted Outreach as "the extent to which the principal is an advocate and spokesperson for the school to all stakeholders" (Marzano et al., 2003, p. 4). With the interest of student growth by parents, community, and government, the building administrator not only ensures compliance with statutes but also serves as a liaison between the school and all stakeholders (Hiatt-Michael, 2003). This connection to community requires educational leaders to hold a strong sense of responsibility for the custodial care of youth (Fullan, 2004; Schmoker, 2006). Hiatt-Michael notes that at the school building, the administrator's invitations, interactions, and follow-up with community creates a welcome or unwelcome atmosphere for parents and community involvement. According to studies

researched by Hiatt-Michael, the principal is the primary element that forms and supports

community-school partnerships. An administrator can work with a community by inviting in-

services needed to serve students and their families. Such activities provided on school

campuses include before and after school care, mental health counseling, dental services,

medical assistance, mentoring, tutoring, and substance abuse counseling. Sometimes these

services were offered in a specific area or room of a school and termed a *family center*, as

described by Hiatt-Michael. In these resource centers, students or their families could also

obtain clothing, help with utilities, and English language classes or interpreter.

Another form of Outreach exists between the principal and community. An administrator

serves in the role of outreach when advocating for specific subgroups of students. One such

example comes from Zaretsky's (2004) study regarding the relationship between principals and

special education parents. Survey and group conversations of building administrators and

advocates were collected and analyzed for this research. While there are school personnel to case

manage and meet the needs of a child, it is the principal's responsibility to ensure regulations are

met and the relationship between the school and the parents remains healthy. This process can

include conflict management and shared decision-making (Zaretsky, 2004). On occasion, a

principal serving in this capacity will work with parents and legal advocates to come to

agreements regarding definitions, services, and protocol.

Developing and maintaining business partnerships are another part of Outreach. In some

cases this might be allowing a service, such as providing after-school care or working with local

museums to supplement curriculum (Hiatt-Michael, 2003). Other examples can include business

partnerships where students job-shadow workers or members of the business read to school aged

children during the lunch hour. University partnerships also fall into this category.

Secondary students can attend pre-college learning events to assist in opening up youthful minds

to the possibility of college attendance. In addition, a reciprocal relationship between teachers

and professors could develop to enhance professional and curriculum development and the

teacher preparation program, according to Hiatt-Michael.

Being a connection between the school and central office and parents is also an important

aspect of this role. Principals have the responsibility to follow district policy and report

regarding progress while filtering this information so as not to take student academic time from

teachers (Elmore, 2004). Educational leaders work with parent advisory groups or school site

councils that include parents and community members (Anderson, Leithwood, Seashore-Louis,

& Wahlstrom, 2004). Cotton's analysis (2003) highlighted the role of administrators who

considered local input and included community stakeholders in policy and management

decisions. Other ways to demonstrate Outreach include implementing initiatives with

community input such as curriculum selection input or class-size reduction (Anderson et al.,

2004). All of these activities considered under the role of Outreach, in the Marzano et al. (2003)

study, contributed to an effect size of 27%.

Relationship. The role of Relationship in the balanced leadership study, as defined by

Marzano et al. (2003), was depicted as "the extent to which the principal demonstrates an

awareness of the personal aspects of teachers and staff" (p. 4). Through interactions of working

with teachers and other staff members, educational leaders develop relationships and the function

was found to have an effect size of 18%. For administrators strong in this area, appropriate

descriptive words include "understanding, trust, courageous, and close to the action" (Day, 2007,

p. 20). These connections are created and maintained in a safe atmosphere where a sense of collaboration outweighs competition (Lencioni, 2005). Members of this type of culture tend to make sacrifices for the group. In this, collegial trust and support in one another's learning occurs. These mutually respectful behaviors, including celebrations, promote positive culture and are common in learning organizations (Sergiovanni, 2007).

The focus for an administrator is to develop and support relationships with the staff that support the mission, vision, and goals of the schoolhouse (Geijsel et al., 2007). In working with the teachers to present data, bring up concepts, and share pedagogy, the administrator sets clear direction or parameters to meet desired outcomes. Through a continuous improvement model and shared decision-making model, leadership responsibilities become distributive. Teachers report a higher sense of self-efficacy and empowerment in their work (Leithwood & Mascall, 2008; Louis & Wahlstrom, 2008). Through this venue of dialogue, listening, modeling, and data sharing, the administrator influences the learning and teaching in the classroom and not specifically through observation and evaluation (Hallinger, 2005). As this focused, working culture develops and leadership is shared with teachers, an intrinsically motivated community develops (Louis & Wahlstrom, 2008).

Resources. The Resources characteristic, "the extent to which the principal provides teachers with the material and professional development necessary for the successful execution of their jobs" (Marzano et al., 2003, p. 4), as articulated in the study, was demonstrated to have an effect size of .25 on student learning. In *Leadership without Easy Answers*, Heifetz (2003) accounts the story of the !Kung in southwest Africa where the sense of order is nested within all tribal members. Shared distribution of resources is an understanding of the !Kung culture.

While this might be every leader's dream, there are not many documented cases of this occurrence. When one considers the amount of resources technology adds, including computers, servers, PDAs, projection boards, telecommunications, and more, the administrative role of funding, distributing, and ensuring service and professional development increases the functions within this role exponentially (Catano et al., 2008).

Professional development and time for such are included with this role (Leithwood, 2005). For an administrator to promote high quality professional development, data should assist in deciding the particulars of needed training. Allocation of time for staff and administrative activities is also a challenge for leaders, which creates myriad combinations and complications for a principal (McTighe & Wiggins, 2007). As a result, educational leaders should include staff and other parties with an interest in budgeting, allocation of resources, and creative use and application of those resources (Cotton, 2003; Danielson, 2007b). Sergiovanni (2001) reminded administrators of the importance of their ability to eliminate barriers and afford necessary means so as not to hinder the work of others.

Situational awareness. The Marzano et al. study (2003) deduced the characteristic of situational awareness as "the extent to which the principal is aware of the details and undercurrents in the running of the school and uses this information to address current and potential problems" (p. 4). This category represents the ability of a leader to proactively incorporate listening and feedback skills with staff to address informal situations that might arise to cause disruption and affect the work. This role had an effect size of 24% in regards to student learning. The administrator who practices this role well might use Heifetz's (2003) metaphor of the dance floor and the balcony to explain what this role looks like. All of the activity of the

school and its human elements are engaged in a dance. The leader should have the presence

to observe from the balcony to watch for overall flow and progress. While upon the balcony, the

administrator should also detect any movements that are out of time with the dance. When an

anomaly occurs, it is the leader's responsibility to work with one or more dancers to improve

practice or remove obstacles so the dance may continue. The educational leader's presence

should be shared between the balcony and dance floor, for if the administrator dwells to long in

one place; the dancers suffer from lack of guidance.

While the principal overtly frames the mission and culture of a school, the principal

works to uncover assumptions and mediate distracters from the mission and vision of a school

(Bass & Bass, 2008; Hallinger, 2005). Awareness of history and context of a school contains

many variables such as community identity, organizational leadership structure, student

demographics, geographical location, resources, and funding models. These are all

considerations in the background of decisions for an administrator (Hallinger, 2005). In regards

to change or continuous improvement, an administrator's awareness of undercurrents can make

or break the initiative. These elements assist an administrator in deciding how to introduce the

change, to whom and when (Andrews & Chew, 2010). As the transition through change occurs,

the principal is acutely aware of the balance of pressure on staff members. Before problems can

arise, the adept administrator assists an employee or group of staff through the learning process

to positively define the change and its benefits (Bridges, 2003; Geijsel et al., 2007).

Visibility. The role of Visibility, or "the extent to which the principal has quality contact

and interactions with teachers and students" (Marzano et al., 2003, p. 4) was shown to have an

effect size of .20 on student learning. Physically leaving the desk and the managerial operations

of administrative leadership to work with staff in their context increases the opportunity for

visibility. An educational leader who visits with staff demonstrates a desire to support staff in

the spirit of steward leadership (Senge, 2006). According to Blasé and Blasé (2004), teachers

cared about these types of interactions. Frequent observations of classroom practice and

supporting peer observations have been linked to improved teacher instructional technique, self-

efficacy, and embedded professional development opportunities (Louis & Wahlstrom, 2008).

Words of praise should be specific so as not to be taken superficially. Conversations about best

practice or learning about challenges and successes should be considered meaningful and should

influence the teacher's performance in the classroom (Blasé & Blasé, 2004). Morale increased

or remained positive because of the visibility of the principal in the studies of Louis and

Wahlstrom (2008) and Blasé and Blasé (2004).

Despite the discussion of principals in the classroom to observe or coach teachers, a

mixed methods study by Spillane and Hunt (2010) reflected that 38 principals in a school district

utilized an average of 3% of their time observing teachers teaching or looking at lesson plans.

The principal's visibility for 42% of the time was spent working with teachers and staff who

shared leadership responsibilities or 22% of the time reviewing student work, data, and testing

information. In the Spillane and Hunt (2010) study, just over a third of the total time,

administrators were not leading this work but present at these discussions facilitated by other

teachers or staff.

There are other forms of Visibility than working with teachers. Written or verbal

feedback regarding practice and provoking reflection of a staff member is one such example

(Louis & Wahlstrom, 2008). Some instructional leaders commit to responding to emails within a

day's time, and others hold community sharing or feedback meetings each month (Anderson et al., 2004). Part of the importance of these meetings are to net the comments and concerns of different groups of constituents. Attending events in and outside of the building increases visibility too. Other leadership characteristics enrich this role such as Relationships and Outreach.

Summary

For thousands of years man has attempted to distill the characteristics of a good leader and how those attributes impact the forward progress of an organization. The ancient Greeks attempted to define roles and outcomes of leadership, French philosophes discussed the difference between leaders and citizens and Western researchers studied attributes related to physical characteristics, childhood experiences and levels of education (Bass & Bass, 2008; Hicks, Price & Wren, 2004). By the mid to late 1900s researchers separated managerial and leadership components and the study of organizational leadership emerged (Leithwood, 2005). Hawthone's Theory X, a framework where extrinsic rewards and supervisory oversight predominate, and McGreggor's Theory Y, defined by the intrinsic reward of an employee who perceives their goals are aligned with the organization, created a context for leadership styles and organizational management (Bolman & Deal, 2003; Likert, 1967; Schein, 2004). Over time, the study of leadership and organizations became more scientific and focused on results and customer satisfaction (Arif, et al., 2005; Blanchard, 2007; Chobanyan & Emblemsvag, 2005).

Quality management models include cycles of PDSA where new knowledge is produced from previous knowledge and management must align and support this work through organizational vision and goals (Blanchard, 2007; Chobanyan & Emblemsvag, 2005; Drucker,

1995). Educational leaders clearly play a powerful role in supporting and framing the alignment of vision, mission, and action to meet goals. The Baldrige criteria offers educators a functional framework to fully serve and champion the needs of staff that pursue excellence through continuous improvement. Collaborative reviews of data facilitated by educational leaders allow for discourse and dialog among the learning community. Through these conversations, people share and challenge ideas that contribute to understanding whether or not the product or service is truly meeting consumer needs and demands. These conversations bring about change on the level of employee and organizational practice and performance and cause second order change.

Continuous improvement in the Baldrige model supports double loop learning and the organization as a whole improves (Sagor, 2000). Work progresses and second order change becomes more of a norm than an event. Administrators persistently present data and allow staff to utilize and improve their strengths and talents. In this context, employees perceive value and fulfillment in the services they offer (Monk, 1993). The real value in administrators instituting action research with staff is so that at the classroom level, the research may empower students with their own PDSA learning (Shipley, 2010).

In regards to educational leadership, Marzano et al. (2003, 2005) created a meta-analysis including all viable educational leadership studies to statistically find generalities regarding the impact of leadership on student performance. This study tabulated the effect size of 21 characteristics of leadership rather than generalized leadership styles. The results of the Marzano et al. effort were a categorization of all 21 roles as pertaining to first order change, while only seven appeared to facilitate second order change. In this line of thought, if educational leaders

understand what administrative roles are key in a QM system, then the system can support

and develop those roles. If the roles function well, the system functions well and, most

importantly, students benefit.

Chapter 3: Methods

Research, Design and Rationale

This multiple case study, through a mixed-methods explanatory design, was to determine to what extent, if any, did principals and teachers have a common perception of the 21 Leadership Responsibilities expressed through the work of principals in Baldrige school districts recognized at the national award level. The researcher investigated (a) to what extent, if at all, did principals of Baldrige schools self-report the manifestation of each of the 21 Balanced Leadership responsibilities in their work; (b) to what extent, if at all, did principals and their staffs agree about the principals' expression of the 21 Balanced Leadership responsibilities in Baldrige schools; and (c) based on the responses of principals and staff at Baldrige schools, how the 21 Balanced Leadership responsibilities were implemented in the daily work of a principal. The design, based in research, encompassed a description of two phases through the elements of method, data collection tool, sample size and selection, data collection window and analysis (Figure 4).

The sequence of data collection began with a dominant phase of quantitative data collection followed by a qualitative phase (Creswell, 2009). The quantitative segment purposively sampled groups of employees, principals and their building staff, concurrently through electronic survey (Huberman & Miles, 2002). The qualitative portion began approximately one-third to half way through quantitative sampling. A key requirement of the stratified sample selection for the quantitative part of the study was that a principal participated in the 21 Leadership Responsibilities survey. The researcher selected the qualitative phase as dominate due to the importance of capturing the reflections of administrators regarding

Details	Phase I	Phase II
Method	Quantitative	Qualitative
Name	21 Responsibilities Survey	Open-ended Interview
Data Collection Tool	Electronic by Survey Monkey	Person-to-person
Sample	Purposive	Stratified
Participants	Principals and Staff	Selected Principals
Minimum Number of Participants (=N)	74 Principals, 750 Staff	At least 10
Window for Data Collection	Four Weeks	Began as soon as there were principals that meet criteria. Closed three weeks after Phase I ends.
Analysis	Descriptive Analysis	Content Analysis

Figure 4. Research Design.

their application of the 21 Leadership Responsibilities and whether or not staff perceptions confirm those reflections. Without this information, the interview portion would not have sufficient measures from which to draw generalizations (Leedy & Ormrod, 2005). To summarize, the quantitative data defined the "what" of building administration's work in a Baldrige system and the qualitative portion illuminated the "how" or the application of the 21 Leadership Responsibilities (Maxwell, 2002).

Further rationale for this design mirrored research strategies and concept development. This study included four of five underlying principles of Caracelli et al.'s categorization of research in mixed methods studies: triangulation, complementary, development and expansion (as cited in Johnson & Onwuegbuzie, 2004). However, three sources of data, a survey with staff and principals, and an open-ended interview of principals, this study produced a triangulation of data in regards to the perceptions of how principals exhibited any of the 21 Leadership Responsibilities. The study included the complementary component through the qualitative portion, as it yielded information to augment quantitative results. Findings from the quantitative components informed the qualitative segment by influencing what interview questions may or may not be used and corresponded with elements of survey development (Caracelli, Graham, & Greene, 1989). The interview process allowed further the enrichment and expansion of inquiry and scope of research regarding the illumination of "how" a leader demonstrated the 21 Leadership Responsibilities. The transcripts of the interviews were coded based on evidence of the interviewee discussing application of tools or actions that reflected Baldrige concepts (Creswell, 2009; Leedy & Ormrod, 2005). While this applied research occurred within a specific

time and space, the knowledge developed will contribute to leadership theory and understanding of Baldrige in the context of educational leadership.

The use of multiple district sites allowed the findings to be generalizable to other similar situations (Creswell, 2009; Leedy & Ormrod, 2005). As a result of the study, others have the ability to generalize for other populations, develop concepts and test new hypothesis regarding leadership in a Baldrige system (Patton, 2002). Learnings garnered from this work may assist in explaining constructs of leadership, setting leadership goals, analyze leadership trends over time and develop more questions in regards to educational leadership growth in systems management (Issac & Michael, 1997). In turn, school districts and consultants will be able to be more informed regarding development and assessment of recruitment, retention and professional development.

Participants, Sample and Sampling Methods

Phase I: Survey. This mixed-method case study allowed for the development of information about a little known subject, principal leadership, and how it functions in Baldrige framework (Patton, 2002). The pool of participants for the survey consisted of principals and teaching staff. Both groups reported their observations of the activities and process employed by the building level principal through the principal's own daily work. Sample groups in this research were somewhat predetermined as there were only six public school districts with the distinction of earning the National Baldrige Award. Of these public schools nationally recognized by the Baldrige program, only three investigated meet criteria to participate in the study (see Appendix F). The criteria included continuation of Baldrige practices, residing in the 48 contiguous United States and willingness to participate in this study.

Through several characteristics, the three school districts in the study created a

representative sample size (Issac & Mitchel, 1997; Kothari, 2004; Maxwell, 2002; Patton, 2002).

Participating school districts represented the western, eastern and southern regions of the United

States including urban, suburban and rural attributes. Other variable attributes in the sample

included Title I, newly opened, elementary, middle and high schools are included in the sample.

The participating districts vary in size concerning student population (Table 1). The smallest

district in this study and smallest public school system recognized by the national Baldrige

Table 1

School District Populations

Organization, 2011-2012	Student Population	Number of Principals	Number of Teachers
ISS, NC	21,121	35	1,661
JPS, OK	9,400	8	665
MCPS, MD	141,777	200	11,673
Total	**172,298**	**243**	**13,999**

program was JPS who serviced 9,400 students in the 2011-2012 school year. The largest district

represented, MCPS with 141,777 students, was the most recent public school system nationally

recognized by the Baldrige award program. Montgomery County Public Schools (MCPS) set a

limitation on the number schools and staff for solicitation due to the size of the district and

impact on staff time and resources. The MCPS administration guaranteed their staff would

deliver a higher participation rate than other districts in the study. Due to MCPS being approximately six and a half times larger than the second largest district in the study, Iredell-Statesville Schools, the researcher consented to delimiting the number of MCPS schools in the study from 200 to 31 and only 50% of teachers of the 31 schools were permitted to be solicited (Appendix G).

Due to the few number of nationally recognized Baldrige public school districts, the viable population of teachers and principals represented stratified sampling and parameters set by MCPS added a layer of systemic sampling. Of the 200 MCPS schools, a proportion of elementary, middle and high schools were randomly selected with an Excel spreadsheet (Chambers & Clark, 2012; Leedy & Ormrod, 2005). From the 31 randomly selected schools, the researcher copied each teacher's email from each school's website into an Excel spreadsheet and then eliminated every other one or systematic sampling (Leedy & Ormrod, 2005). The total number of teacher email addresses sent by ISS and JPS school administration and the systematic sampling of email address from MCPS determined the total population of teachers, 2773, to solicit. This researcher noted that Iredell-Statesville Schools sent 336 less emails than originally anticipated. This might have been due to teachers in the district who did not wish to participate in the study, who recently left the district or for another reason unknown, or some kind of corruption in the email or file.

Phase II: Interviews. In the first stage, which focused on purposeful sampling, 74 building level principals were targeted for response in regards to their reflections about personal practice of the 21 Leadership Responsibilities as defined by Marzano et al (2005). The principals who completed the survey created a sub-group from which the researcher could select

interview subjects for phase two. This action further defined a finite, knowledgeable group

to interview: A judgment sample (Creswell, 2009; Gardner et al., 2012). The application of

judgment sampling allowed for a narrowing of research subjects rich in information relative to

the study (Gardner, et al., 2012). The researcher reviewed possible interview subjects, principals

who completed the survey, through several criteria. Variable attributes included both genders,

three ethnic groups, assorted education levels and varied length of time as principal. Interview

subjects also had at least five teachers from their school staff who completed the survey. This

reflected the requirement for data collection of McREL's Balanced Leadership Profile ® 360

educational leadership reflection tool that added increased the reliability of the data with both the

principal and staff reporting (McREL, 2005).

As a list of interviewees developed, the researcher contacted each potential interviewee

through email and phone. Through this contact, the interviewer worked to set a time for the

interview to take place. According to Leedy and Ormrod (2012), all participants should be

solicited when the sample is under 100. Twenty principals met the criteria to be contacted for an

interview, ten consented and nine completed the interview process.

Human Subjects

Prior to collecting data, an application for permission to conduct human subjects research

was submitted, reviewed, and accepted by Pepperdine's Institutional Review Board (IRB) (see

Appendix H). The application for IRB included a request waiver of signed consent for use with

the online survey and interview. Pepperdine IRB approval for this study was included in the

formal request to each school district before commencing any data collection. After a

participating district granted permission and consented for study, the district designated a single

point of contact (SPoC), or superintendent designee, all of which will be noted in appendices

G, I and J. The researcher emailed an introduction with a time line of the study, noted in

Appendix K, to the SPoC. The researcher followed the email with a phone call to check for

understanding or need for clarification with the SPoC. Each SPoC assisted the researcher in

regards to logistics, including the name, position and email addresses of staff, and general

communication within the SPoC's district. The SPoC assisted in introducing the researcher to

staff, conveyed the support of district leadership regarding the research and encouraged staff to

participate in the online survey. Next, the researcher sent staff an introduction email reiterating

the purpose and benefits of the study with an embedded link to enter the survey (Appendix L).

As shown in Appendix M and N, informed consent was provided to possible participants two

different ways, electronic and paper, respectively. This passive consent included an option for

participants to click "I Agree" to the items listed on the electronic consent form. A second option

listed presented the same document with an area for signature of consent for a participant who

wished to print, sign and return the page to the address of the researcher or keep a copy for

records.

Within the text of informed consent, participants were advised that minimal risk was

involved in this study. The adult respondents were not part of any vulnerable population.

Confidentially of subjects was be maintained by aggregating data to the point of not being able to

identify any one participant's responses when reporting the survey. No names of the participants

were or will be given nor be a part of any employee's annual review or evaluation. To further

support minimal risk, the researcher accompanied every electronic or written communication

with an option to end the survey participation at any time without consequence. The researcher

coded all information that could identify a person to assure minimal risk. The information

from survey reports was recorded in an Excel spreadsheet and use din a statistical analysis tool

where data was aggregated. Each data file was kept on an external hard drive owned by the

researcher and protected by a pass code known only by the researcher. The individual and

school data was not and will not be used for any employment evaluation for any principal. The

only reports sent to a district will be in the form of the final dissertation.

All data was carefully stored and maintained to protect the anonymity of participants.

Information from the 21 Leadership Responsibilities survey funneled directly to a private Survey

Monkey account. The only person with access to this passworded account was the researcher.

All downloaded reports were stored in one folder, titled "Tracking Data," on an external hard

drive owned by the researcher. The external hard drive, stored in a locked file cabinet in the

researcher's home office, was also password protected. Only the researcher knew the login and

password for the files and external hard drive. All data collected for this research in the form of

soft copies of the survey results, Excel worksheets, Number Cruncher Statistical System (NCSS)

spreadsheets, and transcripts of interviews were destroyed within 12 months of the final defense

of the paper.

Ten principals agreed to participate in the open-ended interview in the second phase and

categorized by variable characteristics for this segment of the study. Prospective interviewees

were contacted by phone and received an email requesting and describing the interview

(Appendix O). Every effort was made to create a transparent process so that the interviewee

understood protocol events (Maxwell, 2002). The email contained a copy of the informed

consent as an attachment (Appendix P and Q) and a link to affirm consent. The researcher with

the interview subject made a 30-40 minute interview appointment with the principal. At the

appointed interview time, the researcher initiated the interview protocol, Appendix R, which

included obtaining consent from the interviewee. Verbal, informed consent included permission

to record the interview and use of a voice to text computer application. The researcher reviewed

the typed transcripts to detect any failure of the voice to text application. The conversation was

transferred electronically to the researcher's external hard drive and protected by a password

known only to the researcher. If the identity of a school or subject was mentioned, both entities

were kept confidential in manuscript form unless consent was granted. Specific examples or

quotes were shared in the research but did not identify any single participant without consent.

Only with consent of the interviewee could the name of a school be identified in the formal

study. Any subsequent correspondence would have also been recorded and stored in the same

format and location. Information shared by principals through the interview was coded and

analyzed, see Figure 5 (Creswell, 2009; Leedy & Ormrod, 2005).

Figure 5. Qualitative Analysis.

Instrumentation

Two instruments were utilized during this study, one electronic, quantitative survey and one open-ended, qualitative interview. The first tool, a self-reporting survey entitled "Questionnaire Used for the Factor Analysis" or QUFA from Marzano et al., was selected to facilitate a clear and concise manor in which to gather information from a large amount of people (Issac & Michael, 1997). The QUFA served as an instrument to collect data on the 21 Leadership Responsibilities regarding interrelatedness and identification of first and second order change regarding an initiative implemented at the time of the participant's participation (Marzano et al, 2005). In regards to the statements measured on the QUFA, at least three statements on the survey tool, see left column of Appendix S, corresponded with one of the 21 Leadership Responsibilities to improve reliability of results (Leedy & Ormrod, 2005; Patton, 2002). In September 2003, McREL opened the survey window of approximately six months where principals in the US were informally invited to participate. Marzano et al. (2005) reported that 652 responses were tabulated in a factor analysis. Additionally, each of the 21 Leadership Responsibilities were categorized as either first or second order roles, each with a rank order. Included in the factor analysis, Marzano et al. noted that through the use of Cronbach's Coefficient Alpha, the QUFA's reliability was .92 (2005). While not a statistical test, Cronbach's Coefficient established internal consistency for the use of a Likert scale (Gliner, Leech, & Morgan, 2009). A rating of .92 alpha exceeded the general cut of .70. See Marzano et al. (2005), pages 161-170, for a more detailed narrative of the factor analysis. At the time of this study the QUFA, form slightly modified, served as McREL's Balanced Leadership Profile ® 360 educational leadership reflection tool. Leadership at McREL consented to allow this researcher

the unaltered use of the 92 QUFA statements for the purposes of this study (Appendix T). As applied in this research, the QUFA was referred to as the "21 Responsibilities Survey" or 21RS.

The survey contained the elements of informed consent, pertinent demographic collection, an opportunity to learn when and where the study was published, and included a "thank you for participating" page (Appendix U). As stated in the informed consent portion prior to the start of the survey, a person could have quit the survey at any time. If a person declined to participate after reading the informed consent, a "thank you" page appeared and the survey experience was completed. The 21RS form first asked a participant for variable attributes, such as highest level of education, a range of years in current position, number of years at current position in current school location, name of district and school.

Next, the survey invited the participant to reflect about the work of the staff at their school regarding Baldrige and "to what degree do the following statements describe the principal, fellow teachers or the school." The 92 statements from the QUFA were divided into roughly nine groups of statements or roughly ten to eleven statements in a group. Three groups of statements were included per web page so as not to overwhelm or create an impression that the survey was lengthy and time consuming (Ritter & Sue, 2007). A progress bar, also located at the top of each page of the tool, reports visual progress through the survey to assist in engaging the participant. Below the progress bar of the first page of the survey questions, the participants were reminded that, "The next several questions are going to ask you to rate how often a set of behaviors occur. When answering each question, please consider what you personally experienced and observed, as well as things you know to be true based on your experiences working in the school." The second and third pages of the survey presented a participant's

progress in the survey and a similar gentle reminder regarding the scope of responding to the

questions. This other organizational aspect of the survey reflected the practice of allowing staff

to perceive that they were not passing an evaluative judgment regarding the performance of the

building principal (T. Braeger, personal conversation, June 22, 2011).

The electronic survey tool recorded the responses of participants and housed data until it

was downloaded and deleted by the researcher. As a participant worked through the survey,

each response was seen as a check mark in the center of a radio button, or a circular area, when

clicked (Ritter & Sue, 2007). Each statement in the 21RS was organized to collect a response

based on a Likert or rating scale with five positions rated with a score of zero to four (Figure 6)

(Kothari, 2004). Research did not point to the benefits of having a particular number of points

on the scale (Issac & Michael, 1997; Kothari, 2004). The relationships reflected in the scale

were classified as an ordinal scale as there was no measurable distance. The scale could also be

said to be a rating scale due to the nature of rating the frequency of a perception (Kothari, 2004).

(Weight) for Descriptor	(1) Never	(2) Infrequently	(3) Frequently	(4) Almost Always	(5) Not Sure
I stay informed about the current research and theory regarding effective schooling.	○	○	○	○	○

Figure 6. Demonstration of Likert Scale and Score Weight in 21RS.

The "Not Sure" option allowed a participant to respond without frustration when the person

either did not understand the meaning of the statement or was simply at a loss in assigning a

different descriptor (Weisberg, 2005). It should be noted that the score for each response was not

displayed on the actual survey tool.

Threats to internal validity might have encompassed both group and social interaction threats. The combined length of both the introduction to the survey and the consent to participate might have discouraged potential respondents. In addition, the length of the quantitative tool, over 90 statements in which to respond, could have dissuaded participation. A number of staff members may not have been comfortable with responding to a survey from an unfamiliar source or in electronic format (Ritter & Sue, 2007). The researcher took the time to work through the single point of contact to encourage the principal to urge staff to participate. The researcher also offered two districts the opportunity for each participant completing the survey an opportunity to win an iTunes or Amazon.com gift card at the close of the survey (Iarossi, 2006; Weisberg, 2005). One district opted out of this offer. Nonresponsive participants might have caused the greatest challenge to internal validity, but it was necessary to allow potential participants to decline participation (Ritter & Sue, 2007; Weisberg, 2005).

The interview questions for the qualitative phase of this study were selected, reviewed and revised to create a pool of questions suitable at collecting the description of events, behaviors, experiences and reflections regarding leadership and systems management (Maxwell, 2002). The interview, designed for use with at least ten principals, consisted of ten open-ended questions out of a pool of 41 questions (Appendix V), which were adapted from reflection questions from the American Society for Quality's publication "ASQ Education School Self-Assessment Guide to Performance Excellence" (LaBonte, 2010). The reflection tool mirrored the seven components of the Baldrige Education Criteria, Leadership, Strategic Planning, Customer Focus, Workforce Focus, Operations Focus and Results (Baldrige Performance Excellence Program, 2011). While there was no searchable research or white paper regarding

the validity of this tool, there were many other types of reflective tools in existence offered

by consultants and other systems management literature. The American Society for Quality

traced its origins to its founding charter in 1946, which created an alliance of quality

management leagues (Baldrige Performance Excellence Program, 2011). This unification under

one organizational name contributed to a body of study, published research and professional

development regarding quality management. By 1991, ASQ became the only custodian of the

Baldrige Award. Other contributions to the development of the Baldrige program included ASQ

state chapters, which trained judges or evaluators and sponsor state Baldrige award programs.

Thirteen educators, ranging from classroom teachers, content specialists and two

principals participated in the review of the wording, readability and meaning of the 41 questions

over a period of a month. The researcher facilitated and recorded feedback from three reviews

and conversations through two face-to-face and one online meeting (Leedy & Ormrod, 2005).

Feedback consisted of positives and improvements regarding the flow, clarity and understanding

of the questions. The information collected from the review sessions influenced a revision of the

interview questions. The researcher sent a draft of the edited interview questions to LaBonte,

ASQ author and trainer, for comment and endorsement for use within this study. Authorization

from the American Society for Quality (ASQ) for use of the reflection questions in the form of

interview questions, found in Appendix W.

Threats to the internal validity of the interview could have included the lack of

uninterrupted time, ability to articulate remembered experiences, technological challenges and

other typical disadvantages of an interview. Building administrators face numerous challenges

in budgeting time to manage the day-to-day function of a school: assist staff in professional

development, process discipline, meet community needs, build relationships, plan for

facilitating progress on strategic plans and cycles of improvement and more. Setting an

appointment time when the principal believed the least amount of interruption would occur

assisted in the least amount of cancelled or interrupted interviews. To ensure a smooth and a

succinct interview, educators, including principals, reviewed questions in three different

meetings. Interviewer protocol allowed for slight clarification for the interviewee, if requested.

The protocol also included allowable follow up query by the interviewer such as "Can you

elaborate?" or "Can you speak more about…?" (Corbin & Strauss, 1998; Iarossi, 2006). The

application of open-ended questions, although time consuming, created a venue for elaboration

(Issac & Michael, 1997). Unexpected information could have surfaced through the open-ended

questioning and can enrich the body of information collected in the survey (Issac & Michael,

1997; Weisberg, 2005).

With these carefully refined, planned and practiced set of questions, the interviewer was

able to minimize any bias that could have been presented by the interviewer and allowed for the

interviewee to articulate experiences and attitudes related to the study (Issac & Michael, 1997;

Kothari, 2004). To clearly capture each interviewee's words and verbal expression, the

researcher rehearsed with two principals and checked the recording efficiency of the computer

program and tape recorder over the speakerphone that was used during the study. The tape

recorder served as a backup in case the computer or computer program fails. The researcher,

aware of the research regarding interviews, presented the clarity of the purpose of the research

and maintained professionalism during the interview so as not to create an artificial setting where

the interviewee might have perceived to be special or put on the spot and therefore slant

responses (Isaac & Michael, 1997). To further minimize bias from the researcher, qualitative

content analysis served as the framework to process interview data so that themes and concepts

could emerge in the process as a whole (Creswell, 2009; Leedy & Ormrod, 2005; Patton, 2002).

Data Collection and Procedures

The time line for data collection (Figure 7) included obtaining a district's consent to

study, identification of a single point of contact for each participating district, establishment lines

Figure 7. Data Collection and Procedures.

of communication within a district, and the opening and closing of the data collection window.

After a district approval for participation in the study, the researcher commenced working with

the district's single point of contact, SPoC. The SPoC sent a list of the names of schools and

principals in the district and staff information such as email and position to the researcher. In

addition, the single point of contact from each district or the researcher forwarded to participants

an email from the researcher with the single point of contact's introduction of the researcher with

encouragement and endorsement of the study (Appendix K). Based on the email addresses, the researcher will sent invitations to staff to participate in the survey, 21SR, with a link to the survey. The window for participation in the 21SR was May through September 2012 with districts staggered in participation. Reminder invitations were sent every three to four days to encourage participation when a district window was open (Iarossi, 2006; Weisberg, 2005). To avoid the appearance of spam with the amount of mass emailing, the single point of contact for each district assisted in assuring staff this work was a legitimate study and cleared the researcher's email address with IT services. To add to the authenticity of the email communications, the researcher's contact number and email was included in each communication so it was available to participants if there were any questions. An opt-out link, as with all communication to participants, was included.

Based on the email addresses of staff provided by the SPoC to the researcher, the researcher contacted each school-based staff member with an introductory email (Appendix K) and invitation to participate in the survey titled "21 Responsibilities." If a staff member choose to participate, he clicked on a link embedded in the email. The link opened a web page that welcomed the participant and displayed The "Letter of Consent" (Appendix L and M). After reading the "Letter of Consent" and clicking on "I Agree" at the bottom of the page, a participant was presented the web-based 21 Leadership Responsibilities survey (Appendix U). The time to complete the survey was approximately 15 minutes. Data collected from this tool was housed in a private Survey Monkey account for download by the researcher. The survey, for the purposes of this study, opened for a period of three to six weeks. The researcher programmed Survey Monkey to send an electronic reminder requesting participation every three to four days in the

first three weeks and every five to seven days in the latter weeks to encourage and increase survey completion (Iarossi, 2006).

From the participating administrators who completed 21RS, at least nine administrators were selected and successfully interviewed. The open-ended interview commenced a week after the survey opened within that administrator's district and closed two weeks after the survey closed. Principals selected to interview reflected a stratified sample of the variable attributes education, ethnic groups, and leadership experience as a principal, listed in 21RS. The researcher contacted a prospective principal by phone to set an appointment to interview for 30 to 45 minutes. An email (Appendix O) followed the phone conversation to the principal restating the purpose and goals of the research and interview and included a copy of informed consent (Appendix P and Q). When the appointment for interview began, the researcher used the Interview Protocol (Appendix R) (Creswell, 2009; Issac & Michael, 1997; Leedy & Ormrod, 2005). A computer to text program recorded the interview and a tape recorder was used for back up recording.

There were extrinsic and intrinsic motivators for staff to participate in the survey and for principals to consent to interview. External motivations came in the form of opportunities for a district to share the progress and benefits of Baldrige with others and, in two districts, for the individual to win an iTunes or Amazon.com gift card. While no information from a single individual was divulged or related back to any individual without express written consent, survey data and coded interview data assisted in developing a leadership narrative of how an administrator applied the leadership responsibilities, if any, in their roles as principal. In turn, the study complemented the urging from Baldrige Performance Excellence Program of awarded

organizations to promote and share information so that others may increase their awareness

and knowledge about Baldrige Criteria for Excellence (Baldrige Performance Excellence

Program, 2011c). For the individual participant of the 21 Responsibilities Survey, an

opportunity at the completion of the survey was given to win an Amazon or iTunes gift card. The

researcher did not determine the sweepstakes or card giveaway winner, however a partner

organization of Survey Monkey, ePrize, was contracted to facilitate the giveaway (Weisberg,

2005).

Analytic Techniques

Quantitative data was collected electronically through Survey Monkey, downloaded into

an Excel workbook and then imported into statistical software for analysis (Figure 8).
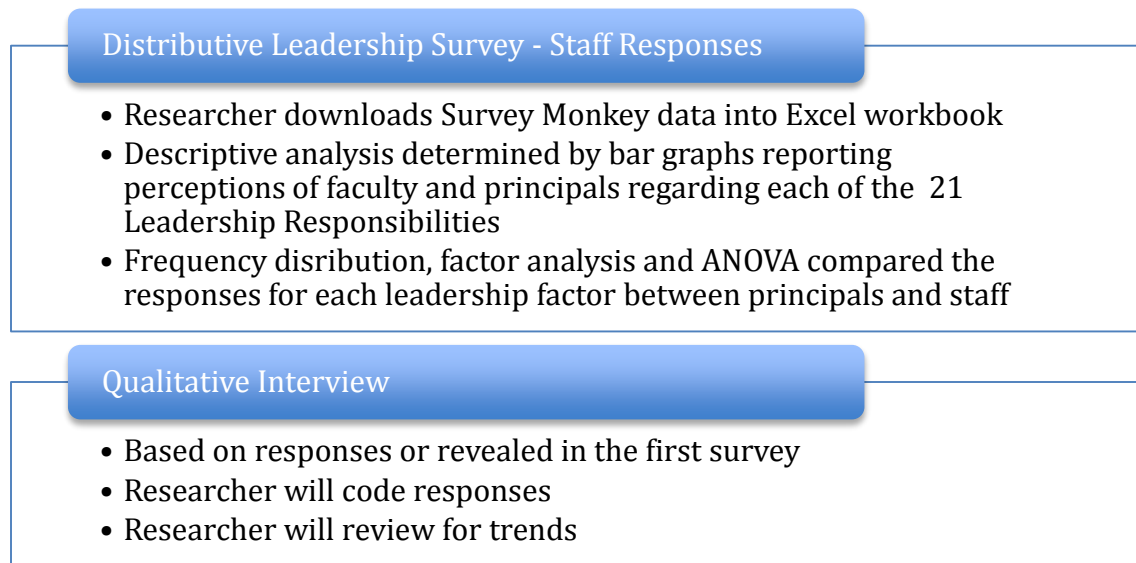
Figure 8. Analytic Techniques.

Descriptive statistics displayed the perceptions of each group, principals and staff, for each of the

21 Leadership Responsibilities. Through application of performance of an analysis of variance

(ANOVA), the mean score from each survey question was presented based on the Likert

scale ratings (0-4) on the survey. This work was made transparent by determining communality

and factor analysis. From the qualitative data, charts was created and displayed the results. The

same data will also be run through Number Cruncher Statistical System (NCSS) to create a box

plots to display the results of responses regarding the 21 Leadership Responsibilities comparing

principal and staff responses. The data, loaded in NCSS first and later an Excel worksheet, was

ran to create Chi-square charts for comparing the results between principals and their staff

regarding each of the 21 Leadership Responsibilities and means of these responses. From these

tables, the researcher sought discernable patterns, if any.

The analysis determined there are roles that may be grouped together and the researcher

collapsed attributes into numeric variables and scaled results through a factor analysis. Part of

this analysis included investigating how principal participants responded the same or differently

in regards to the 21 Leadership Responsibilities when compared to staff responses.

Demographics such as ethnicity or gender are not proven to impact leadership ability or style, but

rather it is institutional or organizational bias that prohibits members in either group from

becoming capable leaders (Addi-Raccah, 2005; Sperandio, 2009). Based on this information,

data was not disaggregated based on demographics. The researcher collapsed the study's

attribute variables or to create a numeric variable and scale. This data was run through NCSS to

compare the collapsed data to discern if there is a statistically different response between sub-

groups. Finally a factor analysis indicated the need, the researcher considered use Chi-square to

check for a statistically different response between the principals and staff members in regards to

the principals' employment of leadership characteristics.

Data collected from the open-ended interviews were typed into a word processing program, aggregated, coded and disaggregated through qualitative content analysis to discern patterns, if any (Figure 9). The researcher reviewed the transcripts and checked for accuracy on a first read. During the second read, the researcher utilized the concept of constant comparison and analysis while coding relative text through the process (Creswell, 2009). Subsequent readings at this stage were performed to formulate the noted strands of information into categories and then condensed categories of Baldrige criteria (Creswell, 2009; Patton, 2002). Concepts and theories from the literature review were compared to the categories that emerged from this portion of the study in a Venn diagram.
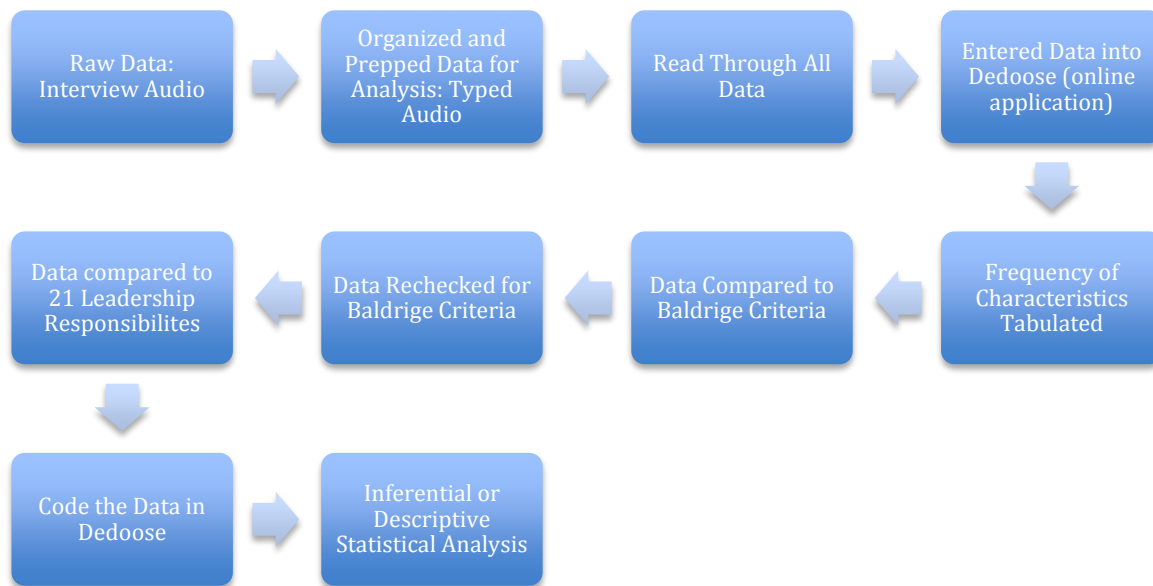
Figure 9. Qualitative Analysis.

Summary

Through a mixed-methods research, this researcher presented a design based on two phases of data collection, the first being quantitative and the second qualitative. The first stage began with building staff reporting their perceptions regarding the 21 Leadership Responsibilities through and electronic survey. Through descriptive statistics, the researcher separated the input from principals and compared it to the building level staff responses. Tables and charts visually demonstrated data for each district and the whole group. The qualitative or latter stage's commencement was staggered from the former stage. This portion of the study focused on collecting data through an interview of principals based on questions developed for leadership reflection from the American Society for Quality. Through qualitative content analysis, the researcher collected and coded information that assisted in developing concepts and a narrative to describe how principals expressed Marzano, et al.'s (2005) 21 Leadership Responsibilities, if any. For both the qualitative and quantitative stages, time lines, protocol and instruments are described with examples.

Chapter 4: Research Findings

Overview of Study Purpose

Chapter 3 presented sampling methods for the limited amount of targeted participants, described the care for human subjects, identified instrumentation, and defined data collection procedures and analytic techniques. The purpose of the study was to determine to what extent, if any, do principals and teachers have a common perception of the 21 Leadership Responsibilities expressed through the work of principals in Baldrige school districts that have been recognized at the national award level. The researcher investigated (a) to what extent, if at all, did principals of Baldrige schools self-report the manifestation of each of the 21 Leadership Responsibilities in their work; (b) to what extent, if at all, did principals and their staffs agree about the principals' expression of the 21 Leadership Responsibilities in Baldrige schools; and (c) how are the 21 Leadership Responsibilities implemented in the daily work of a principal. The study included research conducted with participants from three school districts in Oklahoma, Maryland and North Carolina. This chapter presents the findings of quantitative and qualitative data of the study.

The first two research questions provided guidance for collection and presentation of the quantitative findings of the study:

1. To what extent, if at all, did principals of Baldrige schools self-report the manifestation of each of the 21 Balanced Leadership Responsibilities in their work?

2. To what extent, if at all, did principals and their staffs agree about the principals' expression of the 21 Balanced Leadership Responsibilities in Baldrige schools?

The last research question provided direction for collection and presentation of the

qualitative findings of the study:

3. Based on the responses of principals and staff at Baldrige schools, how were the 21

    Balanced Leadership responsibilities implemented in the daily work of a principal?

After an overview of the methods employed in the study, the resulting data of the perceptions of

teachers and principals regarding how principals express the 21 Leadership Responsibilities are

presented in two major sections, quantitative and qualitative, with detailed subsections. The first

section presents data and findings from the frequency distribution, factor analysis and ANOVA

of the survey. The second section presents descriptive and contextual information from the

principal interviews. Subtopics of this section include data regarding coding, categorical

narratives and conceptual comparisons of coding. A second set of subtopics includes code co-

occurrence and conceptual comparisons. The chapter concludes with a summation of results

from both portions of the study.

Overview of Methods

This multiple case study consisted of two phases in a mixed methods approach. The first

portion of the study presented participants with a quantitative, online survey regarding the

frequency at which building-level principals expressed the 21 Leadership Responsibilities.

Survey respondents reported their perceptions through a Likert scale. The Likert-type scale

items were scored on a five point rating scale: 1 = never, 2 = infrequently, 3 = frequently, 4 =

almost always, and 5 = not sure. To obtain a more accurate account of the data, the data were

reconfigured to eliminate all fives so as not to skew responses. All fives were left as a null or no

score in the data sheets. The computer program utilized to run and analyze the quantitative data

was NCSS Statistical Analysis and Graphics software. The survey, loaded online and offered

through SurveyMonkey, also gathered demographic information as independent variables

reflecting the status of respondents at the time of participation. Demographic details solicited

included position, experience in current position, total years as an educator, highest level of

education, and school and district of employment. The second, qualitative phase of the study

consisted of interviewing nine building-level principals who successfully completed the survey

and who had at least five staff members from the same building who completed the survey. The

interviews lasted 20 to 45 minutes, averaging 32 minutes in length, and covered the questions

listed in Appendix V.

Results and Analysis of Quantitative Data

Descriptive and contextual information. On a national level, only six K-12 public

education systems earned the Baldrige award since the conception of the educational category.

This list includes Montgomery County Public Schools, Maryland, awarded in 2010; Iredell-

Statesville Schools, North Carolina awarded in 2008; Jenks Public Schools, Oklahoma awarded

in 2005; Community Consolidated School District 15 awarded in Illinois in 2003; Pearl River

School District, New York awarded in 2001; and Chugach School District, Alaska awarded in

2001 (Baldrige Performance Excellence Program, 2010b). Of the six districts that initially

qualified for study, three districts met criteria of (a) showing evidence of continued effort to

implement and sustain Baldrige framework and (b) consent to participate in the study. The

initial phase of the study occurred in the spring of the 2011-2012 school year and is reflected in

the quantitative data sets. While there was a potential to survey approximately 13,905

employees of the three qualifying districts, two elements narrowed the participation rate. The

first, encountered in all three districts, was lack of participation. People either chose not to

participate by deleting the invitation to participate or opted out of the study officially at the

survey entry. The second element that limited sample size participation was an agreement

required by Montgomery County Public Schools (MCPS) to not overpower or skew results due

to the large number of teachers and principals working (Table 2). The researcher agreed to cut

the MCPS

Table 2

Study Participants

Organization During 2011-2012	Student Population Served	Number of Principals Solicited	Number of Principals Participated	Number of Teachers Solicited	Number of Teachers Participated	Total Number from District Participated in Survey	Percent of Total Participated
Iredell-Statesville Schools, NC	21,121	35	11	1,325	127	138	37.60%
Jenks Public Schools, OK	9,400	8	5	665	49	54	14.71%
Solicited from MCPS	141,777	31	13	783	162	175	47.68%
Totals	172,298	74	29	2,773	338	367	100.00%

sample size from 200 schools to 31 schools and surveyed half of the teaching staffs of the 31

schools in the sample. Of the potential participants ($N = 2,847$), 13% ($n = 367$) completed the

survey. With a confidence level of 95%, a confidence interval of +/-5, and a total population

to sample, or $N = 2,847$, the needed sample size of 339 (Table 3) was met and surpassed ($n =$

367). In breaking out the number of teacher only respondents ($N = 2773$) the needed sample size

of 338 was also met with the number of respondents totaling 338 (n). However, the needed

Table 3

Targeted Population

	Population	Confidence Interval	Standard Deviation	Sample Size
Principals	74	95%	+/-5	**62**
Teachers	2773	95%	+/-5	**338**
Total	2847	95%	+/-5	**339**

sample size of 62 for the pool of 74 principals was not met. The number of principals

completing the survey totaled 29 (n). The proportion of responses from each of the three

districts is representative of the size of each district (Figure 10). The largest district, MCPS,

contributed 47.68% of completed surveys and displayed the highest district response rate of

21.5%. The second largest district, Iredell-Statesville Schools (ISS) reported the second highest

response rate, 10.15%, and contributed 37.60% of completed surveys. Jenks Public Schools

(JPS), the smallest district, had the smallest response rate of 8.02% and contributed 14.71% of

the completed surveys. Within the list of schools where five or more staff members responded,

there are schools that represent one or more of the following characteristics: Title I, minority

majority, English as second language learners, international baccalaureate program, advanced

placement courses, and after school programs. Each district had schools reporting from each

level (i.e., elementary, middle, and high school).
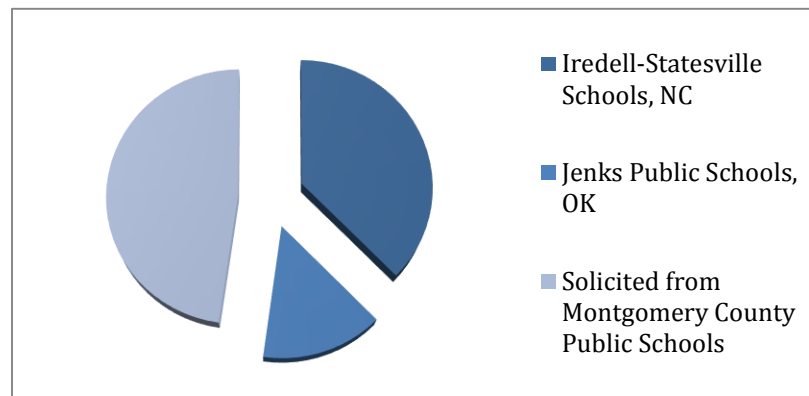
Figure 10. Percentage of Participants by District.

Frequency distribution. Frequency distribution tables assisted the researcher

with analysis of the discrete values resulting from the 82 survey questions regarding the 21

Leadership Responsibilities. Participants responded to the survey questions based on a Likert

scale: 1 = never, 2 = infrequently, 3 = frequently, 4 = almost always, and 5 = not sure. The

index numbers (1, 2, 3, 4) were used to represent the frequency of how often a building level

principal exhibited the leadership responsibility in daily work. The frequency distribution

tabulation counted all responses of 5 or *not sure,* but these were ignored in the calculations.

Each frequency, or number of observations made, was recorded in accordance with the reported

interval. The count, cumulative count, percent, cumulative percent, and graph of percent were

tabulated for all 82 questions pertaining to the 21 Leadership Responsibilities.

Number Statistical Cruncher System (NCSS), produced a frequency distribution table

for each of the 82 survey questions that address elements of the 21 Leadership Responsibilities

(Appendix X). In reviewing the results, the researcher found (for 47 of the elements or factors)

the most numerous responses in the 3 (*frequently*) category, with the 4 (*almost always*) category

having the second largest number of responses, then fewer of the 2 (*infrequently*) category,

followed by the least selected category of 1 (*never*). The example from the set of questions

regarding the four elements of *monitor and evaluate* indicate this pattern (see Table 4). Three

other leadership responsibilities displayed this same pattern throughout all elements of a

particular responsibility. Twenty-eight factors of the leadership responsibilities reflected a

Table 4

Frequency distribution of Monitor and Evaluate 1, 2, 3, and 4

Frequency Distribution	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
Monitor & Evaluate 1					
1	9	9	2.54	2.54	|
2	50	59	14.08	16.62	|||||
3	164	223	46.20	62.82	||||||||||||||||||
4	132	355	37.18	100.00	|||||||||||||
Monitor & Evaluate 2					
1	6	6	1.69	1.69	|
2	33	39	9.27	10.96	|||
3	166	205	46.63	57.58	|||||||||||||||||
4	151	356	42.42	100.00	||||||||||||||

Frequency distribution of Monitor and Evaluate 1, 2, 3, and 4, Continued

Frequency Distribution	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
Monitor & Evaluate 3					
1	4	4	1.11	1.11	|
2	41	45	11.42	12.53	||||
3	185	230	51.53	64.07	||||||||||||||||||
4	129	359	35.93	100.00	||||||||||||
Monitor & Evaluate 4					
1	4	4	1.14	1.14	|
2	47	51	13.39	14.53	|||||
3	197	248	56.13	70.66	|||||||||||||||||||
4	103	351	29.34	100.00	|||||||||||

pattern of responses from high frequency to low or 4, 3, 2, and 1. Only Ideals and Beliefs was

consistent throughout each question regarding the same leadership responsibility (see Appendix

X). One factor, Involvement Curriculum and Instruction 1, had a tie in the highest number of

responses between category 3 and 4, followed by fewer responses in the 2 category and least

number in category 1.

The remaining 6 of the 82 elements displayed a pattern of response of 3, 2, 4, and 1, with

the first two in the group having the most tallies, and the last two in the group having the least.

This motif does not exist often; however, it might assist in the discussion of the roles and

responsibilities of a building level administrator. Where an element of a particular responsibility

reported the 3, 2, 4, 1 pattern, this might have been a result of a difficult element for

administrators as a whole to demonstrate or could be considered an area for improvement.

The responsibility of order appeared with mixed results. However, patterns became more

apparent from the factor analysis of each set of leadership responsibilities.

Factor analysis. In applying factor analysis, this researcher sought to further

discover any underlying factors or subsets of variables. This exploratory technique aided in

identifying communality for each set of observed variables, observations from several survey

questions regarding one leadership responsibility. For each set of variables in a set, the response

count, mean, standard deviation, and communality was run in Number Cruncher Statistical

Software (NCSS). Overall, the count remained consistent within each set of variables (Appendix

Y). The responsibility with the lowest count rate was Situational Awareness at 302, while

Communication had the highest count at 360. A plausible explanation for the variance between

the low and high count is the length of the survey at 98 questions, not including the electronic

consent form. The four questions representing Situational Awareness appear as questions 22, 44,

82, and 85, while questions regarding Communication appear earlier in the survey as questions

12, 35, and 57.

Where communality within in the range of 0.4 to 0.7 is considered acceptable, 72 or 88%

of the factors fell within that range when rounded to the nearest tenth (Appendix Y: Factor

Analysis Report). Variables within this category included affirmation, communication,

contingent rewards, flexibility, focus, ideals and beliefs, input, intellectual stimulation,

knowledge of CIA, monitor and evaluate, relationships, and validity. If the communality was not

rounded to the nearest tenth, 66 or 81% were within range; however, rounding communality to

the nearest tenth occurred for the work of this study. Of the 21 Leadership Responsibilities, or

variables, eight had at least one factor with communality below 0.3, and one variable,

discipline, had two of four factors with low communality. Low instances of communality were

not eliminated after the factor analysis. All factors remained because the survey questions that

produced data for the factor analysis were created through the balanced leadership study

(Marzano et al., 2005). Each question reflected an element or factor of one of the 21 Leadership

Responsibilities. Marzano et al. (2005) performed a factor analysis (see Appendix D) during

their meta-analysis. The questions that contribute to observances of the variables from the

Marzano et al. study are the same used in this study. Disclosure and discussion regarding this

factor analysis is for transparency purposes in this study.

The leadership responsibilities with one suspect factor included change agent, culture,

involvement in CIA, optimizer, order, outreach, resources, and situational awareness. Of this

group, there were five variables (change agent, culture, optimizer, outreach, and situational

awareness) with four or more factors that had one low communality. The remaining variables

with one of three factors that had a low communality included involvement in CIA, order, and

resources. Two factors demonstrated strong communality of 0.7 within involvement in CIA;

however, the first factor showed a communality of 0.2 (Table 5). A rationale for lack of

communality could be that the measured construct of the first factor is more unique than the

other two. The particular wording of the first factor or question (Involvement in CIA 1) asked

how often principals are "directly involved in helping teachers design curricular activities for

their classes," while the other two questions (Involvement in CIA 2 and 3) invited observation

about principals addressing instructional and assessment issues in the classroom. The mean

score for Involvement in CIA 1 was approximately a half point higher than Involvement in CIA

Table 5

Communality of Involvement of CIA

Variables	Count	Mean	SD	Communality
Involvement_in_CIA_1	338	3.272189	0.73682	0.220534
Involvement_in_CIA_2	338	2.831361	0.8357508	0.742940
Involvement_in_CIA_3	338	2.724852	0.8974267	0.683994

2 and 3. The difference in score between the first question as compared to the latter two might

be the difference in phrasing the question. However, all three activities described in each of the

three questions were placed in the same category of involvement in curriculum, instruction, and

assessment, as they are descriptors. (Marzano et al., 2003, 2005).

The leadership responsibility of order (Table 6) presented a different circumstance where

Table 6

Communality of Order

Variables	Count	Mean	SD	Communality
Order_1	343	2.603498	0.970434	0.230432
Order_2	343	3.040816	0.7899747	0.688785
Order_3	343	3.306123	0.7351993	0.606148

one weak communality of a variable was concerned. The communality for the first question

was 0.2, yet subsequent questions both resulted in at least 0.6. The first question may have

appeared awkward as it collected data regarding the principal having "well-established

procedures in…school regarding how to bring up problems and concerns." The last two

questions addressed general order and routines set in the school. The lack of communality for

this leadership responsibility could be reflected in the discrepancy of the depth of questioning.

Resources presented the weakest set of communality for all factors. Without rounding up to the

largest tenth, the communality was 0.3 for all three questions (Table 7). In reviewing the

Table 7

Communality of Resources

Variables	Count	Mean	*SD*	Communality
Resources_1	344	3.162791	0.7690889	0.396577
Resources_2	344	3.22093	0.7809863	0.300024
Resources_3	344	3.05814	0.7261007	0.385441

questions and comments from the pilot run of the survey online, participants noted these

questions included too many options. As an example, Resources 1 asked, "In my school, I have

been successful at ensuring that teachers have the necessary resources and professional

opportunities to maintain a high standard of teaching." While in congruence with the Marzano et

al. (2005) definition, the previewers appeared to not focus on the act of the principal providing

but gave attention to one or both items being provided (resources or professional development).

This same confusion could be attributed to the remaining questions where such a discrepancy surfaced such with culture and optimizer (see Appendix S).

Discipline contained half, or two of four weak communalities (Table 8). While the mean of each factor was separated by four-tenths, the difference in communality was less than 0.14. The type of question may explain the discernable difference for the discrepancy. Discipline 1 and 2 focus on instructional time but each with a different lens. The former read "instructional time of teachers is well protected," and the latter looked at success in "protecting teachers from undue distractions and interruptions to their teaching." Respondents may have read the two constructs differently to say that instructional time was generally protected, Discipline 1, yet there are distractions such as discipline issues and visitors observing at times, Discipline 2. A similar discrepancy can be found in the last two factors, Discipline 3 and 4, regarding non-academic activities usurping teacher time. Both are relative to the discussion of leadership responsibilities but address distractions from different points of origin: external, non-

Table 8

Communality of Discipline

Variables	Count	Mean	SD	Communality
Discipline_1	315	3.384127	0.6641901	0.332788
Discipline_2	315	3.250794	0.788426	0.453047
Discipline_3	315	2.971429	0.8074945	0.324091
Discipline_4	315	3.057143	0.9046438	0.436808

academic distractions (Discipline 3) and limiting exposure of contentious, internal

disagreements (Discipline 4). With the pressures to perform and mounting state and federal

requirements, it is plausible that an administrator would have more challenges in protecting

teachers from external, non-academic issues than internal disagreements.

Regarding communality of the leadership responsibilities, the challenges each question

posed in the survey focused on retrieving observations regarding different elements of each

leadership responsibility. A majority of the variables contained factors with plausible

communality. Where the communality was low, the factor was kept because the factor

represents an element of the variable construct. This procedure allowed for the reduction of

variables and created transparency in the process.

ANOVA. Performance of an analysis of variance (ANOVA) provided how categorical

variables (i.e., demographics such as building level principals or teachers) related to reported

observations regarding the normality of distribution or frequency of expression of leadership

factors in the daily work of building level principals (Appendix Z). The first portion of the

ANOVAs run for each of the 82 factors organized data to assist in determining sets of normality

regarding distribution of data, verifying good data and confirming that there was a good fit for

the study. The second set of data resulting from the ANOVA specifically addressed the second

research question of the study: To what extent, if at all, do principals and their staffs agree about

the principals' expression of the 21 Leadership Responsibilities in Baldrige schools? The data in

this second set reviewed the probability level and determined if there was, if any statistical

significance if the difference between the responses of the principals and faculty. This portion of

the 82 separate ANOVAs determined for a majority of factors, that there was a statistical

difference.

The ANOVA test of assumptions for each of the 82 leadership factors included skewness normality of residuals, kurtosis normality of residuals, omnibus normality of residuals, and modified-Levene equal-variance test. The probability or p factor was ≥ 0.5. Means and effect size for the total population and each categorical variable were tabulated and reported. This included standard error of deviation for both principals and teachers. A box plot compared the mean response for the categorical variables, principals, and teachers. The null hypothesis (i.e., no relationship between the responses of principals and teachers) was rejected and the alternative hypothesis, asserting a particular relationship, was accepted for most of the assumption tests. The assumption of skewness as the null was rejected by 75 of the 82 (91%) leadership factors. Kurtosis, a descriptor analogous to skewness, revealed that the observations of 28% or 23 of 82 of the factors were not necessarily concentrated in a bell curve. More importantly, 100% of factors rejected the null hypothesis under the omnibus assumption. Omnibus tested departures from normality, which incorporated skewness and kurtosis.

From the modified-Levene equal variance test, 26 or 31% of the 82 leadership factors rejected the null hypothesis, which assumed the two groups, principals and teachers, from which the samples were solicited, are the same or equal. The mixed results and could be accounted for by at least three reasons. First, the sample is not completely random due to the fact respondents chose whether to participate and only a handful of school districts qualified to participate. The three districts that participated are located in different parts of the country: Midwestern Oklahoma, southern North Carolina and northern Maryland. These may represent different cultural aspects that might have influenced survey responses. Thirdly, while both administrators

and teachers are educators and working in roughly the same educational environment, each position encompasses a varied skill set.

The analysis of variance table for each factor reinforced a good fit of data and research design. The table indicated that the categorical variables significantly differed from each other. If the probability level of the ANOVA for a factor was $\leqq 0.05$, a statistically significant variant view was demonstrated between the two independent variables, teachers and principals, regarding the dependent variables or 21 Leadership Responsibilities. Sixty of 82 factors, or 73, were found to have a statistical variation between the two independent variables, principals and teachers (Appendix AA).

From the means and effects section of the ANOVA, several trends were visible. The first visible trend found principals consistently reported a higher frequency, no more than 0.6, of demonstrating a factor than observed by teachers. An example box plot, Discipline 1, reflects this (Figure 11). Eight of the 21 Leadership Responsibilities (21LR) had all factors within that
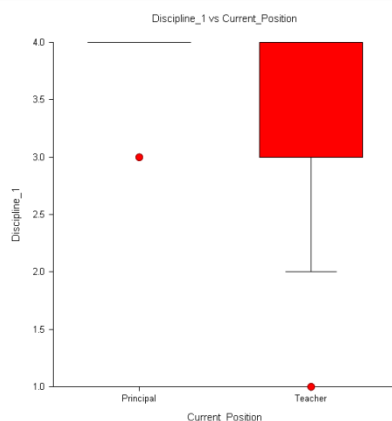
Figure 11. Discipline 1 Box Plot.

role informing a significant alpha of ≦0.05. These included Monitoring/Evaluating, Ideals/Beliefs, Involvement of Curriculum, Instruction and Assessment (CIA), Communication, Input, Optimizer, Flexibility, and Situational Awareness. One-third of 21LR reported all but one factor with a significant alpha of ≦0.05 including Culture, Order, Relationships, Resources, Contingent Rewards, Outreach, Visibility and Change Agent. The remaining 6 21LR had at least one or two factors reporting a significant alpha of ≦0.05 (Focus, Affirmation, Intellectual Stimulation, and Discipline). First order leadership responsibilities not associated with second order change with 50% or more factors with significant alphas included Involvement of Curriculum, Instruction, and Assessment, 3 of 3 significant alphas; Relationships, 3 of 4 significant alphas; Resources, 2 of 3 significant alphas; Contingent Rewards, 3 of 4 significant alphas; Situational Awareness, 5 of 5 significant alphas; Outreach, 3 of 4 significant alphas; and Visibility, 2 of 3 significant alphas (Appendix AA).

Factors associated with second order change and negatively impacting second order changed demonstrated a higher number of factors with a significant alpha (≦0.05) for the ANOVA probability level. Seventy-five percent of the factors, 21 of 28, associated with the 21LR associated with second order change (Flexibility, Ideals/Beliefs, Monitor/Evaluate, Optimizer, Change Agent, Knowledge of Curriculum, Instruction and Assessment, and Intellectual Stimulation) reported a significant alpha. A higher percentage of factors, 85% or 13 of 15, were associated with leadership roles that negatively influenced second order change.

Although principals reported a higher frequency of performing the 21 Leadership Responsibilities than what teachers reported, several factors exist that rationalize the discrepancy. The first reason encompasses the challenge communication presents in the daily

work of a principal the second reflects the challenge regarding alignment of systems, which

relates to the last rationale regarding staff in the midst of second order change.

While focusing on student achievement, the principal must build trust, transparency and

credibility through communication and daily work (Bass & Bass, 2008; Geijsel et al., 2007;

Kanold, 2011). Cotton (2003) described communicating as part of the shared decision making

processes. DuFour (2002) incorporated communication into developing mission, vision and

PLCs. Both Kotter (1996) and Sergiovanni (2007) described communication as incorporating

network development, information sharing and relationship building. The three factors of

communication listed by Marzano et al. (2005) incorporate accessibility to communicate,

effective protocols for teacher to communicate with each other and strong lines of

Table 9

Significant Alpha of Communication

Factors	Principal Mean (*PM*)	Teacher Mean (*TM*)	Difference = *PM* - *TM*	ANOVA Prob Level	Significant Alpha ≦0.05
Communication 1	3.76	3.41	0.35	0.007940	☑
Communication 2	3.59	3.21	0.38	0.007982	☑
Communication 3	3.52	3.12	0.40	0.013401	☑

communication between staff and principal. Each of these three factors reported a significant alpha of ≦0.05 or notable difference between the reported perceptions of principals and teachers (Table 9). The plausibility of what teachers see and experience, overt principal display of these attributes, and what is covert to teachers impacts perception and reporting in the survey. Principals report their work to communicate and affect each staff member's focus on elements that positively influence the school's values, vision, mission and goals, consistent and constant communication with each school community member is a challenge. In addition, different staff present different levels of need for discussion and attention. Not all staff verbalize the need for more communication when needed. Principals may or may not be aware of these needs and be able to respond accordingly, thus the need to constantly and consistently communicate.

Another reflection regarding the challenges of communication incorporate the data from the 21 Leadership Responsibilities of relative to communication: Relationships and Situational Awareness. Eight of the nine factors incorporated into these two roles demonstrated a significant alpha (Table 10). Factors of Relationships include the principal's awareness of personal, significant needs issues and events of each teacher on staff. Situational Awareness incorporates factors such as awareness of informal relationships, underlying challenges, and what is or is not functioning well with the school personnel and culture. This also includes the ability to discern possible elements that may surface as problems on a daily basis. Other studies correlate the attributes of Relationships, Situational Awareness and Communication of the principal's role and the impact on teacher efficacy and school culture (Devos & Bouckenooghe, 2009; Hallinger & Heck, 1996). As a check on this assertion, a review of the six Culture factors revealed five significant alphas (Table 11).

Table 10

Significant Alpha of Relationships and Situational Awareness

Factors	Principal Mean (*PM*)	Teacher Mean (*TM*)	Difference = *PM - TM*	ANOVA Prob Level	Significant Alpha ≦0.05
Relationships 1	3.48	2.94	0.54	0.000252	☑
Relationships 2	3.36	3.14	0.21	0.202519	☐
Relationships 3	3.38	2.92	0.46	0.005493	☑
Relationships 4	3.41	3.00	0.41	0.007106	☑
Situational Awareness 1	3.66	3.08	0.57	0.000232	☑
Situational Awareness 2	3.45	2.98	0.47	0.001242	☑

(continued)

Significant Alpha of Relationships and Situational Awareness, Continued

Factors	Principal Mean (*PM*)	Teacher Mean (*TM*)	Difference = *PM - TM*	ANOVA Prob Level	Significant Alpha $\leqq 0.05$
Situational Awareness 3	3.17	2.85	0.32	0.033894	☑
Situational Awareness 4	3.62	3.16	0.46	0.000656	☑
Situational Awareness 5	3.86	3.21	0.65	0.000002	☑

The lopsidedness of the number of codes for the 21 Leadership responsibilities could be explained by the factors that define them not being in complete alignment with the Baldrige elements. Visibility is "the extent to which the principal has quality contact and interactions with teachers and students" (Marzano et al., 2003, p. 4). Principals did not specifically identify their work as visible during the interviews. In reflection, leaders in the Baldrige framework are not able to work in isolation. The principals used terms which imply visibility such as

Table 11

Significant Alpha of Culture

Factors	Principal Mean (*PM*)	Teacher Mean (*TM*)	Difference = *PM - TM*	ANOVA Prob Level	Significant Alpha $\cong 0.05$
Culture 1	3.59	3.47	0.12	0.324396	☐
Culture 2	3.52	3.14	0.37	0.013634	☑
Culture 3	3.48	2.96	0.52	0.001073	☑
Culture 4	3.62	3.30	0.33	0.013866	☑
Culture 5	3.69	3.27	0.42	0.002421	☑
Culture 6	3.64	3.21	0.44	0.002662	☑

communicating, participating, or supporting PLCs, performing classroom walkthroughs, and supporting staff development. Administrators rarely and specifically addressed visibility unless it was a very focused and intentional conversation. Despite the low count of remarks coded for visibility, principals discussed all 21 Leadership Responsibilities as they described their daily work.

The leadership responsibility of Ideals/Beliefs specifically offered another example of work through implied visibility. Administrative meetings, data digs, walkthroughs, formulating action plans, and reflection, principals become very cognizant of their own system of ideals and

beliefs. An example, the leadership responsibility of *Ideals/Beliefs,* assists in describing the

deep level of intimacy principals have of their own work (Table 12). Principals report they have

"…well defined beliefs about schools, teaching and learning," quoted from the *Ideals/Beliefs,*

factor 1 language (Marzano, et al., 2005). In reviewing the language of factor 2 the role for the

administrator to, "…explicitly communicat(e) my strong beliefs and ideals to the teachers,"

provides the opportunity for principals to develop and rehearse their repertoire. The principal

Table 12

Significant alpha of Ideals and Beliefs

Factors	Principal Mean (*PM*)	Teacher Mean (*TM*)	Difference = *PM - TM*	ANOVA Prob Level	Significant Alpha $\leqq$*0.05*
Ideals/Beliefs 1	3.76	3.53	0.22	0.037435	☑
Ideals/Beliefs 2	3.76	3.32	0.44	0.001848	☑
Ideals/Beliefs 3	3.86	3.42	0.44	0.000812	☑
Ideas/Beliefs 4	3.76	3.32	0.44	0.001678	☑

may perform this action multiple times on a daily basis, but with different individuals and

groups. In the time it takes a principal to perform all of the functions of the job description, the

time allowed to communicate consistently and continuously beliefs regarding teaching and

learning (factor 3) are limited. The fourth factor, the principal's demonstrates alignment

between behavior and voicing his own beliefs about schools, teaching and learning. The first

factor combines together all of the factors of defining, communicating, demonstrating and

ensuring teacher awareness of the principal's beliefs and values regarding education by

measuring how prominent the school goals are in the daily work of staff. To the principal, the

factors of Ideals/Beliefs might seem redundant but to the person who observes this behavior, the

frequency probably does not compare.

Table 13

21 Leadership Responsibilities Means

Discipline Variable	Variable Mean	Teacher Mean	Principal Mean	Difference of Teacher and Principal Mean
Affirmation	3.24	3.22	3.44	0.20
Change agent*	3.10	3.07	3.39	0.32
Communication**	3.27	3.24	3.62	0.38
Contingent rewards	3.09	3.05	3.57	0.52
Culture**	3.25	3.22	3.59	0.37
Discipline	3.15	3.12	3.54	0.42

(continued)

21 Leadership Responsibilities Means, Continued

Flexibility*	3.16	3.12	3.65	0.53
Focus	3.35	3.34	3.55	0.21
Ideals/beliefs*	3.43	3.40	3.78	0.38
Input**	3.04	2.99	3.54	0.55
Intellectual stimulation*	2.99	2.97	3.21	0.24
Involvement with CIA	2.94	2.90	3.38	0.48
Knowledge of CIA*	3.31	3.29	3.58	0.29
Monitor/ evaluating*	3.21	3.18	3.53	0.35
Optimizer*	3.30	3.27	3.66	0.39
Order**	2.98	2.95	3.37	0.42
Outreach	3.46	3.44	3.70	0.26
Relationship	3.03	3.00	3.41	0.41
Resources	3.14	3.10	3.60	0.50

(continued)

21 Leadership Responsibilities Means, Continued

Situational awareness	3.10	3.06	3.55	0.49
Visibility	3.22	3.19	3.59	0.40

Note. All leadership responsibilities are associated with first order change.

* Denotes leadership responsibilities associated with second order change.

** Denotes leadership responsibilities negatively affected by second order change.

These ANOVA findings brought transparency and validity to the use of the approach to average the means of the factors for each of the 21 Leadership Responsibilities and create a "mean of the means" for each variable (Table 13).

Mean of Means. Considering the information from the ANOVA and factor analysis, a mean of the means was performed using the factors related to a common variable. The formula for the discipline variable used was the mean for each factor, $(D1+D2+D3+D4)/4$. The results are reported in Table 13 and rounded to the nearest hundredth. This pattern of principals reporting a higher frequency of their expression of the Leadership Responsibilities than teachers was reflected in all 21 Leadership Responsibilities. The average mean for each leadership responsibility ranged from 2.94 to 3.46. No discernable pattern was apparent in regards to the leadership responsibilities associated with second or first order change. However, leadership responsibilities negatively affected by second order change had a higher difference in the means, ranging between a difference of 0.37 to 0.55, when comparing the two groups, principals and teachers.

Summary of quantitative findings. Principals participating in the survey reported their perceptions of expressing the factors of each of the 21 Leadership Responsibilities in their daily work. Teachers also participated in this survey and reported their observations regarding their principals' expression of these factors in daily work. The frequency distribution tables offered data regarding response count for each level or rate of displaying that particular leadership aspect. As noted previously, the bulk of responses appeared to rank at about a 3 or *frequently* for each factor. The frequency distribution allowed for transparency in the application of method and initial display of data. The factor analysis explored relationships between the factors of a variable (i.e., leadership responsibility). For each variable, the response count, mean, standard deviation, and communality was run in NCSS for the respective factors. Strong communality was demonstrated for 88% of the factors. Where weak communality may have been demonstrated, there were more than three survey questions to gather more data or a discussion regarding the working of the question. Each survey question reflected a key element of the leadership variable. The researcher utilized another organization's tool and did not have permission to alter the survey. Again, this step in the analysis worked toward transparency of data use.

Application of an analysis of variance (ANOVA) demonstrated normality in the distribution of data and demonstrated probility levels that confirmed a statistical significance between the responses of principals and faculty. The test of assumptions for each of the 82 leadership factors allowed for rejecting the null hypothesis and accepting the test's assumption that there was relationship between the responses of the principals and teachers. Analysis of variance tables for 81% of the factors demonstrated a probability level or alpha $\leqq 0.05$, meaning

there was a statistically significant varying view between the teachers and principals in the expression of the 21 Leadership Responsibilities by principals. The box plot for each factor visually illustrated principals consistently reporting a higher frequency of demonstrating the 21 Leadership Responsibilities. With confirmation of factor communality for each variable and the rejection of the null, the means of the factors of each variable were averaged. Through an Excel spreadsheet, the researcher tabulated the "mean of means" for all participants in the survey, the variable mean, and separated out the mean response for both principals and teachers. Principals consistently reported a higher mean (Appendix CC). The ANOVA results demonstrated the proper analytic tools were applied and added to the clarity and coherence of the study.

Qualitative Data

Descriptive and contextual information. The quantitative portion of the study opened June 2012 and closed by mid-October 2012. School districts were staggered in entering the survey therefore, influencing the start and finish date of the second phase or qualitative data collection of the study. Principals who completed the survey with five or more staff members also completing the survey were solicited for the quantitative interview. Of the 20 possible principals that met the criteria, ten interviews were scheduled, and nine interviews were completed. The proportion of principals interviewed from the three districts reflected that of the proportion of participants from the same three districts in the survey or quantitative portion of the study (Figure 12). The same proportion did not exist in comparison of participation by school levels of elementary, middle, and high school. Representation from each level was roughly one third of the total survey
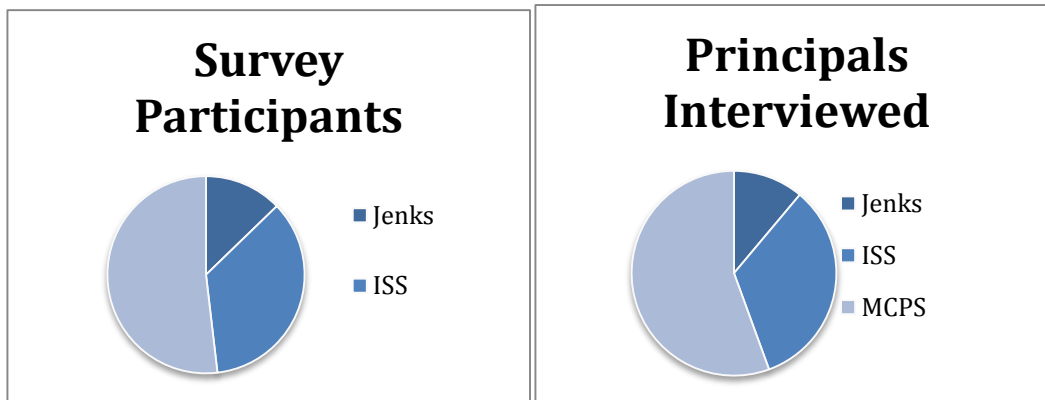
Figure 12. Quantitative and Qualitative Participants Comparison.

respondents. One third or three principal interviews were middle level principals, while there were four elementary and two high school principals. Of these building level administrators, seven were veterans of their position with seven or more years. The ethnicity of five principals was White, two were Black, and one each was Asian, and a racial or ethnic combination. All principals noted earning their masters degree; one reported previously earning a doctorate, while two noted as working toward doctorial study completion in the next 9 months. Five interviewees were male and four were female.

The interviews lasted from 20 to 45 minutes and followed the interview protocol (Appendix R). The eight base questions were asked of all principals. For seven interviews, either time allowed or principals consented to respond to three additional questions (Appendix V). The researcher transcribed the recordings of each interview into a word processing document and imported into Dedoose. Dedoose is a password protected web-based application that assists in the analysis of qualitative and quantitative data. After importing interview transcripts, the researcher coded sentences and word phrases. As the researcher worked through open coding interview transcripts, the pattern reflected elements of the Baldrige framework

including leadership; strategic planning; customer focus; measurement, analysis, and

knowledge management; workforce focus; operations focus; and results. Having uncovered

evidence of the seven variables or criteria of Baldrige, the researcher reviewed the transcripts

two more rounds and coded by a selective coding procedure (Corbin & Strauss, 1998). During

this second and third data dig, the researcher viewed the transcripts through the lens of the seven

Baldrige criteria, which shifted the process to theoretical sampling or theoretical coding (Corbin

& Strauss, 1998; Kettley, 2010).

Coding and categorical narratives. As coding took place, consideration was given to each

principal's description of how the individual performed his or her work as building level

administrator and marked as such. A total of 521 codes were noted from the nine principal

interviews (Figure 13). All categories had at least 50 coded phrases. Workforce focus had the
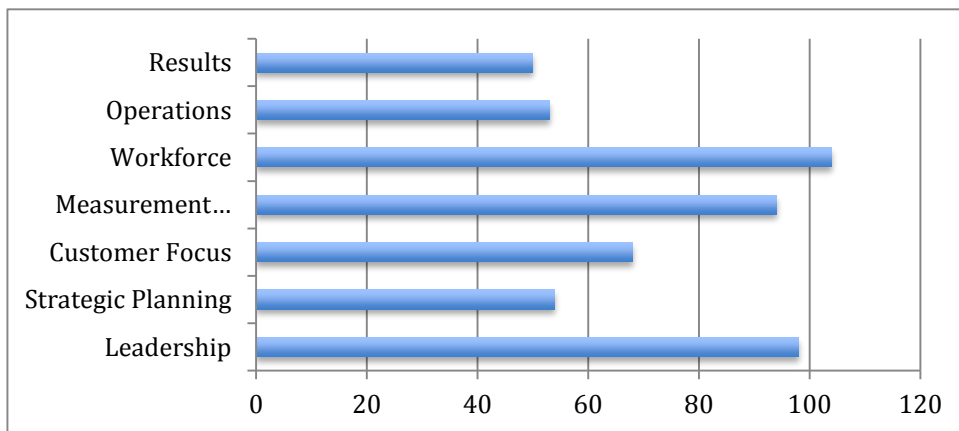
Figure 13. Number of Codes by Descriptor for Baldrige Criteria.

most items coded at 104. Workforce focus; leadership; and measurement, analysis, and

knowledge management were the three categories with the most coded phrases. Results,

operations focus, and strategic planning were the three Baldrige categories with the least

amount of coding noted.

Code co-occurrence. The researcher checked for code co-occurrence using the seven Baldrige

criteria and connections between the Baldrige criteria were found throughout the process (Table

14). Statements regarding the use of student performance data reflected the Baldrige element of

Table 14

Code Co-occurrence for Baldrige Criteria

	Leadership	Strategic Planning	Customer Focus	Measurement, Analysis Knowledge	Workforce Focus	Operations Focus	Results	Totals
Leadership	-	29	18	24	28	14	21	134
Strategic planning	29	-	11	36	9	14	18	117
Customer focus	18	11	-	22	13	10	15	89
Measurement analysis & knowledge management	24	36	22	-	24	21	25	152

(continued)

Code Co-occurence for Baldrige Criteria, Contniued

	Leadership	Strategic Planning	Customer Focus	Measurement, Analysis Knowledge	Workforce Focus	Operations Focus	Results	Totals
Workforce focus	28	9	13	24	-	21	9	104
Operations focus	14	14	10	21	21	-	5	85
Results	21	18	15	25	9	5	-	93
Totals	134	117	89	152	104	85	93	774

measurement, analysis and knowledge management. Student data also informed practice of professional learning communities, which mirrored the Baldrige element of *workforce focus.* Through this work, teachers realized their own professional development needs and self-directed the topics for learning how to improve their own practice. This kind of incident occurred 24 times. A similar discussion regarding strategic planning and the application of *measurement, analysis and knowledge management* surfaced in each interview and for 36 occurrences throughout all interviews. Principals described their work with their respective leadership committees and the use of data at particular times of the year. These strategic meetings were used as the opportunity to consider key objectives and strategies to plan strategically for the next quarter, 6 months, or year. This work created a basis to review, alter, or affirm processes also known as results, the seventh Baldrige criteria.

Conceptual comparisons. The leadership category averaged 11 coded

phrases per principal and was the second most discussed aspect of the Baldrige criteria.

Principals discussed the development of their shared vision and mission of the school. Much of

this work was crafted out of the use of leadership teams, academic teams, and school

improvement teams. Two administrators listed quality management tools such as *fishbone*

analysis or *root cause analysis* and affinity diagrams when working with people in this regard.

All administrators emphasized clarity of values, vision, mission, and goals when communicating

with staff. Each administrator discussed communication styles regarding face-to-face

conversation, use of email, and phone. As another form of communication and reinforcing

desired outcomes and behaviors, leaders also recognized opportunities for celebratory events

such as national board certification, meeting data goals, and addition of degrees or certifications.

Principals spoke of sustaining and implementing practices that supported school improvement.

Strategic planning. Strategic planning was one of the three least reported categories of

the Baldrige framework. This may reflect how often administrators see themselves working with

staff to review and revise the building level strategic plan or school improvement process. One

administrator discussed in detail the beginning of the year slogan, "Rather than retreat, let's

advance!" A large cross-section of the staff was invited to work through data covering

demographics. Another principal discussed a theme of *one voice* and another of *one band*. The

discussions focused on identity, school improvement, and goal setting. These large kick-off

meetings set the tone for the year by planning, review, and selection of strategies to meet key

objectives. An assortment of action plans originated from this work and allowed a basis to

allocate resources including funds. Long and short-term goals as well as performances

measures were created in these schools to help monitor progress and keep the focus of staff.

Customer focus and communication. Customer focus, averaging about eight responses

per administrator, involved strategies of communicating with students, parents, and community

then acting on the information gained. Each administrator acknowledged the importance of

listening to all stakeholders in the process of facilitating the education of students. Two

administrators mentioned strategically using the drop off and pick up time to informally meet

parents and share school information. Traditional surveys were extended and results reviewed.

Other web-based communication including emails and feedback response forms were mentioned.

Two school administrators explained how students were included in the strategic planning

process much as the teachers were at the beginning of the year. Each administrator reported

informally or formally asking students about feedback regarding the school climate and

academic rigor and relevance. Through face-to-face meetings, conferences, focus groups, phone

calls, and email, administrators and their leadership teams heard and absorbed feedback and

expectations from their stakeholder groups. Three schools noted implementing a "plan, do,

study, act" (PDSA) to address the satisfaction of response time when parent contact is made or

addressing parents' needs as they came into the office. Principals further described engagement

of students by creating electives and clubs to support their talents and interests. Three schools

offered programs where students received tutoring, as they needed assistance.

School improvement teams. The most coded of the Baldrige criteria was measurement,

analysis, and knowledge management. The words *data*, *PDSA*, and *PLC* (professional learning

community) were used 138 times in this section of the interview. All building level

administrators explained how important data is to setting goals and benchmarking progress.

The data use was applied in the strategic plan, budget maintenance, hiring of staff, allocation of

resources, and improvement of teacher practice and student performance. Three administrators

mentioned how they compare their school to local, state, and national data for direction when

goal setting. Administrators described how the administrative or leadership team modeled use of

data in PLC work aligned with the district goals at the building level. Departments and content

areas then took the same framework and focused on the data to affect their work. One example

described was the goal to improve literacy scores. The building level literacy team set goals

based on a rubric and student performance. This team periodically harvested samples of student

work to monitor progress and reported the data to the staff. Using the data, each department

PLC studied and chose to implement a literacy strategy monthly. The goal at this level was to

support improvement in student work. At the content level, PLCs reviewed the monthly strategy

and decided how to implement it properly with the current content. Results of the content level

PLC were reported back to the department PLC. In one case, math teachers not teaching Algebra

I at that time volunteered to co-teach on a portion of their planning period to assist students who

needed more support regarding that strategy.

Continuous improvement process. Another principal described an example of data use

called *academic rounds*. The school's academic team reviewed walkthrough data and

deficiencies in student assessment performance. After reviewing the research regarding best

practice pedagogy, the principal worked with the team to identify master teachers in this area.

The team then identified teachers who could benefit from studying the master teachers and

invited them to participate. Participation was open to all teachers to support growth. The faculty

would participate together in walkthroughs focused on pedagogy. The walkthrough group

shared data and planned how to implement elements of observed best practices. Walkthrough

data was then used to check for participants' understanding and improvement of classroom

pedagogy. This data assisted in creating a type of professional development beyond a typical in-

service or seminar where the teachers "sit and get" the information. The professional

development modeled a continuous improvement model or action research. Data drove this

process as it did for several other schools.

Data-driven decision-making. Through the aspects of managing day-to-day school

functions, acting as leader to build consensus regarding a shared vision, mission, and shepherd

continuous improved performance, each principal addressed the need for good or clean data. One

administrator talked about having too much data or unnecessary data that can cause confusion or

a lack of focus. Six administrators acknowledged the need for technology to assist in the

intentional use of data. Accuracy, integrity, and reliability of data were all discussed through the

interviews. Principals also reported that the technology hindered or helped in communications.

All administrators described how data contributed to communicating strengths or opportunities

of improvement through various modes such as the home phone dialer, school emails, snail mail,

traditional paper flyers home, local newspaper or news, and school and district website.

Facebook and tweeting were also mentioned as technology applied by the administration or staff

to communicate information. One administrator tweeted kudos to staff regarding superior

classroom practice or performance.

Workforce environment. The application of data and communication contribute to engaging, supporting, retaining, and increasing capacity among staff. Workforce environment of the Baldrige criteria encompasses these attributes, which were reflected the most in the coding of the interviews. Each principal interviewed explained how the teacher evaluation process afforded the opportunity to assist staff in reflecting on their practice when discussing the data in the post observation meeting. Administrators from Iredell-Statesville Schools in North Carolina highlighted the use of the teacher evaluation tool in this respect. Other opportunities of observation and reflection included walkthrough data and time with mentor or master teachers. This created a support system to assist challenged teachers and showcase master teachers. Principals, instructional facilitators, and peers recognized master teachers for their exceptional work. This practice engaged teachers and reinforced desired teacher behaviors, practices, and collegiality.

Staff culture of peer support. Principals discussed the PLCs and PDSAs as a framework to implement professional development. As data, including student work, was studied in PLCs, teachers realized the need for particular staff development. This need identified by the teachers created a grass roots movement. Buy-in for particular workshops increased and some PLC groups sought out teachers in the building or district who could share their expertise. A similar strategy shared by a principal supported the goal of teacher-leader development. The principal reserved a section of the staff meeting for teachers to present their expertise or outstanding work. This opportunity added value to the school community and celebrated excellence in education. Several administrators placed teachers as the lead on projects as they demonstrated skill in areas of leadership and educational best practice. A pool of experts developed and principals were

able to differentiate staff meetings. This served as a model for staff to differentiate for their

own students. Through the focus on work, staff members developed a network of support. To

continue this positive climate, one principal built a process where staff recognized each other

through multiple opportunities. Staff member peers assisted those who struggled professionally

or experienced personal challenges.

These collaborative and inclusive attributes, principals explained, contributed to building

positive school climate. Each administrator alluded to an open-door policy for staff to be able to

express concern, need for assistance, or celebrate personal triumphs. Principals report that their

staff expressed appreciation for "being in the loop." Principals perceived this characteristic to

contribute to a positive climate. With these elements in place, a spirit of trust was developing.

Six principals mentioned that attention to the elements of workforce environment contributed to

either maintaining or reducing the turnover rate in their building.

Operations. Operations—how the work systems are designed, implemented, managed,

and improved—had 53 coded responses from the interviews. The interviews revealed attention

to the alignment of the district and building level plans, use of data, PLC or PDSA, and teacher

support and retention. When asked a follow up question regarding the use of data or PLC, all

administrators replied to the effect that it is "just how we do business." At the building level, six

administrators described modifications in structural elements such as the bell or teaching

schedule so staff can meet in PLCs. Three administrators described deviation in a school day

through additional after school programming or a modified schedule either once a week or

monthly.

Student support. In support of students, a process exists to identify and intervene when a student falls behind academically. Two administrators spoke to the realignment of personnel or other resources to meet the needs of students needing additional assistance. Another principal described performance of a gap analysis regarding student interventions to ensure the school meets needs of students. At one school, each student works with staff to choose and monitor goals regarding the five *A*s: academics, arts, activities, athletics, and attitudes. Any activity at that school not related to the five *A*s was considered an unacceptable practice.

Human resources management. As in other business, principals identified teacher hiring and evaluation as important operations within their school. Five emphasized the importance in hiring the right staff or the assistance that central office provided. Curriculum, materials, and policy support were also mentioned as additional provisions given by the central office. Curriculum guides, lesson plan banks, and assessments of the curriculum are offered in each district. In areas of legality, principals reported that the central office updated them and the principals then share their knowledge with staff. This process typically occurred at the beginning of the year unless a new or an amended policy or law had immediate implications. Urgent matters were shared with staff in a timely fashion.

Reviewing school results. The last of the seven Baldrige criteria, results, focused on using data to inform progress regarding achievement of organizational goals in the areas of student learning, customer expectations, workforce conditions, leadership and governance. Eight administrators described monthly, quarterly, or annual meetings with some kind of leadership team to review the data. The monthly and quarterly meetings were used to monitor the data and

make adjustments as needed to facilitate progress on goals. Meetings at the semester or end

of year were used to alter or change goals. These decisions were data driven and made

collaboratively. Data reflected back information regarding school initiatives and varied from

school to school. Some initiatives described were building goals focused on implementation of

positive behavior intervention and supports (PBIS). Others reviewed data for goals regarding

literacy, staff retention, climate, satisfaction, engagement, advanced placement courses,

curriculum implementation, technology use, sub-group performance, achievement gap, and

response time. One administrator specifically described the effect of these reviews as *trickle*

down. The data, discussion, and any decisions were shared with leadership teams, department or

grade level chairs, which then shared information with their respective teams. Principals also

employed faculty meetings for this purpose. Further discussion among staff and staff subgroups

offered feedback. At times, principals used the shared knowledge from these meetings to refine

processes, implement change, and adjust budget, personnel, or other resources. The information

was also communicated to parents and community through curriculum nights, newsletters,

websites, and district information.

Coding: 21 Leadership Responsibilities. The results of coding the interviews (Figure 14).

through the seven Baldrige criteria created a need for the researcher to apply selective coding
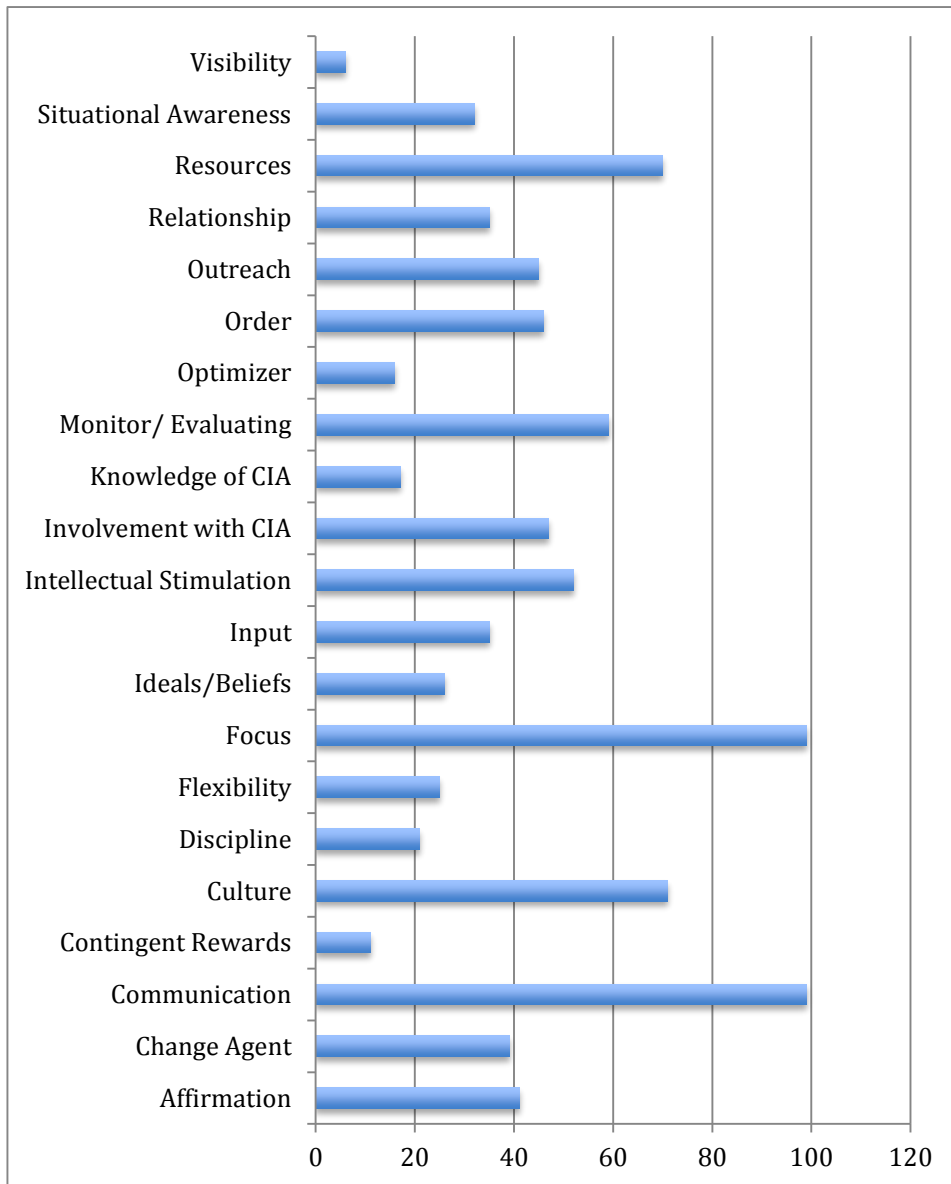
Figure 14. Number of Codes by Descriptor for 21 Leadership Responsibilities.

through the lens of the 21 Leadership Responsibilities. A sum of 892 codes were noted from the

principal interviews. Six leadership responsibilities fell in the bottom quartile for number of

codes: visibility; contingent rewards; optimizer; knowledge of curriculum, instruction, and

assessment (CIA), discipline, and flexibility. Nine of the leadership responsibilities—

affirmation; change agent; ideals and beliefs; input; involvement in curriculum, instruction, and

assessment (CIA); order; outreach; relationship; and situational awareness—fell within the

range of having 26 to 50 codes. Four leadership responsibilities—culture, resources, intellectual

stimulation, and monitor and evaluate—ranged from 52 to 71 codes. Two leadership

responsibilities—communication and focus—tallied the highest number of occurrences at 99.

The 21 Leadership Responsibilities code co-occurrence (see Appendix BB), was reflected

throughout the process. Statements regarding communication, culture, focus, intellectual

stimulation, resources, and monitor and evaluate all ranged from 109 to 187 co-occurrences.

Focus and communication tallied the most code co-occurrences, 187 and 164 respectively. The

heavy emphasis on these roles reflected statements from the interviews regarding strategic

planning, use of data, professional learning communities (PLCs), and communication of this

work. The 21 Leadership Responsibilities with the lowest count were discipline and visibility at

11 each. The code occurrence of the remaining 13 or bulk of the 21 Leadership Responsibilities,

ranged from 31 to 87. The mean and median were 58.6 and 57 respectively. There is no

discernable pattern with responsibilities associated or negatively affected by second order change

with one exception. Communication, culture, input and order—responsibilities associated with

negatively impacting second order change—tallied on the higher end of the co-occurrence range

(76-164). The total number of code co-occurrences for the 21 Leadership Responsibilities

(1,648) might appear to be substantially higher when compared to the results of the Baldrige

criteria code co-occurrence (774). A ratio of 3:1 was figured when the proportions of the two

frameworks, 21 Leadership Responsibilities and seven Baldrige criteria, were compared.

However, the ratio of the code co-occurrences is not quite 2:1.

Conceptual comparisons of code co-occurrences. As principals responded to

the interview questions their narration linked five leadership responsibilities (culture, outreach,

resources, intellectual stimulation, and monitor and evaluation) to two leadership responsibilities

of Focus and Communication. These seven leadership responsibilities made up 55% of the code

descriptors and 66% of the code co-occurrences. Focus and communication each averaged 11

phrases per principal and both coded the most phrases of the 21 Leadership Responsibilities

(Figure 13). Focus demonstrated the most code occurrences (187) with all of the 21 Leadership

Responsibilities. Of the 7 pairings with the most code co-occurrence, focus was associated with

four other categories of the 21 Leadership Responsibilities with a co-occurrence over the rate of

20. These phrases reflected planning, implementation, and monitoring of the school's strategic

plan, mission, vision, and goals of managing a school. Every scenario included a description of

the application and impact of data in decision-making. Each principal described their

communication style in regards to this work with staff. Formal and informal examples of the use

of email, tweets, phone, and face-to-face conversation were noted. More formal lines of

communication included leveled conversations, leadership team, building or staff meeting, PLCs

at the grade, content or team level, and individual conference. Some conversations were

organized through differentiation to meet the needs of particular groups within the staff.

In reviewing the code co-occurrences data, five additional leadership responsibilities

were emphasized with focus and communication. Culture, intellectual stimulation, monitor and

evaluate, resources, and outreach each demonstrated 19 or more code occurrences. These five

categories total one third of all of the coded phrases from the interviews. Culture, averaging

almost 8 phrases per principal, had a high co-occurrence with communication and focus, 19 and

26 respectively (Appendix BB). When speaking about the use of data, implementation of

PLCs, lines of decision making, and communication of all of these components, all

administrators spoke to "this is how we do business" and the culture of work at their site.

Included in the "how" of the work, coded data from the interviews reflect the challenge of the

intellectual stimulation responsibility using data, PLCs, and working to produce better results.

Principals also addressed the means to channel resources based on the work to assist in meeting

the demands of improved performance and efficiency to meet goals. As principals addressed

their application of these leadership roles, the responsibility of monitor and evaluate surfaced.

This included securitization of student performance, physical responsibility, material

consumption, progress towards goals, and performance of teachers. Tracking and reporting out

these various data points to others—such as constituents, parents, and other organizations—fell

under the outreach responsibility.

Summary of qualitative findings. Nine principals were interviewed regarding

their work as a school administrator in a nationally recognized Baldrige school district. At least

two principals represented each district and building level (elementary, middle, and high school).

Demographics reflected White, Black, Asian, and a combination of ethnicities. Veterans and

recently appointed principals participated, all with a masters or higher degree. Almost half the

group was female. The researcher interviewed each participant for 20 to 45 minutes with a

standard set of questions. The first eight questions were asked and all interviewees provided

responses. Seven interviews had time for three additional questions. Transcripts from each

interview were loaded into a quantitative application, Dedoose, for coding and analysis. After

coding the data, the researcher found congruency between the coding and the seven Baldrige educational criteria and continued to refine through content analysis of coding.

The application of filtering interview data through Baldrige elements delimited the study. Principals discussed components of *Leadership* (first Baldrige criteria) through their efforts to emphasize values, vision, mission, and goals. To communicate and carry out this work, administrators utilized building leadership teams and PLCs to carry out the *Strategic Planning* process (second Baldrige criteria). Principals presented *Customer Focus* (third Baldrige criteria) as they described how they worked to engage students, parents, and community to meet their needs and goals. Data based decision-making processes were a part of each example given by principals. This work included gathering and sharing the data so the staff improved in performance (fourth Baldrige criteria of *Measurement, Analysis, and Knowledge Management*). In this work, administrators spoke to the different process in place, *Operations Focus,* to support the improvement and daily function of the school or (sixth Baldrige criteria). Principals discussed the evaluation processes and described professional learning communities at length. The PLCs were involved in a type of action research based on samples of student work or other school performance data. Professional learning communities and school goals drove *Workforce Focus* through professional development and recognition of teachers (fifth Baldrige criteria). Principals ensured recognition of staff talent on multiple levels through personal recognition, including leadership opportunities for the staff members. Also noted was the use of data on a weekly, monthly, quarterly, semi-annual, and annual basis to monitor and adjust for progress (seventh Baldrige criteria of *Results*).

To compare, the researcher ran the same interview data but coded it through the 21 Leadership Responsibilities. All responsibilities were uncovered through this process. Through a tally of the code descriptors and code co-occurrence, two relationships were discernable. The two leadership responsibilities of *Focus* and *Culture* registered the largest number of coded phrases and co-occurrences, and five responsibilities appeared to support *Focus* and *Culture*. When describing this work, building level administrators discussed establishing patterns of work where the staff use the data and research on best practice to make sound decisions to increase student performance. Principals structured this work through the mobilization of staff on teams, committees, and PLCs to concentrate on goals and targets. These characteristics reflected the leadership responsibility of *Culture*.

Five additional leadership responsibilities appeared to support this organization of staff. Principals described intellectual stimulation by ensuring teachers and supporting staff members were given access to information to learn and refine best practices. This work was performed in the PLCs and other teacher groups established in the school, including building level leadership teams. Through groups and as individuals, teachers drove the professional development through specific needs based on data. The distribution of materials was also determined by the data and how to improve performance. These characteristics reflected the leadership responsibility of resources. The interviews reflected the principals' concern with (a) communicating these elements of how the school met physical responsibility while working towards and achieving goals or (b) how principals expressed the leadership responsibility of outreach. Although several principals expressed some frustration with their attempt to gain more community involvement,

each principal advocated for their school and worked to include their community in the processes of school and educating students.

Findings

The purpose of the study was to determine to what extent, if any, do principals and teachers have a common perception of the 21 Leadership Responsibilities expressed through the work of principals in Baldrige school districts that have been recognized at the national award level. This multiple case study utilized a mixed methods approach in two phases. The first portion of the study, quantitative, was a survey of principals and teachers regarding their observations of the frequency at which principals express the 21 Leadership Responsibilities in their daily work.

The second portion of the study was an interview to gather qualitative information regarding how principals report their perceptions of their work. Both data sources, the quantitative survey and the qualitative interview informed the responses to the following three research questions:

Research question 1. To what extent, if at all, do principals of Baldrige schools self-report the manifestation of each of the 21 Leadership Responsibilities in their work? Principals of Baldrige schools self-report the manifestation of each of the 21 Leadership Responsibilities in their work to the extent of frequently performing each element.

Research question 2. To what extent, if at all, do principals and their staffs agree about the principals' expression of the 21 Leadership Responsibilities in Baldrige schools? Principals and their staffs agree on the proportion the principals' expression of the 21 Leadership Responsibilities in nationally recognized Baldrige school districts.

Research question 3. Based on the responses of principals and staff at Baldrige schools, how are the 21 Leadership Responsibilities implemented in the daily work of a principal? The 21 Leadership Responsibilities appear to be expressed in the daily work of principals through the Baldrige framework.

Chapter 5: Findings, Implications, Conclusions, and Recommendations

Introduction

This chapter presents a summary of the background and methods that guided this study and followed by a discussion of findings, implications, conclusions, and recommendations regarding practice, policy and future research. The purpose of this multiple case study, through a mixed-methods explanatory design, was to examine to what extent, if any, do principals and teachers have a common perception of the 21 Leadership Responsibilities expressed through the work of principals in nationally awarded Baldrige school districts. The following research questions provided the structure for this study:

1. To what extent, if at all, did principals of Baldrige schools self-report the manifestation of each of the 21 Balanced Leadership Responsibilities in their work?

2. To what extent, if at all, did principals and their staffs agree about the principals' expression of the 21 Balanced Leadership Responsibilities in Baldrige schools?

3. Based on the responses of principals and staff at Baldrige schools, how were the 21 Balanced Leadership responsibilities implemented in the daily work of a principal?

    For the purpose of this study, quantitative data were collected through McREL's Balanced Leadership 21 Leadership Responsibilities survey.

Background Summary

Since the 1990s national attention regarding education included securitization of government spending, reviews of organizational framework, refinement of curriculum, identification of best practice pedagogy and implementation of accountability measures. From

this securitization, the work of a principal evolved from manager to include qualities and skills focused on organizational transformation and educational components of teaching, learning and assessment. Past research, found principal leadership to have an effect size on student achievement. Marzano et al. (2005) applied a method of meta-analysis to 69 leadership studies that included data from 2,8000 schools with 14,000 teachers and approximately 1.4 million students. The findings of the study resulted in 21 categories or leadership responsibilities performed by principals that demonstrated an effect size on student academic performance ranging from 0.15 to 0.33. The Marzano et al. (2005) meta-analysis was delimited to discussion of organizational context or framework. While considered statistically small, these leadership responsibilities or roles were categorized based on impact or no impact regarding change management. These categories were labeled as first order change, second order change, and those responsibilities negatively impacted by second order change. All leadership responsibilities were included as day-to-day leadership components, while five were determined to be associated with second order change (change agent; flexibility; ideals and beliefs; intellectual stimulation; monitoring and evaluating; optimizer; and knowledge of curriculum, instruction, and assessment). Communication, culture, input, and order were the four leadership responsibilities negatively affected by second order change.

Internationally, organizations and governments recognize the Baldrige Performance Excellence Program as a credible, viable organizational framework to support employees in implementing quality management (QM) practices. These practices benefited business, hospital and collegiate education systems (Caldwell & Shipley, 2000; Deming, 2000; Douglas & Fredendall, 2004). Researchers found that the leaders drive the system and create results through

QM results. The Baldrige program recognizes this systemic work through a vigorous review of application of QM methods which include cycles of Plan-Study-Do-Act that support areas of Leadership; Strategic Planning; Customer Focus; Analysis, Measurement, and Knowledge Management; Workforce Focus; Process Management; and Results.

Successful implementation of the Baldrige model rests with the work of the leaders in an organization (Caldwell & Shipley, 2000). Executive leaders at the district level are key personnel in the planning and implementation of Baldrige on a macro scale. The business of the building level principal to bring the staff of a school in alignment with vision, mission, and goals that meet consumers' and taxpayers' needs appears to be just as important and functions on the micro level of school organization. Leadership of the building level administrator influences the success of QM implementation, thusly affecting student academic achievement.

Methods Summary

A school or school district nationally recognized in the Baldrige program completes an intensive application process including site visits. Only six school districts have won the national award. Three consented to participate in this study: Jenks Public Schools in Oklahoma, Iredell-Statesville in North Carolina, and Montgomery Public Schools in Maryland. Through the participation of principals and teachers of these three districts, the researcher conducted a two-part, mixed-methods study that included a qualitative survey of the observed expression of principal leadership responsibilities and a quantitative interview of the principals to capture how principals express their work in a nationally recognized Baldrige district. Participants of the web-based survey were selected through a stratified, purposeful sampling method. Of the potential participants, teachers and principals, ($N = 2{,}847$), 13% ($n = 367$) completed the survey.

With a confidence level of 95%, a confidence interval of +/-5, and $N = 2,847$, the needed sample size of 339 was met ($n = 367$). The proportion of participants from the two smaller districts mirrored the proportion of participants at the other districts. Montgomery County Public Schools, the largest participating district both in size and in participants, made up 47.68% of total survey respondents. The second and third largest districts were Iredell-Statesville Schools and Jenks Public School with 37.60% and 14.71% of total participants, respectively. The researcher used a survey with a Likert scale of frequency of observances or expressions of the principal regarding factors of each of the 21 Leadership Responsibilities. From this data, NCSS analysis produced frequency distribution tables, factor analysis tables, and ANOVA including subsequent box plots tests. These tables and plots provided satisfactory and transparent information so that the researcher found cause to review the ANOVA probability level and create a mean of the means of each variable or leadership responsibility through its respective factors.

Nine principals participated in, completed the qualitative segment of the study, and represented the proportion of the size and participation rate of their respective district. Each gender and building level (i.e., elementary, middle, and high school), were represented. Race or ethnicity of principles included Asian, Black, White, as well as one reporting a *combined* category. Principles also reported varying levels of experience and educational degrees. After each principal documented consent to participate, eight to eleven questions were asked during a 20 to 45 minute period. The principal interviews were selectively coded for each of the seven Baldrige criteria and again using the 21 Leadership Responsibilities. The web-based program, Dedoose, was employed for both rounds of selective coding and each round produced a data table displaying the number of codes by descriptor and code co-occurrence.

Summary of Findings

Public school leaders, including the superintendents of school districts, who have been awarded the Baldrige National Quality Award, agree there is a great degree of difficulty, and employees perceive challenges of implementation and sustainability as second order change (Byrnes et al., 2007; Conyers & Ewy, 2004). The literature also states addressing each element of Baldrige is not easy work (U.S. Department of Commerce, 2011). Baldrige framework provides a structure for leadership to implement QM in education tools such as Professional Learning Communities to review student data and create grass roots, continuous professional development for teachers. In this work, the principal works collaboratively with staff in applying other QM techniques such as root/cause analysis, affinity diagrams and flowcharts. Through this, the principal builds leadership capacity in staff to work towards full potential in meeting goals to realize mission and vision of the school and district. As principals support a paradigm shift in staff to meet each student's or customer needs in a continuous improvement model, the work of the principal also shifts from manager to manager/transformational leader. The data mirrors the needed paradigm shift regarding relationships between teachers and principals and how they view the roles and responsibilities of principals in the building level organization (Senge, 2006).

Research question 1. To what extent, if at all, do principals of Baldrige schools self-report the manifestation of each of the 21 Leadership Responsibilities in their work? The purpose of this research question was to determine if principals working in a nationally recognized Baldrige school district reported manifestation of the 21 Leadership Responsibilities in their work as building leaders.

As evidenced in the analysis of variance report (ANOVA) for each factor of each variable or each of the 21 Leadership Responsibilities reported by principals, each leadership responsibility factor ranged from 2.86 to 3.93 (Appendix CC). When reviewing the mean of means for each of the 21 Leadership Responsibilities, based on principals' responses, the average of the factors per responsibility and narrowed the range, 3.39 to 3.79.

The qualitative portion of the study complemented the quantitative results as demonstrated in Figure 13, showing number of codes by descriptor or by 21 Leadership Responsibilities, Appendix BB, and showing code co-occurrence of the same.

Research question 2. To what extent, if at all, do principals and their staffs agree about the principals' expression of the 21 Leadership Responsibilities in Baldrige schools? The purpose of this research question was to determine whether there was a relationship between the principals' self-reporting of their expression of the 21 Leadership Responsibilities in their work and the teacher observances of the same. First, a factor analysis produced communality for 88% of the factors. To increase the transparency of the study, the researcher ran an analysis of variance (ANOVA) for each factor. The analysis of variance table for each factor reinforced a good fit of data and research design. The null hypothesis (i.e., no relationship between the responses of principals and teachers) was rejected and the alternative hypothesis, asserting a particular relationship, was accepted for most of the assumption tests (Appendix Z). The probability level of the ANOVA determined significant alpha as $\leqq 0.05$. This demonstrated a statistically significant variant view between the two independent variables, teachers and principals, regarding the dependent variables or 21 Leadership Responsibilities. Seventy-three percent of the 82 leadership factors demonstrated a significant alpha of $\leqq 0.05$. All 21

Leadership Responsibilities demonstrated at least one factor with a significant alpha. Eight of the 21 Leadership Responsibilities (21LR) had all factors within that role informing a significant alpha of $\leqq 0.05$. Leadership Responsibilities associated with second order change and those negatively impacting second order changes registered 78% and 85%, respectfully, of factors with significant alpha.

Means and effect size for the total population and each categorical variable were tabulated and reported. Each ANOVA produced a box plot that compared the mean response for the categorical variables, principals and teachers. The box plots visually demonstrated how principals consistently registered higher frequencies and the significant alpha confirmed a statistical difference among 60 of the 82 factors. Through the transparency of the factor analysis, which demonstrated communality for 88%, and the ANOVA reports, a mean of the means created a table demonstrating the reporting differences between principals and teachers. While principals reported a range of 2.86 to 3.93 for the 82 leadership factors, the teacher range for the same was 2.59 to 3.66 (Appendix AA). In regards to the mean of means, the numbers reflect the same trend between principals and teachers with a higher, tighter number set of 3.39 to 3.79 and 2.90 to 3.44, respectively. While principals consistently rated themselves higher, the difference between the principal mean and the teacher mean for each variable ranged 0.03 to 0.68.

This data confirmed a correlation exists between the self-reporting of principals and teacher observation of the same.

Research question 3. Based on the responses of principals and staff at Baldrige

schools, how are the 21 Leadership Responsibilities implemented in the daily work of a

principal? The purpose of this question was to determine how principals expressed the 21

Leadership Responsibilities within the context of working within the Baldrige framework.

Administrators spoke of performing acts reflecting each of the seven Baldrige criteria and the 21

Leadership Responsibilities (Appendix DD). A total of 521 codes were noted from the nine

principal interviews. All categories contained at least 50 coded phrases. Workforce focus

presented the most items, 104, coded. Workforce focus, leadership and measurement, along with

analysis and knowledge management were the categories with the most coded phrases. Results,

operations, and strategic planning were the Baldrige categories with the least amount of coding

noted. In describing the work, principals spoke to goal setting in alignment with the district's

strategic plan. Often collaborative work through leadership teams or PLCs contributed to

setting, monitoring, and working towards building goals. Principals ensured professional

development and developed leadership capacity of staff as demonstrated through data.

Resources displayed the same distribution. Principals noted the utilization of quality

management tools to communicate with staff, utilize data, and meet goals. Each administrator

emphasized communicating in a clear, concise, repetitive manner to ensure a shared vision. Part

of this element of communication included (a) outreach to parents and community, and (b) how

the school worked to meet the needs of students and community. Whether communicating

within or outside of the organization, principals acknowledged or affirmed progress and

shortcomings.

Through the Baldrige lens, code co-occurrence results displayed 774 incidents. Strategic Planning and Measurement, Analysis and Knowledge Management co-occurred the most, 36 times, while Operations Focus and Results co-occurred the least, 5 times. Leadership, Customer Focus, and Measurement, Analysis and Knowledge Management all registered double digit numbers of code co-occurrences with each of the other six Baldrige criteria. These three Baldrige categories also consisted of 17%, 15% and 20%, respectively, or just over half (52%) of the total co-occurrences registered. Operations focus, the smallest reporting of the Baldrige criteria registered 11% of the co-occurrences from the interview data. The coding through the filter of Baldrige criteria demonstrated the work of the principals, as they described it, affirms the work reflects Baldrige principals.

A subsequent cycle of coding reflected the 21 Leadership Responsibilities data presented by principals in the interview phase of the study. A sum of 892 codes were noted from the principal interviews. Six leadership responsibilities fell in the bottom quartile for number of codes: visibility; contingent rewards; optimizer; knowledge of curriculum, instruction, and assessment (CIA), discipline, and flexibility. These roles totaled 11% of the codes. Nine of the leadership responsibilities—affirmation; change agent; ideals and beliefs; input; involvement in curriculum, instruction, and assessment (CIA); order; outreach; relationship; and situational awareness—registered within the range of having 26 to 50 codes for 39% of the total codes. Four leadership responsibilities—culture, resources, intellectual stimulation, and monitor and evaluate—ranged from 52 to 71 codes for 28% of the total codes. Two leadership responsibilities—communication and focus—tallied the highest number of occurrences at 99 for 22% of the total codes. One-third of the leadership responsibilities coincided with 55% of the

number of code descriptors and 66% of code co-occurrences. Focus and communication each averaged 11 phrases per principal and both coded the most phrases of the 21 Leadership Responsibilities. The responsibility of visibility was the least occurring code with a tally of six.

The 21 Leadership Responsibilities code co-occurrence data (Appendix BB) demonstrated evidence of these leadership roles in the work of principals from the qualitative interviews. Statements regarding communication, culture, focus, intellectual stimulation, resources, and monitor and evaluate all ranged from 109 to 187 co-occurrences. Focus and communication tallied the most code co-occurrences, 187 and 164 respectively. The heavy emphasis on these roles reflected statements from the interviews regarding strategic planning, use of data, professional learning communities (PLCs), and communication of this work. The 21 Leadership Responsibilities with the lowest count were discipline and visibility at 11 each. The code occurrence of the remaining 13 or bulk of the 21 Leadership Responsibilities, ranged from 31 to 87. The mean and median were 58.6 and 57 respectively. There is no discernable pattern with responsibilities associated or negatively affected by second order change with one exception. Communication, culture, input and order—responsibilities associated with negatively impacting second order change—tallied on the higher end of the co-occurrence range (76-164). The total number of code co-occurrences for the 21 Leadership Responsibilities (1,648) might appear to be substantially higher when compared to the results of the Baldrige criteria code co-occurrence (774). A ratio of 3:1 was figured when the proportions of the two frameworks, 21 Leadership Responsibilities and seven Baldrige criteria, were compared. However, the ratio of the code co-occurrences is not quite 2:1.

Discussion of Findings

Research question 1. To what extent, if at all, do principals of Baldrige schools self-report the manifestation of each of the 21 Leadership Responsibilities in their work?

Through the data analyses, principals identified their level of frequency as frequently or almost always when expressing the 21 Leadership Responsibilities while working within a Baldrige framework (Appendix CC). Principals reported a range of means, 2.86 to 3.93, or frequently to almost always expressing the roles depicted by the 82 factors of the 21 Leadership Responsibilities. While McREL does not claim to have any database to determine a cut score from the Balanced Leadership tool, the researcher found creation of such an item. According to two sources, determining a cut score for principals on the survey tool employed in this study, a sample of experts would need to participate in the survey (Barua, 2013; Coe, 2002). Once the experts participate in the survey, the panel of experts determine the frequency of a qualified or knowledgeable survey participant would perform well and the probability that an unqualified participant would also perform well. Next these estimates are averaged and used to determine the cut score (Arthur, Fehrmann, & Woehr, 1991). Another method of determining a Likert scale cut score employs the application of Cronbach's alpha and a "discrimination index" or a panel of experts, just described, to determine the average performance based on experts and non-experts. Unfortunately, the appropriate knowledge and foresight to assemble the means to figure a cut score for the survey in this study occurred. Also, the pool of experts would have had to come from the same pool of principal participants from this study. If the cut score panel had taken place, it probably would have negatively impacted participation of administrators in this study, based on the low return of completed principal surveys and low number of interviews. If

this study is replicated, perhaps the number of participants might increase if more districts are recognized through the Baldrige program or the researcher is able to find other means to increase participation.

Research question 2. To what extent, if at all, do principals and their staffs agree about the principals' expression of the 21 Leadership Responsibilities in Baldrige schools?

The ANOVAs from each of the 21 Leadership Responsibilities provided transparency to the data collection methods and correlated observations reported by survey participants. Through the ANOVAs, data demonstrated that the data had a normal distribution and the data was a good fit for the study. The null hypothesis was rejected and the alternative hypothesis asserted that a particular relationship existed for most of the factors. The ANOVAs also confirmed that teacher' responses correlated with those of the principals; however, principals consistently ranked themselves with a higher rating. Seventy-three percent of the factors presented a significant alpha of $\leqq 0.05$ and the difference of the principal and teacher means, including a comparison of the mean of means reflected the congruency of how teachers reported their observances of principals demonstrating the 21 Leadership Responsibilities. Teachers agreed that principals displayed these leadership roles, but not to the extent the principals reporting.

Although principals reported a higher frequency of performing the 21 Leadership Responsibilities than what teachers reported, several factors exist that rationalize the discrepancy. The first reason encompasses the challenge communication presents in the daily work of a principal the second reflects the challenge regarding alignment of systems and the second relates to the visibility of a principal's work. Adding the context of the work of all staff

in a continuous improvement system which describes staff in the midst of second order change. One such example of this demonstrated by the ANOVA data provided by the six factors of the leadership responsibility called Culture. The second through sixth factors of Culture encompass the concepts of teachers' sense of cooperation among peers, team spirit, shared common language, combined understanding of purpose, collective vision and protection of instructional time. Principals utilize relationships as a cornerstone for building culture (Sergiovanni, 2007). While principals do not typically make time to communicate precisely how they facilitate these elements, they do work through fostering relationships and focusing their staff on meeting the goals to reach the vision and mission (Fullan, 2001; Sergiovanni, 2007). Creating a culture of a learning organization that lives in continuous improvement of student academic performance creates a challenge for educational professionals (DuFour, 2007; DuFour et al., 2004; Frick, 2009; Fullan, 2010). A Professional Learning Community (PLC) serves as a vehicle for a principal to create this culture and encompasses the factors of Culture (DuFour et al., 2002; Fullan, 2006; Senge, 2006).

As a result, teachers evolving their practice of continuous improvement are constantly changing through planning, implementation, reviewing and reflecting upon results of the work. The continuous change causes disruption as staff work from single loop learning towards double loop learning (Argyris, 1991).

Cognitive restructuring, or reframing the way one thinks, results when double loop learning occurs (Argyris & Schön, 1978; Schein, 2004). When teachers question the system because of their learning, principals facilitate system change to accommodate the needed change so workflow may resume (Argyris et al., 1985). When the system does not accommodate or

respond in timely fashion, professionals experience failure and both professionals and

organization do not move forward (Deming, 2000). Perhaps the reason for a higher discrepancy

rate of reporting between principals and staff relate to anxiety levels of staff as staff work

through change. The difference may reflect the chaos staff undergo when in second order

change: Staff report that their lines of communication, ability to give input, perceptions of order

and sense of culture are out of alignment and a challenge (Heifetz, 2003; Kotter, 1996). The

leadership responsibility of Communication amplifies the experiences of second order change

and the principal's work to facilitate paradigm shift for staff (Appendix CC).

Research question 3. Based on the responses of principals and staff at Baldrige schools,

how are the 21 Leadership Responsibilities implemented in the daily work of a principal?

While the quantitative survey data of phase one of the study revealed the observations of

how often principals exhibited the 21 Leadership Responsibilities, the qualitative data from the

interviews of phase II revealed the deep level of intimacy in which these administrators are

familiar with their own work of collaboratively building capacity in staff and facilitating

continuous improvement. First, the ANOVA shed light on the average response, frequently and

almost always, among principals for the factors of each of the 21 Leadership Responsibilities.

Then the responses were compared with teacher responses to discern the number of significant

alphas and accept the hypothesis that the responses where different, but correlated. The second

half of the study focused on the coding and code co-occurrence of both Baldrige criteria and 21

Leadership Responsibilities within the principal interviews. The expressed processes (Appendix

DD) resulted and listed how the nine principals interviewed expressed their leadership

responsibilities as aligned within the context of a Baldrige system.

Phase II of the study coded the interviews given by principals and yielded a cross-match of terms to depict the "how" of the work of principals in a Baldrige framework (Appendix DD). Through the lens of Baldrige criteria, 521 codes were noted with at least 50 codes marked in each of the six Baldrige elements. The three most coded categories were Workforce Focus, Leadership and Analysis, Measurement and Knowledge Management, in that order. The least coded of the Baldrige criteria was Results. Code co-occurrence revealed 774 incidents with Strategic Planning and Measurement, Analysis and Knowledge Management co-occurred the most, 36 times, while Operations Focus and Results co-occurred the least, 5 times. The coding of the same interviews through the filter of the 21 Leadership Responsibilities yielded 892 codes and each leadership responsibility garnered from one percent to 11% of the codes. Both Communication and Focus yielded the highest tallies of codes with 99 each while Visibility tallied lowest at six codes. Communication and Focus also tallied the most code co-occurrences while Discipline and Visibility tallied lowest.

Perhaps the most telling concepts to come from the interviews were the conceptual comparisons that facilitated the creation of the cross-match of coding between Baldrige criteria and the 21 Leadership Responsibilities. The conceptual comparisons presented in Chapter 4 summarized an affinity diagram developed as a result of coding. While strategic planning, customer focus, workforce focus and reviewing school results mirrored Baldrige criteria, other important concepts emerged. This included communication, school improvement teams, continuous improvement, data-driven decision-making, staff culture of peer support, student support. Principals, after participating in district level meetings based on continuous improvement, organized school leadership to review data, revise the school improvement plan.

The principal then worked with this building level team to structure the opening of school with an agenda that reflected the school's annual goals. Throughout this work, principals spoke of PLC like structures in place within multi-levels of the building that created a hierarchy of PLCs. An example would be the strategic planning team or a larger school leadership team that collaboratively created the school's goals and improvement plan. Members of this top-level group would return to their department or grade level PLC to disseminate the information and create aligned goals for that specific team. From this group work, individuals would then align their professional goals to support the team and school level goals.

As the year progressed, principals continued to focus staff in regards meeting building, department and individual goals. Principals reinforced teaching and learning best practices with walkthroughs, attendance at PLCs, reviews of student data and recognizing what worked. Part of these recognitions allowed opportunities for teachers to go on learning walks to observe and reflect with master teachers. Some master teachers were promoted to coaching or a curriculum facilitator position. This work created teacher driven professional development, teacher buy-in for school goals and capacity in teacher-leaders. Principals discussed how this work created a working environment of collaboration, shared-decision making and lowered turnover rate.

When something did not work as planned, principals discussed the results and asked staff what should change so improvement could occur. Some of the discussions regarding data also included how resources followed the data or how to allocate budget based on school goals and performance. Principals also attributed this kind of openness to creating a trusting environment that appreciated calculated risk-taking and innovation. Determining strategies to assist at-risk students or families in need of support emerged from this supportive environment. To

continuously improve, principals ensured data reviews throughout the year. Each data set purposefully selected to bring focus to some aspect of performance in meeting school goals. At times, the staff believed the data pointed to an adjustment in the school goals or resource allocation. All throughout this work, principals also attempted to communicate with the community outside of the school.

Throughout these explanations offered through the interview, principals described their employment of the 21 Leadership Responsibilities as evidenced through the coding. All of the 21 Leadership Responsibilities coded in double digit numbers ranging from 11 to 99 incidents except Visibility, which coded only 6 times. An explanation for the low code amount of Visibility derives from the focus of Baldrige principals on systemic continuous improvement. While principals intentionally discussed the actions of their focus, see Expressed Processes of Appendix DD, the principals did not necessarily state that their actions were to intentionally address Visibility. An example, Table 16, demonstrates this notion. Principals participating in school improvement teams, PLCs, data discussions, and other collaborative conversations clearly allow the principal to be visible in expressing values, vision, mission, analysis, evaluation and communication: All components of the work of a principal.

Table 16

Sample of Cross-match

Baldrige Criteria	Expressed Processes	21 Leadership Responsibilities
Analysis, Measurement, and Knowledge Management	• School improvement teams • Data • Data selection and application • Trends and relationships in data • Alignment of goals, data and systems • PDSA • PLC • Goal setting • Benchmarking on local, state, national levels • Monitor and report data • Performance review and use of data • Strategic plan	• Change Agent • Communication • Culture • Flexibility • Focus • Input • Knowledge of Curriculum, Instruction, and Assessment • Monitoring/Evaluating • Optimizer

Sample of Cross-match, Continued

- Budget allocation and maintenance

- Hiring staff

- Improvement of teacher practice

- Improvement of student

  performance

- Alignment with district goals

- Rubrics

- Use of social media

- Impact of strategies

- Influence reflection and planning

- Monitor levels of implementation

- Continuous improvement

- Technology

- Innovations

- Clean data

- Communication

Implications of the Study

Constituents call for reform of the American K-12 public educational system in a modern, electronic age in which learning accelerates exponentially (Crocket, Jukes, McCain, & Wozniak). The fading industrial model of education catches educators mid-stream in shifting from single loop learning to double loop learning or knowledge economy (Drucker, 1993; Hargreaves, 2003). These pressures to increase performance in a digital world force educators to experience systems change. Key components of this shift include continuous improvement, knowledge management, and shared leadership (Deming, 1986, 2000). Deming (1986, 2000) stated that the system itself was the challenge for management, rather than the employees being the challenge. He reasoned the system allowed people to become misaligned. In this work, principals focus on process management to align and support staff in positively impacting student academic achievement.

After reviewing the data, this research confirmed that faculty members evidenced that their administrators practice all 21 Leadership Responsibilities; however, teachers confirmed at a slightly lower frequency than the principals. The researcher asserts that the statistically significant difference in reporting between the two surveyed groups, as evidenced by 75% of factors of the 21 Leadership Responsibilities associated with second order change and 85% of factors negatively impacted by second order change, demonstrates the challenges teachers experience in continuous improvement models such as Baldrige. These experiences in second order change create a feeling of loss of control and expertise for staff (Argyris, 1991; Deming, 1982; Drucker, 2009; Earl & Fullan, 2003; Sergiovanni, 2007). This data also reflects the challenges principals face in supporting their staff through the culture of constant change and

adjustment that continuous improvement models create (Kegan & Lahey, 2001; Schön, 1985; Senge, 2006). The researcher also asserts that this data demonstrates that participating principals in the study are further along in accepting the constant culture of change than are faculty. These assertions reflect the research regarding single and double loop learning (Argyris, 1991). The use of continuous improvement language of the interview phase of the study gave evidence to the cognitive restructuring of building level administrators. Particular stand out examples of this work include words and concepts such as continuous improvement, PLCs, collaboration, communication, strategic planning, data, results, customer voice, data-based management of resources and recognizing success and failure. Other examples of this language are found in the central column of Appendix DD: Cross-match of Expressed Processes. Perhaps, through additional study, reframing leadership roles to better reflect the Baldrige framework will be necessary.

To meet federal mandates regarding student academic achievement and for staff and students to meet their academic potential, public education must be based in continuous improvement cycles and allow for alignment and capacity building in staff. PLCs are at the core of this work however, there must be an organizing and supportive systemic network. Baldrige offers a framework for developing and nurturing PLCs. Baldrige also allows for a structural focus on goals and results complemented by the alignment of various levels of leadership and staff. Within this context, leadership serves staff and re-enforces the vision, mission and values of the organization, employees and their work align to produce and meet customer needs (Drucker, 2009; Senge, 2006). Every educator should be involved in assessing individual and organizational performance followed by reflection and opportunity to evolve the organization

complementing the vision, mission and values of the organization. These employee

contributions, with forward moving organizational responses, create double loop learning a

necessary component of learning organizations (Agryris, 1991; Firestone & McElroy, 2005;

Senge, 2006). Use of the Baldrige criteria allows for systemic change, development and

excellence and should be part of the way all educators and educational support staff perform

their work.

Perhaps the next line of work regarding education is to evolve both Baldrige criteria and

educational leadership roles with successful components and strategies of continuous

improvement. Aside from the recent number of books asserting the benefits of continuous

improvement in education, a clearer, uncomplicated reflection tool or growth model be created.

If we have entered the Age of Information and must manage knowledge to develop the capacity

of faculty, grow students to be critical thinkers, nurture independent learners and develop

collaborative problem solvers the model of leadership must evolve.

In alignment with the core concepts and values of the organization an educational

administrator should reflect the following leadership roles and responsibilities: visionary leader;

student centered excellence; organizational and personal learning; value of workforce; agility;

focus on the future; management by fact; innovation management; social responsibility; focus on

results; capacity to create value and systems perspective development. These leadership

components must reflect and reverberate this vision and provide a beacon for others to positively

contribute. While some educators might interpret implementation of performance excellence as

second order change, it is the responsibility of educational leaders to facilitate the shift so staff

and stakeholders perceive first order change. In this, Agryris' discussion of double loop

learning is realized and organization, staff and stakeholders *fall forward* together.

Conclusion

The implementation of Baldrige criteria appears to be an effective and efficient

framework by which principals support the academic progress of students through a

concentration on results. The learning organization that results allows employees to become an

active part in their professional development and realize success through organizational

alignment with mission, vision, and goals. With this type of culture in place, professional

learning communities would not be viewed as a yet another meeting to attend. Communication

becomes streamlined and focused on academic performance. Principals are able to build

leadership capacity in staff by sharing data to make decisions. With scarce fiscal resources

available to schools, principals can share data and best practice research so staff understands

allocation of resources. A flow results in these cycles embedded in a learning organization based

on the Baldrige format.

The reward for implementation and maintenance of the Baldrige framework at the district

and building level are found in the results. Past nationally recognized school districts boast

graduation rates increased by at least ten percent. All districts participating in this study

experienced either (a) drastic improvement in graduation rate such as Iredell-Statesville Schools

in North Carolina, which increased their rate 20 percentage points or 61% to 81% (U.S.

Department of Commerce, 2008a) or (b) maintaining a graduation rate of 95% or higher.

Results in state and national tests continue to increase or maintain a model rate. Iredell-

Statesville Schools' average SAT scores were 1056 in 2008, the year of their award. This

average score was higher than districts with similar demographics and rated higher than the

North Carolina or national average, according to the Iredell-Statesville Profile (North Carolina

Department of Public Instruction, 2008; U.S. Department of Commerce, 2008b). Students from

Jenks Public Schools have earned the National Merit Semifinalists Scholar award (133 students),

National Merit Finalists Scholar award (123 students), and Presidential Scholar award (two

students) in the last decade (Jenks Public Schools, 2010).   Iredell-Statesville Schools and Jenks

Public Schools boasted results with all subgroups of students in areas of assessment,

engagement, and graduation rate. An example from a nationally recognized Baldrige district not

included in this study—Community Consolidated School District in Illinois, with subgroups

including minority students, free and reduced lunch, and English language learners—

demonstrated similar gains (U.S. Department of Commerce, 2003b). At the time of their

application, the year 2003, their second grade students raised their reading 35 percentage points

above the national average (U.S. Department of Commerce, 2003a). The staff turnover rate,

11.7%, at Community Consolidated School District was almost half of the national average.

Recommendations for Practice and Policy

       National Level.

       Organization and Funding. The continued advocacy through both public and private

sources would ensure a national support system for those in planning or implementing Baldrige

is recommended.

       The organization, American Society for Quality (ASQ), based in Milwaukee, WI offers

national and international support to organizations and professionals through serving as an

organizer of regional, state and local chapters that share ideas and tools; publishes research and informational materials; offers trainings in quality management tools and continuous improvement models; and offers testing in various quality management certifications. Perhaps ASQ is the organization that will become the backbone of support and advocacy for the Baldrige program in the future.

In fall of 2011 the U.S. government cut all federal funding of the Baldrige program for the 2012 year and, a year later, also eliminated funding for 2013 ("Despite Federal Funding Cut," 2011; "Support the Baldrige Performance," 2011). At this time, the value of this framework appears to be recognized and supported through private individuals or organizations at the national, local, and state level. Supporters assist in funding the program through donations and at least one foundation, The Foundation for the Malcolm Baldrige National Quality Award offers continued guidance and support through literature, funding and consulting (Frisby & Glenn, 2012).

The Foundation allocated funding in the amount of $4.407 million for 2013 and another $9.68 million for the following 2 years in 2012. This support was promising but did not fund public education initiatives in the initial implementation process. In early 2013 there were no results in internet searches that discussed state support in the form of dollars for public education implementing a Baldrige-type program. However, 37 states continue to work to embed the process within their systems (Stinson, 2011).

Federal Education Legislation. Currently the federal government is deliberating on the evolution of the Elementary and Secondary Education Act (ESEA, enacted in 1964, renewed in 2002 as No Child Left Behind or NCLB). Incorporating an emphasis on continuous

improvement including benchmarking, goal setting and offering a viable, guaranteed

curriculum with appropriate growth measures would support implementation of the same items

in public education. Subsequently, with the support of ASQ and the Baldrige program, educators

would find the support needed to plan, implement and grow the continuous improvement efforts

in public education.

State Level. At the state level, several entities should continue their work in supporting

educators in their work with continuous improvement and Baldrige programs. In other states

there is room to grow support for implementation of Baldrige principals.   ASQ appears to have a

presence in 48 states with at least one section. ASQ encourages members living in North Dakota

and Wyoming to affiliate with the nearest section in the closest state or through the online

option. Members of these sections welcome educators as members and encourage educators to

participate. A beneficial mode of participation is to train as a Baldrige examiner where-by an

examiner participates in the evaluation process of another organization. Another practice that

should continue is encouragement of school districts and schools implementing Baldrige to

participate in the local and state Baldrige recognition program. Once an entity qualifies through

the state organization, that entity may choose to participate in the National Baldrige Award

Program. Both the state and national award programs offer a rigorous and reflective program for

participants. The cost of application causes concern for school and district officials, and this

researcher recommends the continued support, monetarily and intangibly, by the private sector

including the ASQ and the National Baldrige Award Program. Another source for support is

state government. New Mexico's legislation creates supports and requirements of public school

districts other states put forth similar initiatives (Cooley et al., 2006; Illinois State University,

2004; Schumpelt, 2010; Siegal, 2000). However, not all states continued their support and initiatives dissolved for various reasons. State level officials should listen to some of the underlying challenges of the paradigm shift required in education and continue support even when the work may appear surmountable: Second loop learning and cognitive restructuring takes time and hard work.

On the collegiate level, teacher and administration training programs should base pedagogical and leadership practices in a continuous improvement model. This framework serves as a safe place to practice quality management tools and learn more about the workings of model PLCs and action research for future teachers and administrators. As students enter the field of work, continuous improvement practices do not come as a surprise or second order change.

District Level. Implications for district level policies and procedures set the parameters and examples for school personnel to adhere. Prior to any organization implementing a systemic change, the recommendation for a needs or organizational assessment and performing an evaluation of the readiness of staff to work through the change is paramount (Schyns, Oreg, & VanDam, 2008; Stober, 2008). The needs assessment (a) provides opportunity to celebrate success in elements reflecting continuous improvement and (b) gives points where the work can be introduced and early success realized. A needs assessment also indicates opportunities for improvement, which assist in setting goals and benchmarks to help in organizational alignment. The readiness assessment allows leaders to understand staff concerns surrounding the change and describe levels of implementation and corresponding configurations. One such tool to use is the concerns-based adoption model (Horsley & Loucks-Horsley, 1998). Implementation of these

assessments sets groundwork for the culture of continuous improvement and models the search for the voice of the customers.

Once the organizational assessments are complete and shared, strategic planning should begin. As this work ensues, attention to training follows. Administration should be trained in continuous improvement practices including quality management tools, appropriate identification and use of data along with deepening knowledge and skills regarding collaboration, shared-decision making, building leadership capacity and knowledge management.

Staff development should include leadership development at different training levels to meet the needs of board members, central office personnel, teacher-leaders, entry and veteran building level administrators. Information regarding initial understandings, support through implementation, performance evaluation, self-reflection, recognition of successes, and addressing failures are a part of the professional development. Training to understand the systemic changes initiated by the Baldrige program helps staff identify stages of change, identification of important benchmarks and develops a common language among staff. As various levels of staff work through cycles of improvement, either through PDSA or PLC format, new learning and reflection occur. All levels of administrators must be able to identify single and double loop learning so adjustments can be made to support employees and the organization in growing, learning, and meeting goals (Argyris, 1991). When administrators recognize single loop learning or second order change, they must work to remove barriers and so staff members and the organization move forward together.

In addition to the training and support for staff in a continuous improvement model such as the Baldrige framework, continual attention to organizational change management should be reflected in practice and policy. Continuous improvement at all levels of the organization should be implemented, including central office, building, department or grade level, and individual levels. Emulating the elements of Baldrige at the district level models for the school level personnel and can develop foster grass-roots driven system based on embedded, continuous cycles of learning and improvement.

As time passes and the culture evolves, the organization realizes the need for policy to evolve and reflect practice. The district will need to convene policy review teams that will also reform policies. Particular attention to the elements of process management will occur during this period of review and revision. Evaluation, recognitions, rewards, continued professional development and retention efforts should be included but not limited to policy revisions.

Through this work, a symbiotic relationship develops between planning, implementation, data study, and then action to cause change. As this culture develops, the organization follows double loop learning and the individual perceives change as first order.

Building Level. The implementation of Baldrige criteria appears to be an effective and efficient framework by which principals support the academic progress of students through a concentration on results. Practice and policy at the school levels should align with the district's policies and reflect the seven Baldrige criteria. Rather than reflect the 21 Leadership Responsibilities in their daily work, the emphasis is more towards the following leadership roles and responsibilities: visionary leader; student centered excellence; organizational and personal learning; value of workforce; agility; focus on the future; management by fact; innovation

management; social responsibility; focus on results; capacity to create value and systems

perspective development. Principals should employ the Expressed Processes and share when

other best practices are uncovered. As administrative practices become shared leadership

responsibilities by master teachers, teachers should report a lower frequency of perceiving

second order change. These revised leadership responsibilities should formulate a growth tool or

evaluative aspect to the principal's repertoire. As the principal grows in experience and practice

of continuous improvement, the principal becomes a source of collegial support for other

administrators, teachers and students in the learning organization.

About teachers in a continuous improvement system, the intimate acquaintance with

action research in a PLC or independent PDSA should be a part of everyday business rather than

a second order change. Teachers should become experts in drafting protocols for examining

student data, and student work because of collaboratively planned lessons. The result could

evolve so that every student's work and data is fully understood by faculty; a personal

educational plan might be developed for every student. As teachers own the performance and

academic needs of all of their students, differentiated instruction, supports and interventions are

naturally implemented.   The feedback teachers can offer each other and administrators should

enhance the collaborative efforts in shared decision making and knowledge management system

centered on students and their academic achievements.

Recommendations for Future Research

In reflecting upon the study, this researcher agrees with the likes of Drucker (1993),

Deming (2000), and Senge (2006) that there is much work ahead of educational leaders to

support staff and improve student academic performance. When performing a search in ERIC

databases using the words *educational leadership* and *Baldrige* and *public education*, only

one item returned: "The Promise of Baldrige for K-12 Education" (Noeth & Walpole, 2002). In

a quick search in the Emerald journal database using the same Boolean search, just over a dozen

of the retrieved titles were journal articles specifically sharing information or research about the

Baldrige framework and its impact in K-12 public education.

The study of educational leadership in the context of the Baldrige framework is still in its

infancy. The small sample size of this study could be improved with attention to subgroups and

unique circumstances. Further studies should contain more recognized districts and not just

those at the national level. While there is not a national database that tracks each recognized

Baldrige winner at the state level, this researcher was able to track at least 21 other schools and

school districts recognized by at least 14 states. Districts not pursuing implementation of the

Baldrige criteria should be contrasted to districts in this study. These comparison districts should

reflect the same demographics as those in a new study.

Further studies could include longitudinal or other research methods with more

participants. Another qualitative method, such as ethnographic case study, would offer more

depth by treat a Baldrige school or district as its own culture. Focus groups could assist in

participants sharing information and working as a group to discuss how school or district

leadership functions in the Baldrige context. Observations could allow the researcher to view

details that might be missed by those working within the Baldrige framework. One other

research method could be to include control groups. Additional variables for study could include

the study of artifacts or observations of classified staff, students, central office staff, as well as

parents and community members. To ensure high functioning staff and system, study should be conducted regarding levels of fidelity and implementation.

The data produced as a result of this study could be reviewed for further details or compared to that of future studies. As continuous improvement models become part of the culture and practice of educators, leadership will continue to evolve. More research will be needed on administrator and staff roles regarding knowledge management, facilitating change, and alignment of staff with organizational roles. Educators will need more information to reflect upon elements of high functioning teams and delving into data to inform and refine practices. Of these highly functioning organizations, additional study should be done in regards to whether or not the organization complements leadership processes with interest agreement based process (collaborative) or top down processes.

Summary

This research of this multiple case study, through a mixed-methods explanatory design, was conducted to determine to what extent, if any, did principals and teachers have a common perception of the 21 Leadership Responsibilities expressed through the work of principals in Baldrige school districts that have been recognized at the national award level.

Research question 1. To what extent, if at all, do principals of Baldrige schools self-report the manifestation of each of the 21 Leadership Responsibilities in their work? This body of research for this question determined principals working in a nationally recognized Baldrige school district reported manifestation of the 21 Leadership Responsibilities in their work as building leaders. As evidenced in the analysis of variance report (ANOVA) for each factor of

each variable or each of the 21 Leadership Responsibilities reported by principals, each leadership responsibility factor ranged from 2.86 to 3.93 (Appendix CC). When reviewing the mean of means for each of the 21 Leadership Responsibilities, based on principals' responses, the average of the factors per responsibility and narrowed the range, 3.39 to 3.79 (Appendix CC). The qualitative portion of the study complemented the quantitative results as demonstrated in the data, showing number of codes by descriptor or by 21 Leadership Responsibilities, Appendix BB, and showing code co-occurrence of the same.

   Research question 2. To what extent, if at all, do principals and their staffs agree about the principals' expression of the 21 Leadership Responsibilities in Baldrige schools? This body of research for this question determined there was a relationship between the principals' self-reporting of their expression of the 21 Leadership Responsibilities in their work and the teacher observances of the same. After a factor analysis produced communality for 88% of the factors, an analysis of variance (ANOVA) for each factor to add to the transparency of the study. The null hypothesis was rejected and the alternative hypothesis, asserting a particular relationship, was accepted for most of the assumption tests (Appendix Z). The probability level of the ANOVA determined significant alpha as $\leqq 0.05$. This demonstrated a statistically significant variant view between the two independent variables, teachers and principals, regarding the dependent variables or 21 Leadership Responsibilities. Seventy-three percent of the 82 leadership factors demonstrated a significant alpha of $\leqq 0.05$. All 21 Leadership Responsibilities demonstrated at least one factor with a significant alpha. Leadership Responsibilities associated with second order change and those negatively impacting second order changes registered 78% and 85%, respectfully, of factors with significant alpha.

Means and effect size for the total population and each categorical variable were tabulated and reported. Each ANOVA produced a box plot that compared the mean response for the categorical variables, principals and teachers. The box plots visually demonstrated how principals consistently registered higher frequencies and the significant alpha confirmed a statistical difference among 60 of the 82 factors. A mean of the means created a table demonstrating the reporting differences between principals and teachers. While principals reported a range of 2.86 to 3.93 for the 82 leadership factors, the teacher range for the same was 2.59 to 3.66 (Appendix AA). In regards to the mean of means, the numbers reflect the same trend between principals and teachers with a higher, tighter number set of 3.39 to 3.79 and 2.90 to 3.44, respectively. While principals consistently rated themselves higher, the difference between the principal mean and the teacher mean for each variable ranged 0.03 to 0.68. This data confirmed a correlation exists between the self-reporting of principals and teacher observation of the same.

Research question 3. Based on the responses of principals and faculty at Baldrige schools, how are the 21 Leadership Responsibilities implemented in the daily work of a principal? This body of research for this question determined how principals expressed the 21 Leadership Responsibilities within the context of working within the Baldrige framework. Administrators spoke of performing acts reflecting each of the seven Baldrige criteria and the 21 Leadership Responsibilities (Appendix BB). A total of 521 codes were noted from the nine principal interviews. All categories contained at least 50 coded phrases. Workforce focus presented the most items, 104, coded. Workforce focus, leadership and measurement, along with analysis and knowledge management were the categories with the most coded phrases. Results,

operations, and strategic planning were the Baldrige categories with the least amount of

coding noted. In describing the work, principals spoke to goal setting in alignment with the

district's strategic plan. Often collaborative work through leadership teams or PLCs contributed

to setting, monitoring, and working towards building goals. Principals ensured professional

development and developed leadership capacity of staff as demonstrated through data.

Resources displayed the same distribution. Principals noted the utilization of quality

management tools to communicate with staff, utilize data, and meet goals. Each administrator

emphasized communicating in a clear, concise, repetitive manner to ensure a shared vision. Part

of this element of communication included (a) outreach to parents and community, and (b) how

the school worked to meet the needs of students and community. Whether communicating

within or outside of the organization, principals acknowledged or affirmed progress and

shortcomings.

Through the Baldrige lens, code co-occurrence results displayed 774 incidents. Strategic

Planning and Measurement, Analysis and Knowledge Management co-occurred the most, 36

times, while Operations Focus and Results co-occurred the least, 5 times. Leadership, Customer

Focus, and Measurement, Analysis and Knowledge Management all registered double digit

numbers of code co-occurrences with each of the other six Baldrige criteria. These three

Baldrige categories also consisted of 17%, 15% and 20%, respectively, or just over half (52%) of

the total co-occurrences registered. Operations focus, the smallest reporting of the Baldrige

criteria registered 11% of the co-occurrences from the interview data. The coding through the

filter of Baldrige criteria demonstrated the work of the principals, as they described it, affirms

the work reflects Baldrige principals.

A subsequent cycle of coding reflected the 21 Leadership Responsibilities data presented by principals in the interview phase of the study. A sum of 892 codes were noted from the principal interviews. Six leadership responsibilities fell in the bottom quartile for number of codes: visibility; contingent rewards; optimizer; knowledge of curriculum, instruction, and assessment (CIA), discipline, and flexibility. These roles totaled 11% of the codes. Nine of the leadership responsibilities—affirmation; change agent; ideals and beliefs; input; involvement in curriculum, instruction, and assessment (CIA); order; outreach; relationship; and situational awareness—registered within the range of having 26 to 50 codes for 39% of the total codes. Four leadership responsibilities—culture, resources, intellectual stimulation, and monitor and evaluate—ranged from 52 to 71 codes for 28% of the total codes. Two leadership responsibilities—communication and focus—tallied the highest number of occurrences at 99 for 22% of the total codes. One-third of the leadership responsibilities coincided with 55% of the number of code descriptors and 66% of code co-occurrences. Focus and communication each averaged 11 phrases per principal and both coded the most phrases of the 21 Leadership Responsibilities. The responsibility of visibility was the least occurring code with a tally of six.

The 21 Leadership Responsibilities code co-occurrence data (Appendix BB) demonstrated evidence of these leadership roles in the work of principals from the qualitative interviews. Statements regarding communication, culture, focus, intellectual stimulation, resources, and monitor and evaluate all ranged from 109 to 187 co-occurrences. Focus and communication tallied the most code co-occurrences, 187 and 164 respectively. The heavy emphasis on these roles reflected statements from the interviews regarding strategic planning, use of data, professional learning communities (PLCs), and communication of this work. The 21

Leadership Responsibilities with the lowest count were discipline and visibility at 11 each.

The code occurrence of the remaining 13 or bulk of the 21 Leadership Responsibilities, ranged

from 31 to 87. The mean and median were 58.6 and 57 respectively. There is no discernable

pattern with responsibilities associated or negatively affected by second order change with one

exception. Communication, culture, input and order—responsibilities associated with negatively

impacting second order change—tallied on the higher end of the co-occurrence range (76-164).

The total number of code co-occurrences for the 21 Leadership Responsibilities (1,648) might

appear to be substantially higher when compared to the results of the Baldrige criteria code co-

occurrence (774).

The coding of both Baldrige criteria and the 21 Leadership Responsibilities allowed for a

cross match or Venn-Diagram that expressed the processes and concepts employed by principals

to accomplish their work. This cross-match allowed for an emphasis on following leadership

roles and responsibilities: visionary leader; student centered excellence; organizational and

personal learning; value of workforce; agility; focus on the future; management by fact;

innovation management; social responsibility; focus on results; capacity to create value and

systems perspective development.

The implications from the study impact national, state, district, building and individual

levels. An emphasis on data and continuous improvement through national legislation are

necessary to keep pressure on public education to meet the needs of every learner. This includes

public and private support for organizational and personal development in continuous

improvement. On the state level, public and private entities should continue their support

through either through state legislated initiatives that define practices and funding or

organizations such as ASQ sections. The ASQ section provide different levels of support

that include literature, research, training, coaching and certification. Collegiate training

programs should incorporate continuous improvement tools and models such as introduction to

and practice with professional learning communities and action research. The work of these

organizations could also influence the evaluation or growth tool used to monitor and evaluate

educators on an annual basis.

School districts are encouraged to plan and implement or continue implementation of

continuous improvement practices with staff. This process should include organizational

assessments that assist in developing a strategic plan and support staff in the paradigm shift of

moving into a continuous improvement framework. Staff development should be based on staff

needs and differentiated. Training should include the appropriate tools and concepts that support

continuous improvement. Administrators should be trained regarding the stages of change and

double loop learning to be able to support staff through second order changes. Central office

staff should model continuous improvement practices. As the processes of district and school

operations reflect the paradigm shift to continuous improvement, central office will need to

assemble teams for policy review and revision. This may include alterations to the evaluation

tools, recognitions, rewards, continued professional development and retention of employees.

As central office administrators modeled continuous improvement at the administrative level, so

shall the principals at the building level. Principals leadership roles and responsibilities:

visionary leader; student centered excellence; organizational and personal learning; value of

workforce; agility; focus on the future; management by fact; innovation management; social

responsibility; focus on results; capacity to create value and systems perspective development.

Principals should employ the Expressed Processes and share when other best practices are uncovered. As administrative practices become shared leadership responsibilities by master teachers, teachers should report a lower frequency of perceiving second order change.

As the confidence level of implementation grows with teachers, continuous improvement reflects the daily work of faculty. Student academic performance will increase as evidenced in other Baldrige school districts. Master teachers will also be synonymous with teacher-leader. Principals will share leadership responsibilities with these teacher leaders in a collaborative fashion to enhance the knowledge management system centered on students and their academic achievements.

Final Note

With the change in eras, from industrial age to knowledge management, perhaps it is time to create a new leadership category. Principals are no longer managers, transformational leaders or instructional masters of their practice: Principals envision a system whereby they facilitate continuous improvement and knowledge management in a safe environment where innovation is appreciated, collegiality adds to brainpower and the learning organization adapts and moves forward regarding student academic achievement.

REFERENCES

Addi-Raccah, A. (2005). Gender, ethnicity, and school principalship in Israel: Comparing two

organizational cultures. *International Journal of Inclusive Education, 9*(3), 217-239.

doi:10.1080/13603110500075255

Akhtar, M., Farooq, M., Memon, R., & Ullah, S. (2007). Application of total quality

management in education. *Journal of Quality and Technology Management. 3*(2) 87-97.

Retrieved from http://files.eric.ed.gov/fulltext/ED506778.pdf

All Things PLC. (2010). *Freeport intermediate school*. Retrieved from

http://www.allthingsplc.info/evidence/freeportintermediateschool/index.php

Alliance for Performance Excellence. (2010). [Interactive map to Baldrige affiliates in each

states] *Find performance improvement help near you*. Retrieved from

http://www.baldrigepe.org/alliance/

American Society for Quality. (2010). *School self-assessment guide to performance excellence:

Aligning your district to world-class education standards.* Milwaukee, WI: Quality Press.

Anderson, G., Barth, J., Burk, Z., Farley, R. P., Harms, B., Houlihan, G., & Serfass, R. (2000).

*Strategies for meeting high standards: Quality management and the Baldrige criteria in

education. Lessons from the states.* Washington, DC: National Education Goals Panel, W.

C. Retrieved from http://eric.ed.gov/?id=ED455580

Anderson, G., Herr, K., & Nihlen, A. S. (2007). *Studying your own school: An educator's guide

to practitioner action research.* Thousand Oaks, CA: Corwin Press.

Anderson, S., Leithwood, K., Seashore-Louis, K., & Wahlstrom, K. (2004). *Review of research: How leadership influences student learning*. New York, NY: Wallace Foundation, Learning from Leadership Project.

Anderson, S. E., Leithwood, K., Seashore-Louis, K., & Wahlstrom, K. L. (2010). *Investigating the links to improved student learning: Final report of research findings*. New York, NY: Wallace Foundation, Learning from Leadership Project.

Andrews, D., & Chew, J. (2010). Enabling teachers to become pedagogical leaders: Case studies of two IDEAS schools in Singapore and Australia. *Educational Research for Policy and Practice*, *9*(1), 59-74. doi:10.1007/s10671-010-9079-0

Annas, J. (2001). *Voices of ancient philosophy: An introductory reader.* New York, NY: Oxford University Press.

Argyris, C. (1991). Teaching smart people how to learn. *Harvard Business Review*, *4*(2), 4-15. Retrieved from http://hbr.org/1991/05/teaching-smart-people-how-to-learn/ar/1

Argyris, C. (2000). *Flawed advice and the management trap*. New York, NY: Oxford Press.

Argyris, C., Putnam, R., & Smith, D. (1985). *Action science, concepts, methods, and skills for research and intervention*. San Francisco, CA: Jossey-Bass.

Argyris, C., & Schön, D. (1978). *Organizational learning: A theory of action perspective.* Reading, MA: Addison-Wesley.

Arif, M., Kulonda, D., & Smiley, F. (2005). Business and education as push-pull processes: An alliance of philosophy and practice. *Education*, *125*(4), 602. Retreived from http://eric.ed.gov/?id=EJ698890

Arif, M. & Smiley, F. M. (2004). Baldrige theory into practice: A working model. *International Journal of Educational Management*, *18*(5), 324-328. doi:10.1108/09513540410543475

Arthur, W., Fehrmann, M. L., & Woehr, D. J. (1991). The Angoff cutoff score method: The impact of frame-of-reference training. *Educational and Psychological Measurement*. *51*(4), 857–872. Retrieved from http://eric.ed.gov/?id=EJ440446

Baldrige Performance Excellence Program. (2007). *Education criteria for performance excellence: Baldrige national quality program.* Gaithersburg, MD: U.S. Department of Commerce, National Institute of Standards and Technology.

Baldrige Performance Excellence Program. (2009). *2009-2010 education criteria for performance excellence.* Gaithersburg, MD: U.S. Department of Commerce, National Institute of Standards and Technology.

Baldrige Performance Excellence Program. (2010a). *Criteria for excellence performance.* Gaithersburg, MD: U.S. Department of Commerce, National Institute of Standards and Technology. Retrieved from http://www.nist.gov/baldrige/publications/criteria.cfm

Baldrige Performance Excellence Program. (2010b). *Baldrige award recipients' contacts and profiles.* Gaithersburg, MD: U.S. Department of Commerce, National Institute of Standards and Technology. Retrieved from http://www.baldrige.nist.gov/ Contacts_Profiles.htm

Baldrige Performance Excellence Program. (2011a). *2011-2012 education criteria for performance excellence.* Gaithersburg, MD: U.S. Department of Commerce, National

Institute of Standards and Technology.

Baldrige Performance Excellence Program. (2011b). About ASQ: The timeline. American

Society for Quality. Gaithersburg, MD: U.S. Department of Commerce, National Institute

of Standards and Technology. Retrieved from http://asq.org/about-asq/who-we-

are/timeline.html

Baldrige Performance Excellence Program. (2011c). *Introduction to Baldrige award.*

Gaithersburg, MD: U.S. Department of Commerce, National Institute of Standards and

Technology. Retrieved from http://www.nist.gov/baldrige/award_recipients/index.cfm

Banks, P. A., & Knuth, R. K. (2006). The essential leadership model. *National Association of

Secondary School Principals*, *90*(1), 4-18. doi:10.1177/0192636505283855

Barua, A. (20103). Methods for decision-making in survey questionnaires based on Likert scale.

Journal of Asian Scientific Research, 3(1), 35-38. Retrieved from

http://resjournals.com/ERJ/Pdf/2013/Mar/Barua.pdf

Bass, B. M., & Bass, R. (2008). *The Bass handbook of leadership: Theory, research, and

managerial applications* (4th ed.). New York, NY: Free Press.

Baxter, J. C., & Byrnes, M. A. (2006). *The principal's leadership counts!: Launch a Baldrige-

based quality school.* Milwaukee, WI: Quality Press.

Beecroft, G. D., Duffy, G. L., & Moran, J. W. (2003). *The executive guide to improvement and

change*. Milwaukee, WI: Quality Press.

Begley, P., & Stefkovich, J. (2007). Ethical school leadership: Defining the best interests of

students. *Educational Management Administration & Leadership*, *35*(2), 205-224.

doi:10.1177/1741143207075389

Bhote, K. R. (2003). *The power of ultimate six sigma: Keki Bhote's proven system for moving

beyond quality excellence to total business excellence*. New York, NY: American

Management Association.

Bingham, R. S., Gryna, F. M., & Juran, J. M. (Eds.). (1974). *Quality control handbook* (3rd ed.).

New York, NY: McGraw-Hill.

Birenbaum, M., Kimron, H., Shilton, H., & Shahaf-Barzilay, R. (2009). Cycles of inquiry:

Formative assessment in service of learning in classrooms and in school-based

professional communities. *Studies in Educational Evaluation*, *35*(4), 130-149.

doi:10.1016/j.stueduc.2010.01.001

Blanchard, K. (2007). *Leading at a higher level*. Upper Saddle River, NJ: FT Press.

Blankstein, A. M. (2004). *Failure is not an option: 6 principals for making student success the

only option.* Thousand Oaks, CA: Sage.

Blasé, J., & Blasé, J. (2004). *Handbook of instructional leadership: How successful principals

promote teaching and learning* (2nd ed.). Thousand Oaks, CA: Corwin Press.

Bolman, L. G., & Deal, T. E. (2003). *Reframing organizations: Artistry, choice, and leadership*

(3rd ed.). San Francisco, CA: Jossey-Bass.

Bowen, R. D. (2009). Put kids first with ISO 9000. *Proceedings of the ASQ's 53rd Annual*

Quality Congress, Jacksonville, FL, 51, 526-534. Retrieved from

https://getinfo.de/app/Putting-Kids-First-with-ISO-9000/id/BLCP%3ACN020990360

Borek, J. (2008). "A nation at risk" at 25. *Phi Delta Kappan*, *89*(8), 572-574. Retrieved from

http://www.kappanmagazine.org/content/89/8/572.abstract

Bransford, J., Brown, A., & Cocking, R. (2000). *How people learn: Brain, mind, experience, and*

school (Expanded Ed.). National Academy of Sciences, National Research Council.

Wahsington, DC: Department of Education.

Branson, C. (2008). Achieving organizational change through values alignment. *Journal of*

Educational Administration, *46*(3), 376-395. doi:10.1108/09578230810869293

Bridges, W. (2003). *Managing transitions* (2nd ed.). Cambridge, MA: Da Capo Press.

Brown, G., Dyer, W., Hong, S., Liu, Y., & McBride, B. (2009). The differential impact of early

father and mother involvement on later student achievement. *Journal of Educational*

Psychology, 101(2), 498-508. doi:10.1037/a0014238

Buckingham, M., & Clifton, D. O. (2001). *Now, discover your strengths*. New York, NY: Free

Press.

Byrnes, M. A, Cokeley, S., Keely, S., & Markley, G. (Eds.). (2007). *Transformation to*

performance excellence: Baldrige education leaders speak out. Milwaukee, WI: Quality

Press.

Cameron, K. S., & Winn, B. A. (1998). Organizational quality: An examination of the Malcolm

Baldrige National Quality Framework. *Research in Higher Education, 39*(5), 491-512.

Retrieved from

http://www.jstor.org/discover/10.2307/40196305?uid=2129&uid=2&uid=70&uid=4&sid

=21103420004367

Caldwell, M., & Shipley, J. (2000). *Systems check: District leadership team resource guide*.

Redington Beach, FL: Jim Shipley and Associates.

Caracelli, V. J., Graham, W. F., & Greene, J. C. (1989). Toward a conceptual framework for

mixed-method evaluation designs. *Educational Evaluation and Policy Analysis, 11,* 255–

274. Retrieved from http://www.jstor.org/discover/10.2307/1163620?uid=2129&uid=

2&uid=70&uid=4&sid=21103420004367

Catano, N., Richard, H. B., & Stronge, J. H. (2008). *Qualities of effective principals*. Alexandra,

VA: Association for Supervision and Curriculum Development.

Chambers, R. L. & Clark, R. G. (2012). *Oxford statistical science series: Model-based methods

for sample survey design and estimation*. Oxford, GBR: Oxford University Press.

Chobanyan, A., & Emblemsvag, J. (2005). Drucker on government, politics, economics and

society. *Foresight, 7*(5), 42-55. doi:108/14636680510622181

Coe, R., (2002). It's the effect size, stupid. What effect size is and why it is important. Retrieved

from http://www.leeds.ac.uk/educol/documents/00002182.htm

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ:

Lawrence Erlbaum.

College Board. (2007). *College-Board seniors 2007, SAT annual report* [Data file].

　　Retrieved from http://professionals.collegeboard.com/data-reports-research/sat/cb-

　　seniors-2007

Collins, J. C. (2001). *Good to great: Why some companies make the leap and others don't*. New

　　York, NY: Harper Business.

Conchie, B., & Rath, T. (2008). *Strengths based leadership*. New York, NY: Gallup Press.

Conley, S., & Enomote, E. K. (2005). Routines in school organizations: Creating stability and

　　change. *Journal of Educational Administration*, *43*(1), 9-22.

　　doi:10.1108/09578230510577263

Cooley, V. E., Miller, D. S., Rainey, J. M., Ryan, L., Shen, J., Winograd, P. N., & Yuan, W.

　　(2006). Data-based decision-making: Three state-level educational leadership initiatives.

　　Educational Horizons, *85*(1), 57-64. Retrieved from http://eric.ed.gov/?id=EJ750643

Conyers, J. G. & Ewy, R. (2004). *Charting your course: Lessons learned during the journey*

　　toward performance excellence. Milwaukee, WI: ASQ Press.

Corbin, J. & Strauss, A. (1998). *Basics of qualitative research: Techniques and procedures for*

　　developing grounded theory (2nd ed.). Thousand Oaks, CA: Sage.

Costs of not graduating tallied by researchers. (2006). *Education Week, 25*(41S), 7. Retrieved

　　from http://www.edweek.org/ew/articles/2006/06/22/41s_costs.h25.html

Cotton, K. (2003). *Principals and student achievement: What the research says*. Alexandra, VA:

　　Association for Supervision and Curriculum Development.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage.

Crosby, P. (1979). *Quality is free: The art of making quality certain.* New York, NY: McGraw Hill.

Cuban, L. (1988). *The managerial imperative and the practice of leadership in schools.* Albany, NY: State University of New York Press.

Cuddapah, J., Masci, F., & Pajack, E. (2008). Becoming an agent of stability: Keeping your school in balance during the perfect storm. *American Secondary Education, 36*(2), 57-68. Retrieved from http://eric.ed.gov/?id=EJ809469

Danielson, C. (2007a). *Enhancing professional practice: A framework for teaching* (2nd ed.). Alexandra, VA: Association for Supervision and Curriculum Development.

Danielson, C. (2007b). The many faces of leadership. *Educational Leadership, 56*(1), 14-19. Retrieved from http://eric.ed.gov/?id=EJ777070

Datnow, A. (2005). The sustainability of comprehensive school reform models in changing district and state contexts. *Educational Administration Quarterly, 41*(1), 121-153. doi:10.1177/0013161X04269578

David, J. L. (2009) Learning communities for administrators. *Educational Leadership, 67*(2), 88-89. Retrieved from http://www.ascd.org/publications/educational-leadership/oct09/ vol67/num02/Learning-Communities-for-Administrators.aspx

Day, B., & Lujan, N. (2010). Professional learning communities: Overcoming roadblocks. *Delta Kappa Gamma, 76*(2), 10-17. Retrieved from http://connection.ebscohost.com/c/articles/

47871542/ professional-learning-communities-overcoming-roadblocks

Day, C. (2007). What being a successful principal really means: An international perspective.

Educational Leadership and Administration, *19*, 13-24. Retrieved from

http://eric.ed.gov/?id=EJ819947

Day, C., Leithwood, K., & Sammons, P. (2008). What we have learned, what we need to know

more about. *School Leadership & Management*, *28*(1), 83-96.

doi:10.1080/13632430701800102

David, J. L. (2009) Learning communities for administrators. *Educational Leadership*, *67*(2), 88-

89. Retrieved from http://www.ascd.org/publications/educational-

leadership/oct09/vol67/num02/Learning-Communities-for-Administrators.aspx

Deming, W. E. (1982). *Out of the crisis*. Boston, MA: MIT Press.

Deming, W. E. (1986). *Out of the crisis*. Cambridge, MA: Massachusetts Institute of Technology

Center for Advanced Engineering Study.

Deming, W. E. (2000). *The new economics for industry, government, education* (2nd ed.). Boston,

MA: MIT Press.

Despite federal funding cut, Baldrige weathers on. (2011, November). *ASQ Quality Digest*.

Retrieved from http://www.qualitydigest.com/inside/quality-insider-news/despite -

federal-funding-cut-baldrige-weathers.html#

Devos, G., & Bouckenooghe, D. (2009). An exploratory study on principals' conceptions about

their role as school leaders. *Leadership and Policy in Schools, 8*(2), 173-196.

doi:10.1080/15700760902737196

Doerr, H. (2009). PLCs demystified. *Principal, 89*(1), 26-30. Retrieved from

http://eric.ed.gov/?id=EJ852904

Douglas, T. J., & Fredendall, L. D. (2004). Evaluating the Deming management model of total

quality in services. *Decision Sciences, 35*(3), 393-422. Retrieved from

http://ccsenet.org/journal/index.php/ijbm/article/viewFile/7307/5678%20rel=%27nofollo

w%27

Doolittle, G., Rattigan, P., & Sudeck, M. (2008). Creating professional learning communities:

The work of professional development schools. *Theory Into Practice, 47*, 303-310.

doi:10.1080/00405840802329276

Drucker, P. (1993). The rise of the knowledge society. *Wilson Quarterly*, *17*(2), 52.

Drucker, P. (2009). *Managing in a time of great change*. Boston, MA: Harvard Business Press.

DuFour, R. (2002). The learning-centered principal. *Educational Leadership, 59*(8), 12-15.

Retrieved from http://www.ascd.org/publications/educational_leadership/may02/

vol59/num08/The_Learning-Centered_Principal.aspx

DuFour, R. (2004). What is a "Professional Learning Community"? *Schools as Learning

Communities*, *61*(8), 6-11. Retrieved from http://pdonline.ascd.org/pd_online

/secondary_reading/el200405_dufour.html

DuFour, R. (2007). Professional learning communities: A bandwagon, an idea worth

considering, or our best hope for high levels of learning? *Middle School Journal*, *39*(1),

4-8. Retrieved from http://eric.ed.gov/?id=EJ775771

DuFour, R., DuFour, R. & Eaker, R. (2002). *Getting started: Reculturing schools to become professional learning communities.* Bloomington, IN: Solution Tree.

DuFour, R., DuFour, R., Eaker, R., & Karthanek, G. (2004). *Whatever it takes: How professional learning communities respond when kids don't learn*. Bloomington, IN: Solution Tree.

DuFour, R., & Eaker, R. (1998). *Professional learning communities at work: Best practices for enhancing student achievement*. Retrieved from http://www.teacher leaders.org/node/273

Earl, L., & Fullan, M. (2003). Using data in leadership for learning. *Cambridge Journal of Education, 33*(3). Retrieved from http://www.michaelfullan.ca/articles_2003 .htm

Ed-Data Partnership. (2010). *Long Beach Unified School District profile*. Retrieved from http://www.eddata.k12.ca.us/Navigation/fsTwoPanel.asp?bottom=%2F profile.asp%3Flevel%3D06%26reportNumber%3D16

Education Week. (2009). *Graduation rate trends 1996-2006* [Data file]. Retrieved from http://www.edweek.org/ew/dc/2009/gradrate_trend.html?r=800983121

Elmore, R. (2000). *Building a new structure for school leadership.* Washington, DC: The Albert Shanker Institute.

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

Epstein, J. (2001). *School, family, and community partnerships*. Boulder, CO: Westview.

Fink, D., & Hargreaves, A. (2006). *Sustainable leadership for sustainable change*. San

Francisco, CA: Jossey-Bass.

Firestone, J. M., & McElroy, M. W. (2005). Doing knowledge management. *The Learning

Organization*, *12*(2), 189-212. doi:10.1108/09696470510583557

Fisher, R., & Ury, W. (1991). *Getting to yes: Negotiating agreement without giving in* (2nd ed.).

New York, NY: Penguin Books.

Frick, W. (2009). Principals value-informed decision making, intrapersonal moral discord, and

pathways to resolution: The complexities of moral leadership praxis. *Journal of

Educational Administration*, *47*(1), 50-74. doi:10.1108/09578230910928089

Frisby, M., & Glenn, K. (2012). News and resources. *The foundation for the Malcolm Baldrige

National Quality Award*. Retrieved from http://www.baldrigepe.org/foundation/

news.aspx

Fullan, M. (1994). *Coordinating top-down and bottom-up strategies for educational reform*.

Retrieved from http://www.michaelfullan.ca/articles_90-99.htm

Fullan, M. (2001). *Leading in a culture of change*. San Francisco, CA: Jossey-Bass.

Fullan, M. (2004). *Leadership and sustainability: System thinkers in action.* Thousand Oaks,

CA: Corwin Press.

Fullan, M. (2006). *Turnaround leadership*. Thousand Oaks, CA: Corwin Press.

Fullan, M. (2009). Large-scale reform comes of age. *Journal of Educational Change*, *10*(2-3),

101-113. doi:10.1007/s10833-009-9108-z

Fullan, M. (2010). *All systems go: The change imperative for whole system reform*. Thousand

Oaks, CA: Corwin Press.

Gardner, Dianne C., Haeffele, Lynne M., & Vogt, P.W. (2012). *When to use what research

design*. New York, NY: Guilford Press.

Garvin, D. A. (1988). *Managing quality: The strategic and competitive edge*. Harvard Business

School. New York, NY: Free Press.

Geijsel, F., Meijers, F., & Wardekker, W. (2007). Leading the process of reculturing: Roles and

actions of school leaders. *Australian Educational Researcher*, *34*(3), 135-161.

Getkin, K. (2009). Reforming or changing educational leadership. *Journal for Quality and

Participation*, *32*(2), 15-19.

Ghere, G. S., Montie, J., Sommers, W. A., & York-Barr, J. (2001). *Reflective practice to improve

schools: An action guide for educators.* Thousand Oaks, CA: Corwin Press.

Gleckner, D. S. (1994). *A correlational study of personality characteristics and the Deming

model or total quality management.* Washington, DC: George Washington University.

Gliner, J. A., Leech, N. L., & Morgan, G. A. (2009). *Research methods in applied settings: An

integrated approach to design and analysis* (2nd ed). New York, NY: Taylor and Francis

Group, LLC.

Goldstein, J. (2004). Making sense of distributed leadership: The case of peer assistance and

review. *Educational Evaluation and Policy Analysis*, *26*(2), 173-197.

doi:10.3102/01623737025004397

Gray, P., & Ross, J. (2006). Transformational leadership and teacher commitment to

organizational values: The mediating effects of collective teacher efficacy. *School

Effectiveness and School Improvement, 17*(2), 179-199.

doi:10.1080/09243450600565795

Grubb, T., & Waters, T. (2004). *Leading schools: Distinguishing the essential from the

important. McREL*. Retrieved from http://www.mcrel.org/

Grubb, S., & Waters, T. (2004). *The leadership we need: Using research to strengthen the use

of standards for administrator preparation and licensure program*. Aurora, CO: Mid-

continent Research for Education and Learning.

Gunderson, B. H., Marshall, J. C., & Pritchard, R. J. (2004). The relation among school district

health, total quality principals for school organization and student achievement. *School

Leadership & Management, 24*(2), 175-190. Retrieved from http://eric.ed.gov/

?id=EJ681415

Halawah, I. (2005). The relationship between effective communication of high school principal

and school climate. *Education*, *126*(2), 334-345. Retrieved from http://eric.ed.gov/

?id=EJ765683

Hallinger, P. (2003). Leading educational change: Reflections on the practice of instructional and

transformational leadership. *Cambridge Journal of Education, 33*(3), 329-351.

doi:10.1080/0305764032000122005

Hallinger, P. (2005). Instructional leadership and the school principal: A passing fancy that

refuses to fade away. *Leadership and Policy in Schools*, *4*(3), 221-239.

doi:10.1080/15700760500244793

Hallinger, P., & Heck, R. (1996). Reassessing the principals' role in school effectiveness: A
review of empirical research. *Educational Administration Quarterly*, *32*(1), 5-44.
doi:10.1177/0013161X96032001002

Hallinger, P., & Heck, R. (1998). Exploring the principal's contribution to school effectiveness:
1980-1995. *School Effectiveness and School Improvement*, *9*(2), 157-191.
doi:10.1080/0924345980090203

Hallinger, P., & Heck, R. (2010). Collaborative leadership and school improvement:
Understanding the impact on school capacity and student learning. *School Leadership &
Management*, *30*(2), 95-110. doi:10.1080/13632431003663214

Hargreaves, A. (2003). *Teaching in the knowledge society: Teaching in the age of insecurity*.
New York, NY: Teachers College Press.

Harris, A. (2008). Leading innovation and change: Knowledge creation by schools for schools.
European Journal of Education, *43*(2), 219-228. doi:10.1111/j.1465-3435.2008.00343.x

Hathorn, T., Holmlund-Nelson, T., Perkins, M., & Slavit, D. (2008). A culture of collaborative
inquiry: Learning to develop and support professional learning communities. *Teachers
College Record*, *110*(6), 1269-1303. Retrieved at http://eric.ed.gov/?id=EJ825711

Heck, R. H., Marcoulides, G. A., & Lang, P. (1991). Principal instructional leadership and
school achievement: The application of discriminant techniques. *School Effectiveness and
School Improvement*, *2*(2), 115-135. doi:10.1080/0924345910020204

Heifetz, R. (2003). *Leadership without easy answers*. Cambridge, MA: Harvard University

Press.

Hertz-Lazarowitz, R., Kurland, H., & Peretz, H. (2010). Leadership style and organizational

learning: The mediate effect of school vision. *Journal of Educational Administration*,

48(1), 7-30. doi:10.1108/09578231011015395.

Hiatt-Michael, D. B. (2003). *Promising practices to connect schools with community.*

Greenwich, CT: Information Age Publishing.

Hiatt-Michael, D. B. (2008). *Teaching, curriculum, and community involvement.* Charlotte, NC:

Information Age Publishing.

Hicks, D. A., Price, T. L., & Wren, J. T. (Eds.) (2004). *Traditional classics on leadership*,

Northampton, MA: Edward Elgar Publishing.

Hirsh, S., & Hord, S. M. (2008). Leader and learner. *Principal Leadership, 9*(4), 26 -30.

Hipp, K., & Huffman, J. (2002). *Documenting and examining practices in creating learning

communities: Exemplars and non-exemplars*. Retrieved from

http://www.eric.ed.gov/PDFS/ED468685.pdf

Ho, S. K. M. (1995). Is the ISO 9000 series for total quality management? *International Journal

of Physical Distribution & Logistics Management*, *25*(1), 51-66.

doi:10.1108/09600039510080135

Horsley, D. L. & Loucks-Horsley, S. (1998). CBAM brings order to the tornado of change.

Journal of Staff Development, 19(4). Retrieved from http://eric.ed.gov/?id=EJ586914

Hope, W. (2002). Implementing educational policy: Some considerations for principals. *Clearing House, 76*(1), 40-43. doi:10.1080/00098650209604945

Hopkins, D., & Higham, R. (2007). System leadership: Mapping the landscape. *School Leadership and Management, 27*(2), 147-166. doi:10.1080/13632430701237289

Hoque, Z. (2012). 20th Anniversary of the balanced scorecard. *Journal of Accounting & Organizational Change*, *8*(4). Retrieved from http://www.emeraldinsight.com/ journals.htm?articleid=17062499&show=html

Hord, S. M. (2009). Professional learning communities. *National Staff Development Council*, *30*(1), 43. Retrieved from http://eric.ed.gov/?id=EJ827545

Hoschild, J. (2009). Rethinking accountability politics. P. E. Peterson, & M. R. West (Eds.), In *No Child Left Behind? The politics and practice of school accountability* (pp. 107-126). Washington, DC: Brookings Institute.

Huber, S. (2004). School leadership and leadership development: Adjusting leadership theories and development programs to values and the core purpose of school. *Journal of Educational Administration*, *42*(6), 669-684. doi:10.1108/09578230410563665

Huberman, A. M., & Miles, M. B. (2002). *The qualitative researcher's companion.* Thousand Oaks, CA: Sage.

Hyle, A., & McLaughlin, L. (2001). The school principal as change agent: An explanatory case study. *Proceedings of the Annual Meeting of the American Educational Research Association*, Seattle, WA. Retrieved from http://web.ebscohost.com.lib.pepperdine.edu/ ehost/detail?vid=7&hid=22&sid=26bdd374-29db-4c7f-a0f4-

4ab22102dc00%40sessionmgr14&bdata=JmxvZ2luLmFzcD9jdXN0aWQ9czg0ODAyM

zgmc2l0ZT1laG9zdC1saXZlJnNjb3BlPXNpdGU%3d#db=eric&AN=ED456516

Iarossi, G. (2006). *The power of survey design: A user's guide for managing surveys, interpreting results, and influencing respondents.* Washington, DC: World Bank.

Illinois State University. (2004). *Leadership for learning: Strengthening policies on education leadership on behalf of Illinois schools*. Retrieved from http://www.centereducationpolicy.ilstu.edu/publications/fspubpresentations/leadershipfor learning.pdf

International Center for Leadership in Education. (2010). *Components of school excellence*. Retrieved from http://www.leadered.com/ComponentsSE.html

Isaac, S., & Michael, W. B. (1997). *Handbook in research and evaluation: A collection of principals, methods, and strategies useful in the planning, design, and evaluation of studies in education and the behavioral sciences* (3rd ed.). San Diego, CA: Educational and Industrial Testing Services.

Jenks Public Schools. (2010). *District*. Retrieved from http://www.jenksps.org/index .cfm?id=7

Jeynes, W. (2007). The relationship between parental involvement and urban secondary school student academic achievement: A meta-analysis. *Urban Education, 42*(1), 82-110. doi:10.1177/004208590629381

Johnson, B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research

paradigm whose time has come. *Educational Researcher*, (7), 14-26. doi:10.3102/0013189X033007014

Crocket, L., Jukes, I., McCain, T., & Wozniak, S. (2010) *Living on the future edge: Window on Tomorrow*. BC: Canada: 21st Century Fluency Project.

Kanold, Timothy, D. (2011). *The five disciplines of PLC leaders.* Bloomington, IN: Solution Tree Press.

Kaplan, R. S., & Norton, D. P. (2000). *The strategy-focused organization: How balanced scorecard companies thrive in the new business environment*. Boston, MA: Harvard Business Press.

Karathanos, D., & Karathanos, P. (2005). Applying the balanced scorecard to education. *Journal of Education for Business*, *80*(4), 222-230. doi:10.1108/09544780610647892

Kegan, R., & Lahey, L. L. (2001) The real reason people won't change. *Harvard Business Review*, *79*(10), 85-92. Retrieved from http://hbr.org/2001/11/the-real-reason-people-wont-change/ar/1

Keller, P. A., & Pyzdek. (2009). *The six sigma handbook: A complete guide for green belts, black belts and managers at all levels* (3rd ed.). Princeton, NJ: McGraw-Hill.

Kettley, N. (2010). *Theory building in educational research*. London, England: Continuum International Publishing.

Kilbane, J. (2009). Factors in sustaining professional learning community. *NASSP Bulletin*, *93*(3), 184-205. doi:10.1177/0192636509358923

Kise, J., & Russell, B. (2009). You can't do it all! A sensible way to distribute school

leadership roles. *Principal, 89*(2), 36-40. Retrieved from http://eric.ed.gov/?id=EJ866135

Kothari, C. R. (2004). *Research methodology: Methods and techniques* (2nd ed). New Delhi,

India: New Age International Limited.

Kotter, J. P. (1996). *Leading change.* Boston, MA: Harvard Business School Press.

Kruschwitz, N., Laur, J., Schley, S., Senge, P., & Smith, B. (2008). *The necessary revolution:*

Working together to create a sustainable world. New York, NY: Broadway Books.

Lambert, L. (2003). *Leadership capacity for lasting school improvement.* Alexandra, VA:

Association for Supervision and Curriculum Development.

LaBonte, P. (2010). *ASQ education school self-assessment guide to performance excellence.*

Milwaukee, WI: Quality Press.

Landesberg, P. (1999). In the beginning, there were Deming and Juran. *Journal for Quality &*

Participation, *22*(6), 59. Retrieved from http://asq.org/qic/display-item/?item=17721

Latta, G. F. (2009). A process model of organizational change in cultural context (OC3 model):

The impact of organizational culture on leading change. *Journal of Leadership &*

Organizational Studies, 16(1), 19-37. doi:10.1177/1548051809334197

Leedy, P. D., & Ormrod, J. E. (2005). *Practical research: Planning and design.* Upper Saddle

River, NJ: Pearson Education.

Lencioni, P. (2005). *Overcoming the five dysfunctions of a team: A field guide for leaders,*

managers, and facilitators. San Francisco, CA: Jossey-Bass.

Leithwood, K. (2005). Educational leadership: A review of the research. *The Mid-Atlantic Regional Educational Laboratory*. Retrieved from http://www.temple.edu/lss/ pdf/ReviewOfTheResearchLeithwood.pdf

Leithwood, K. (2006). Teacher working conditions that matter: Evidence of change. *Elementary Teachers' Federation of Ontario*. Retrieved from http://www.etfo.ca/Resources/ForTeachers/Documents/Teacher%20Working%20Conditi ons%20That%20Matter%20-%20Evidence%20for%20Change.pdf

Leithwood, K., & Mascall, B. (2008). Collective leadership effects on student achievement. *Educational Administration Quarterly*, *44*(4), 529-561. doi:10.1177/0013161X08321221

Leithwood, K., Mascall, B., & Strauss, T. (2009). *Distributed leadership according to the evidence*. New York, NY: Routledge.

Leithwood, K. A., & Riehl, C. (2003). *What we know about successful school leadership*. Retrieved from www.nationalcollege.org.uk

Leuenberger, J. A., & Whitaker, S. V. Jr. (1993). *The total quality movement in education*. Harrisburg, PA: Commonwealth Foundation for Public Policy Alternatives.

Lezotte, L. (1992). *Creating the total quality effective school*. Okemos, MI: Effective Schools.

Likert, R. (1967). *The human organization: Its management and value*. New York: McGraw-Hill.

Lindsey, R. B., Nuri-Robins, K., & Terrell, R. (2003). *Cultural proficiency: A manual for school leader*. Thousand Oaks, CA: Corwin Press.

Lloyd, C., Robinson, V. & Rowe, K. (2008). The impact of leadership on student outcomes: An analysis of the differential effects of leadership types. *Educational Administration Quarterly, 44*(5), 635-674. doi:10.1177/0013161X08321509

Long Beach Unified School District. (2008). *Strategic plan 2006-2011: Report to the community for the 2008-2009 school year.* Long Beach, CA: Author.

Louis, K., & Wahlstrom, K. (2008). How teachers experience principal leadership: The roles of professional community, trust, efficacy, and shared responsibility. *Educational Administration Quarterly*, *44*(4), 458-495. doi:10.1177/0013161X08321502

Marks, H., & Printy, S. (2006). Shared leadership for teacher and student learning. *Theory Into Practice*, *45*(2), 125-132. doi:10.1207/s15430421tip4502_4

Marzano, R. J., McNulty, B. A., & Waters, T. (2003). *Balanced leadership: What 30 years of research tells us about the effect of leadership on student achievement, a working paper*. Parker, CO: Mid-Continent Research for Education and Learning.

Marzano, R. J., & McNulty, B. A., & Waters, T. (2005). *School leadership that works: From research to results.* Alexandra, VA: Association for Supervision and Curriculum Development.

Marzano, R. J., Pickering, D. J., & Pollock, J. E. (2001). *Classroom instruction that works: Research-based strategies for increasing student achievement*. Alexandria, VA: Association for Supervision and Curriculum Development.

Maxwell, J.A., (2002). *The qualitative researcher's companion*. M. Huberman & M. Miles, (Eds.) Thousands Oaks: Sage.

McEwan-Adkins, E. (2003). *Ten traits of highly effective principals: From good to great performance*. Thousand Oaks, CA: Corwin Press.

McREL. (2005). *Balanced leadership profile*. Retrieved from http://www.mcrel.org/products-and-services/products/product-listing/01_99/product-51#sthash.Z24VlGT2.dpuf

McREL. (2009). *Mission and principles*. Retrieved from http://www.mcrel.org/pdf/policybriefs /5032pi_pbschoolteacherleaderbrief.pdf

McREL. (2011). *Our work: Success stories*. Retrieved from http://www.mcrel.org/our_work/ success_stories/exports_standards.asp

McTighe, J., & Wiggins, G. (2007). *Schooling by design: Mission, action and achievement.* Alexandra, VA: Association for Supervision and Curriculum Development.

McLaughlin, M., & Talbert, J. (2006). *Building school-based teacher learning communities: Professional strategies to improve student achievement.* New York, NY: Teachers College Press.

Monk, B. J. (1993). *Toward quality in education: The leader's odyssey*. Washington, DC: Office of Educational Research and Improvement, Institute for Educational Leadership, National Leadership Network. Retrieved from http://eric.ed.gov/?id=ED362951

Moos, L., Krejsler, J., & Kofod, K. K. (2008). Successful principals: Telling or selling? On the importance of context for school leadership. *Leadership in Education*, *11*(4), 341-352. doi:10.1080/13603120802183913

Murphy, J. (2005). Unpacking the foundations of ISLLC Standards and addressing concerns

in the academic community. *Educational Administration Quarterly*, *41*(1), 154-191.

doi:10.1177/0013161X04269580

Noeth, R. J., & Walpole, M. B. (2002). The promise of Baldrige for K-12 education. *ACT Policy

Report*. Retrieved from http://www.act.org/research/policymakers/pdf/baldrige.pdf

North Carolina Department of Public Instruction & North Carolina State Board of Education.

(2008). North Carolina public schools statistical profile, 2008 [Data file]. Retrieved from

http://www.ncpublicschools.org/fbs/resources/data/

Osterloh, M. (2007). Human resources management and knowledge creation. In K. Ichijo & I.

Nonaka (Eds.), *Knowledge creation and management: New challenges for managers* (pp.

158-175). New York, NY: Oxford University Press.

Ozaralli, N. (2002). Effects of transformational leadership on empowerment and team

effectiveness. *Leadership and Organization Development Journal*, *24*(6) 335-344.

doi:10.1108/01437730310494301

Patton, M. Q. (2002). *Qualitative research and evaluation methods*. Thousand Oaks, CA: Sage.

Pearl River School District. (2010). *Quick statistics.* Retrieved from http://www.pearl

river.org/education/components/scrapbook/default.php?sectiondetailid=202&linkid=nav-

menu-container-4-79

Peterson, A. J., & Reid, R. D. (1999). Continuous improvement: Methods and madness. *Annual

Quality Congress*, *53*, 218-221. Retrieved from http://bryongaskin.net/education/

Quality%20Management/ASQ-continuous-improvement-methods-and-madness.pdf

Pietersma, P., VanAssen, M., & VandenBerg, G. (2003). *Key management models: The 60+ models every manager needs to know* (2nd ed). New York, NY: Pretince Hall.

Pour, H. M., & Yeshodhara, K. (2009). Total quality management (TQM) in education: Perception of secondary school teachers. *All Indian Association for Educational Research*, *21*(1). Retrieved from http://www.ejournal.aiaer.net/

Ravitch, D. (2010). *The American school system: How testing and choice are undermining education.* Philadelphia, PA: Basic Books.

Ritter, L. A., & Sue, V. M. (2007) The survey questionnaire. *New Directions for Evaluation*. *2007*(115), 37-45. doi:10.4135/9781412983754

Rourke, J. (2004). *Breaking ranks II: Strategies for leading high school reform*. Reston, VA: National Association of Secondary School Principals.

Sagor, R. (2000). *Guiding school improvement with action research.* Alexandria, VI: Association for Supervision and Curriculum Development.

Schargel, F. P. (1996). Why we need total quality management in education. *Total Quality Management*, *7*(2), 213-217. doi:10.1080/09544129650034963

Schein, E. H. (2004). *Organizational culture and leadership*. San Francisco, CA: Jossey-Bass.

Schlechty, P. C. (2002). *Working on the work: An action plan for teachers, principals and superintendents*. San Francisco, CA: Jossey-Bass.

Schmoker, M. (1999). *Results: The key to continuous school improvement* (2nd ed). Alexandra, VA: Association for Supervision and Curriculum Development.

Schmoker, M. (2006). *Results now: How we can achieve unprecedented improvements in teaching and learning*. Alexandra, VA: Association for Supervision and Curriculum Development.

Schön, D. (1985). *The reflective practitioner: How professionals think in action.* New York, NY: Basic Books.

Schumpelt, G. (2010). *Baldrige system reform in New Mexico: A grounded theory study of elementary school principals' implementation of the strengthening quality in schools (SQS) initiative* (Unpublished doctoral dissertation). Pepperdine University, Malibu, California.

Schyns, B., Oreg, S., & VanDam, K. (2008). Daily work context and resistance to organizational change: The role of leader-member exchange, development climate, and change process characteristics. *Applied Psychology: An International Review 57*(2), 313-334. doi:10.1111/j.1464-0597.2007.00311.x

Senge, P. (2006). *The fifth discipline: The art and practice of the learning organization*. New York, NY: Doubleday.

Sergiovanni, T. (2001). *The principalship: A reflective practice* (5th ed.). San Antonio, TX: Trinity Press.

Sergiovanni, T. J. (2007). *Rethinking leadership: A collection of articles* (2nd ed.). Thousand Oaks, CA: Corwin Press.

Shipley, J. (2010). *A leader's guide to school improvement: Using systems approach to engage staff in school improvement*. Redington Beach, FL: Jim Shipley and Associates.

Siegel, P. (2000). Using Baldrige to improve education: A rationale based on results. *Training and Development*, *54*(2), 66-67.

Smith, M. K. (2009). *Chris Argyris, double-loop learning and organizational learning*. Retrieved from http://www.infed.org/thinkers/argyris.htm

Smith, D. M. (2010). New kids on the block. In J. C. Dessinger & J. L. Moseley (Eds.), *Handbook of improving performance in the workplace, Vol. 3 measurement and evaluation* (pp. 314-338). San Francisco, CA: Improvement & Pfeiffer.

Sosik, J. J., & Dionne, S. D. (1997). Leadership styles and Deming's behavior factors. *Journal of Business and Psychology, 11*(4), 447-462. doi:10.1007/BF02195891

Southern Methodist University. (2010). Sample letter of consent for adults. Retrieved from http://smu.edu/humansubjects/sample-adult-consent-letter.asp

Sperandio, J. (2009). Confronting issues of gender and ethnicity: Women's experiences as aspiring urban principals. *Journal of Research on Leadership Education*, *4*(4), 67-95. doi:10.1177/194277510900400401

Spillane, J. P., & Hunt, B. (2010). Days of their lives: A mixed-methods, descriptive analysis of the men and women at work in the principal's office. *Journal of Curriculum Studies, 42*(3), 293-331. doi:10.1080/00220270903527623

Spillane, J., & Seashore-Louis, K. (2002). School improvement processes and practices:

Professional learning for building instructional capacity. In J. Murphy (Ed.), *National Society for the Study of Education (NSSE) Yearbook* (pp. 83-104). Chicago, IL: University of Chicago. doi:10.1111/j.1744-7984.2002.tb00005.x

Stein, M., & D'Amico, L. (2002). How subjects matter in school leadership. *Paper presented at a symposium "Policy Implementation, cognition, and administrative practice: Understanding how school leaders face the challenges of reform."* Annual meeting of American Educational Research Association, New Orleans, LA.

Stewart, J. (2006) Transformational leadership: An evolving concept examined through the works of Burns, Bass, Avolio, and Leithwood. *Canadian Journal of Educational Administration and Policy, 54,* 1-29. Retrieved from http://eric.ed.gov/?id=EJ843441

Stinson, P. (2011). State Baldrige-based programs. *Flicker.* Retrieved from http://www.flickr.com/photos/tidewatermuse/2537190651/

Stober, D. (2008). Making it stick: Coaching as a tool for organizational change. *Journal of Theory, Research and Practice, 1*(1), 71-80. doi:10.1080/17521880801905950

Support the Baldrige Performance Excellence program. (2011, July) *ASQ Advocacy Room.* Retrieved from http://asq.org/advocacy/issues-actions/support-baldrige-program.html

U.S. Department of Commerce. (2001a). *Pearl River School District Baldrige National Quality Program application.* (National Institute of Standards Technology). Gaithersburg, MD: Author. Retrieved from http://www.baldrige.nist.gov/PDF_files /Pearl_River_Application_Summary.pdf

U.S. Department of Commerce. (2001b). *Chugach School District Baldrige National Quality Program application.* Gaithersburg, MD: Author. Retrieved from http://www.baldrige.nist.gov/PDF_files/Chugach_Application_Summary.pdf

U.S. Department of Commerce. (2001c). *Chugach School District profile*. Gaithersburg, MD: Author. Retrieved from http://www.nist.gov/baldrige/chugach.cfm

U.S. Department of Commerce. (2003a). *Community Consolidated School District 15 Baldrige National Quality Program application*. Gaithersburg, MD: Author. Retrieved from http://www.baldrige.nist.gov/2003_Application_Summaries.htm

U.S. Department of Commerce. (2003b). *Community Consolidated School District 15 profile.* Gaithersburg, MD: Author. Retrieved from http://www.baldrige.nist.gov/PDF_files/ CCSD_15_Application_Summary.pdf

U.S. Department of Commerce. (2005a). *Jenks Public Schools Baldrige National Quality Program application.* Gaithersburg, MD: Author. Retrieved from http://www.baldrige.nist.gov/PDF_files/Jenks_Public_School_Application_Summary.pdf

U.S. Department of Commerce. (2005b). *Jenks Public Schools profile*. Gaithersburg, MD: Author. Retrieved from http://www.baldrige.nist.gov/PDF_files/ Jenks_Public_Schools_Profile.pdf

U.S. Department of Commerce. (2008a). *Iredell-Statesville Schools Baldrige National Quality Program application*. Gaithersburg, MD: Author. Retrieved from http://www.baldrige.nist.gov/PDF_files/2008_Iredell_Statesville_Application_Summary. pdf

U.S. Department of Commerce. (2008b). *Iredell-Statesville schools profile.* Gaithersburg,

MD: Author. Retrieved from http://www.baldrige.nist.gov/

2008_Award_Recipient_Profiles.htm

U.S. Department of Commerce. (2010). *Baldrige award recipients.* Retrieved from

http://www.baldrige.nist.gov/Contacts_Profiles.htm

U.S. Department of Commerce. (2011). *Education criteria for performance excellence.*

Retrieved from http://www.nist.gov/baldrige/publications/education_criteria.cfm

Walczak, S. (2005). Organizational knowledge management structure. *The Learning

Organization*, *12*(4), 330-339. doi:10.1108/09696470510599118

Walker, I. (2008). *Statistics for psychology: Making sense of our world through analysis*.

Retrieved from http://staff.bath.ac.uk/pssiw/stats2/page2/page14/page14.html

Weed, M. (2005). Meta interpretation: A method for the interpretive synthesis of qualitative

research. *Qualitative Social Research*, *6*(1). Retrieved from http://www.qualitative-

research.net/index.php/fqs/article/viewArticle/508/1096

Weisberg, H. E. (2005). *The total survey error approach: A guide to the new science of survey

research*. Chicago: University of Chicago Press.

Wells, C., & Keane, W. (2008). Building capacity for professional learning communities through

a systems approach: A toolbox for superintendents. *AASA Journal of Scholarship and

Practice*, *4*(4), 24-32. Retrieved from http://www.aasa.org/uploadedFiles/Publications/

Journals/AASA_Journal_of_Scholarship_and_Practice/Winter08FINAL.pdf

Westcott, R. T. (2006). *The certified manager of quality/organizational excellence handbook* (3rd

ed.). Milwaukee, WI: American Society for Quality.

Winograd, P. (2007, January). *A draft for discussion: The impact of Baldrige on New Mexico's schools in need of improvement*. Paper presented at the meeting of the Governor's Business Executives for Education (GBEE), Albuquerque, NM.

Wong, K. Y. (2005). Critical success factors for implementing knowledge management in small and medium enterprises. *Industrial Management and Data Systems*, *105*(3), 261-279. doi:10.1108/02635570510590101

Wren, L. (1995). *The leaders' companion: Insights on leadership through the ages*. New York, NY: Free Press.

Zaretsky, L. (2004). Advocacy and administration: From conflict to collaboration. *Journal of Educational Administration*, *42*(2), 270-286. doi:10.1108/09578230410525649.

Zimmerman, J. (2006). Why some teachers resist change and what principals can do about it. *National Association of Secondary School Principals Bulletin*, *90*(3), 238-249. doi:10.1177/0192636506291521

APPENDIX A
Deming's 14 Points

1. Create constancy of purpose toward improvement of product and service, with the aim to become competitive and to stay in business, and to provide jobs.

2. Adopt the new philosophy. We are in a new economic age. Western management must awaken to the challenge, must learn their responsibilities, and take on leadership for change.

3. Cease dependence on inspection to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place.

4. End the practice of awarding business on the basis of price tag. Instead, minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust.

5. Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease costs.

6. Institute training on the job.

7. Institute leadership. The aim of supervision should be to help people and machines and gadgets to do a better job. Supervision of management is in need of overhaul, as well as supervision of production workers.

8. Drive out fear, so that everyone may work effectively for the company

9. Break down barriers between departments. People in research, design, sales, and production must work as a team, to foresee problems of production and in use that may be encountered with the product or service.

10. Eliminate slogans, exhortations, and targets for the work force asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the

bulk of the causes of low quality and low productivity belong to the system and thus lie

beyond the power of the work force.

- Eliminate work standards (quotas) on the factory floor. Substitute leadership.

- Eliminate management by objective. Eliminate management by numbers, numerical goals.

   Substitute leadership.

11. Remove barriers that rob the hourly worker of his right to pride of workmanship. The

   responsibility of supervisors must be changed from sheer numbers to quality.

12. Remove barriers that rob people in management and in engineering of their right to pride of

   workmanship. This means, inter alia, abolishment of the annual or merit rating and of

   management by objective.

13. Institute a vigorous program of education and self-improvement.

14. Put everybody in the company to work to accomplish the transformation. The transformation

   is everybody's job.

(Deming, 2000)

APPENDIX B
Baldrige Education Criteria for Performance Excellence

1. *Visionary Leadership:* Senior leadership sets direction and creates a student-focused, learning oriented climate; clear and visible values; and high expectations.

2. *Learning-Centered Education:* High developmental expectations and standards; a faculty understanding that students learn in different ways at different rates; an emphasis on active learning; early and frequent formative assessment; summative assessment when appropriate or required; student self-assessment; and focus on transitions from school to school or school to work.

3. *Organizational and Personal Learning*: a regular part of daily work for students, staff, and faculty; practiced at all levels of the organization; focused on solving problems at their source; sharing knowledge throughout the organization; driven by opportunities to effect change.

4. *Valuing Faculty, Staff, and Partners:* A commitment to faculty, staff, and partner satisfaction, development, and well-being.

5. *Agility:* The capacity for faster and more flexible responses to the needs of students and stakeholders.

6. *Focus on the Future:* An understanding of the short- and longer-term factors that affect organizations and the education market.

7. *Managing for Innovation:* Emphasizes the importance of making meaningful change to improve the organization's programs, services, and processes.

8. *Management by Fact:* Measures and indicators are selected to understand factors that lead to

improved student, operational, and financial performance. These measures and indicators drive decision-making.

9. *Public Responsibility and Citizenship:* The belief that an organization's leaders should stress its responsibilities to the public and the need to practice good citizenship.

10. *Focus on Results and Creating Value:* Performance measures should focus on key results that should be used to create value for students and stakeholders.

11. *Systems Perspective:* Focuses on managing the whole organization, as well as its components, to achieve success.

(Baldrige Performance Excellence Program, 2011a).

APPENDIX C
Cotton's Leadership Roles

- Safe and Orderly School Environment

- Vision and Gals Focused on High Levels of Student Learning

- Self-Confidence, Responsibility, and Perseverance

- Visibility and Accessibility

- Positive and Supportive Climate

- Communication and Interaction

- Emotional and Interpersonal Support

- Parent and Community Outreach and Involvement

- Rituals, Ceremonies, and Other Symbolic Actions

- Shared Leadership, Decision Making, and Staff Empowerment

- Collaboration

- Instructional Leadership

- Ongoing Pursuit of High Levels of Student Learning

- Norm of Continuous Improvement

- Discussion of Instructional Issues

- Classroom Observation and Feedback to Teachers

- Support of Teacher Academy

- Support of Risk Taking

- Professional Development Opportunities and Resources

- Protecting Instructional Time

- Monitoring Student Progress and Sharing Findings

- Use of Student and Staff Achievement

- Role Modeling

(Cotton, 2003)

APPENDIX D
Methods Used to Compute Correlations in Meta-Analysis

The basic purpose of our meta-analysis was to examine the relationship between leadership (at

both general and specific levels) and student academic achievement. The correlation coefficient

was used as the index of relationship. In more specific terms, the product-moment correlation

was used to quantify the linear relationship between leadership and student academic

achievement. The formula for the product moment correlation is

$$R_{xv} = \frac{\text{Summation } Z_xZ_y}{(N-1)}$$

Where

R_{xy} stands for the product-moment correlation between variable x and variable y,

Z_x = the Z score or standard score for a given raw score on variable x,

Z_y = the Z score or standard score for a given raw score on variable y, and

N   = the number of pairs of scores in the set (Note that the formula above estimates the

population correlation. When a correlation is intended as a descriptive statistic for a set of data,

N as proposed to N-1 is used as the denominator in the equation.)

Stated in words, the product-moment correlation might be described as the average

product of the Z scores for pairs of raw scores (see Magnusson, 1966, for a detailed discussion).

*Reprinted from Marzano et al. (2005).

APPENDIX E
21 Leadership Responsibilities Change Rating and Effect Size

Leadership Responsibility	Associated with First Order Change or Day-to-day Management	Associated with Second Order Change	Negatively Affected Second Order Change	Student Achievement Correlation of Responsibility
Affirmation	✓			0.19
Change Agent	✓	✓		0.25
Communication	✓		✓	0.23
Contingent Rewards	✓			0.24
Culture	✓		✓	0.25
Discipline	✓			0.27
Flexibility	✓	✓		0.28
Focus	✓			0.24
Ideals/Beliefs	✓	✓		0.23
Input	✓		✓	0.25
Intellectual Stimulation	✓	✓		0.24
Involvement with Curriculum, Instruction, and Assessment	✓			0.20

Leadership Responsibility	Associated with First Order Change or Day-to-day Management	Associated with Second Order Change	Negatively Affected Second Order Change	Student Achievement Correlation of Responsibility
Knowledge of Curriculum, Instruction and Assessment	✓	✓		0.25
Monitor/ Evaluating	✓	✓		0.27
Optimizer	✓	✓		0.2
Order	✓		✓	0.25
Outreach	✓			0.27
Relationship	✓			0.18
Resources	✓			0.25
Situational Awareness	✓			0.33
Visibility	✓			0.20

(Marzano et al., 2005)

APPENDIX F
State or National Baldrige Awarded Districts for Study

Organization	State	Number of Principals	Number of Teachers	Number of Staff	Student Population
Brevard Public Schools	FL	95	5,000	9,000	72,808
Carpentersville School District #300	IL	26	1,345	2,100	20,343
Chugach School District	AK	4		30	214
Community Consolidated School District 15	IL	19	847	1,941	12,000
Coweta County School System	GA	27	1,735	3,154	22,462
Evans School District 6	CO	28		2,300	18,500
Fort Bend Independent School District	TX	71		9,000	69,253
Gallup McKinley County School District	NM	35	939	1,276	12,953
Iredell-Statesville Schools	NC	36	1,661	3,416	20,000
Jenks Public Schools	OK	10	665	1,226	9,400

Organization	State	Number of Principals	Number of Teachers	Number of Staff	Student Population
Mesa County Valley School District 51	CO	45	1,600	2,890	22,203
Norfolk Public Schools	VA	61	2,800	4,600	35,000
North Penn School District	PA	17	1,100	2,100	12,726
Oklahoma City Public Schools	OK	78	2,398	4,506	37,000
Park Hill School District	MO	14	564		10,159
Pearl River School District	NY	5	214		2,813
Pekin Public School District #108	IL	10	300		4,000
Richland School District	WA	15	577	1,400	1,110
Rock Island Public School District #41	IL	13			6,300
San Jose Unified School District	CA	52	1,449		31,869
School District of Elmbrook	WI	11	655	1,252	7,262
St. Vrain Valley School District	CO	49	1,750	3,806	22,600

Organization	State	Number of Principals	Number of Teachers	Number of Staff	Student Population
Thompson School District	CO	31	1,083	2,087	15,265
Tulsa Public Schools	OK	88		7,000	41,224
Virginia Beach City Public Schools	VA	81	5,742	16,788	69,365
Webatchee School District	WA	12	540		7,800
Montgomery County Public Schools	MD	200	11,673	22,229	141,777
National Baldrige Awardees		284	15,624	28,812	196,149
Totals		1,417	60,261	130,913	922,555

National awardees are shaded. State awardees are not shaded.

APPENDIX G
Application for Permission to Study, Iredell-Statesville Schools, NC

General information	Name	Kim Ibach
	E-mail address	
	Business phone	
	Address	
	I-SS employee's department or school name	Dissertation Student
	If not, name of affiliation	Pepperdine University
		Graduate School of Education & Psychology
		Ed.D. in Education, Leadership, Administration & Policy
	Highest Degree Held	MA Teaching US History
	Date Application Submitted	October 2, 2011
	Professor, Advisor, or Sponsor's Name(s) and Contact Information	Dissertation Chair: Dr. Devin Vodicka

	Title of Research Project	21 Leadership Responsibilities and Quality Management in the Context of Educational Baldrige Systems
Purpose of the study	The purpose of this multiple case study, through a mixed-methods explanatory design, is to determine to what extent, if any, do principals and teachers have a common perception of the 21 leadership roles expressed through the work of principals in Baldrige school districts that have been recognized at the national award level.	
	The researcher intends to investigate (a) to what extent, if at all, do principals of Baldrige schools self report the manifestation of each of the 21 Balanced Leadership responsibilities in their work; (b) to what extent, if at all, do principals and their staffs agree about the principals' expression of the 21 Balanced Leadership responsibilities in Baldrige schools; and (c) based on the responses of principals and staff at Baldrige schools, how the 21 Balanced Leadership responsibilities implemented in the daily work of a principal.	
Design of the study *(Procedures, Methods, Timeline)*	***At the end of the application, an appendix of the study is attached so that forms, permissions and communications are provided. The sequence of data collection begins with a dominant phase of quantitative data collection followed by a qualitative phase (Figure 1 for overview of study) (Creswell, 2009). The quantitative segment will purposively sample groups of employees, principals and their building staff, concurrently through electronic survey (Huberman & Miles, 2002). The qualitative portion begins approximately one-third to half way through quantitative sampling. A key requirement of the stratified sample selection for the quantitative part of the study is that a principal must have participated in the 21 Responsibilities survey. The researcher selected the qualitative phase as dominate due to the importance of capturing the reflections of administrators regarding their application of the 21 responsibilities and whether or not staff perceptions confirm those reflections. Without this information the interview portion would not have sufficient measures from which to draw generalizations (Leedy & Ormrod, 2005). To summarize, the quantitative data defines the "what" of building administration's work in a Baldrige system and the qualitative portion illuminates the "how" or the application of the 21 leadership characteristics (Maxwell, 2002).	

Figure 15: Study Overview

	Phase I	Phase II
Method	Quantitative	Qualitative
Name	21 Responsibilities Survey (21RS)	Open-ended Interview
Data Collection Tool	Electronic by Survey Monkey	Person-to-person
Sample	Purposive	Stratified
Participants	Principals and Staff	5 Principals
Window for Data Collection	Four Weeks	Begins as soon as there are principals that meet criteria. Closes three weeks after Phase I ends.
Analysis	Descriptive Analysis	Qualitative Content Analysis

Further rationale for this design mirrors research strategies and concept development. This study includes four of five underlying principles of Greene et al.'s categorization of research in mixed methods studies: triangulation, complementary, development and expansion (as cited in Johnson & Onwuegbuzie, 2004). Though three sources of data, a survey with staff and principals but sorted by role and an open-ended interview of principals, this study will produce a triangulation of data in regards to the perceptions of how principals exhibit any of the 21 leadership responsibilities. The study includes the complementary component through the qualitative portion, as it will yield information to augment quantitative results. Findings from the quantitative components will inform the qualitative segment by influencing what interview questions may or may not be used and corresponds with Greene et al.'s element of development. The interview process allows further the enrichment and expansion of inquiry and scope of research regarding the illumination of "how" a leader demonstrates the 21 responsibilities. To process, analyze and develop concepts from data collected during the qualitative phase, content

analysis provides a framework (Grahm, 2010; Patton, 2002; Corbin & Strauss, 1998). While this applied research will take place within a specific time and space, the knowledge developed will contribute to leadership theory and understanding of Baldrige in the context of educational leadership.

Use of mixed-method case study allows for the development of information about a subject, building level leadership and how it functions in the Baldrige framework, of which little is known (Patton, 2002). The inclusion of three school districts in the study creates a representative sample size (Issac & Mitchel, 1997; Kothari, 2004; Maxwell, 2002; Patton, 2002). Sample groups in this research are somewhat predetermined as there are only six public school districts with the distinction of recognition through the National Baldrige Award. The use of multiple district sites allows the findings to be generalizable to other similar situations (Creswell, 2009; Leedy & Ormrod, 2005). As a result of the study, the ability to generalize for other populations, develop concepts and test new hypothesis regarding leadership in a Baldrige system (Patton, 2002). Learnings garnered from this work may assist in explaining constructs of leadership, setting leadership goals, analyze leadership trends over time and develop more questions in regards to educational leadership growth in systems management (Issac & Michael, 1997). In turn, school districts and consultants will be able to be more informed regarding development and assessment of recruitment, retention and professional development.

The time line for data collection includes obtaining a district's consent to study, identifying a single point of contact for each participating district, establishing lines of communication within a district, and the opening and closing of the data

Figure 2: Data Collection and Procedures

```
Obtain consenting
districts

Identify district
point person
• contact list

Send introductory
email  & consent to
principals & their
staff

Opt out links
included in all
communications

Reminders sent

Survey open for
collection for four
weeks

Based on
participants from
survey, interview
candidates selected

Open-ended
interviews with
selected principals
```
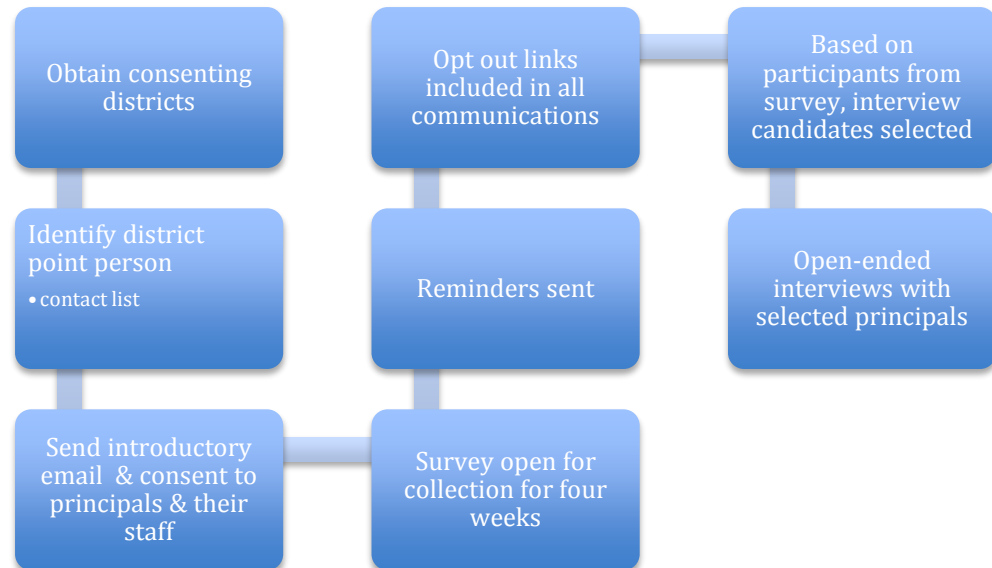
collection window (Figure 2). After a district approves participation in the study, the researcher will commence working with the district's single point of contact, SPoC. The SPoC will send a list of the names of schools and principals in the district and staff information such as email and position to the researcher. Also, the single point of contact from each district will forward to participants an email from the researcher with the single point of contact's introduction of the researcher with encouragement and endorsement of the study (Appendix K). Based on the email addresses, the researcher will send invitations to staff to participate in the survey, 21SR, with a link to the survey. The window for participation in the 21SR will be 21 days in length with reminder invitations sent every three to four days to encourage participation (Iarossi, 2006; Weisberg, 2005). To avoid the appearance of spam with the amount of mass emailing, the single point of contact for each district will assist with assuring staff this is a legitimate study and clear the researcher's email address with IT services. To add to the authenticity of the email communications, the researcher's contact number and email will be included in each communication so it is available to participants should there be any questions. An opt-out link, as with all communication to participants, will be included.

Based on the email addresses of staff provided by the SPoC to the researcher, the researcher will contact each school-based staff member with an introductory email (Appendix K) and invitation to participate in the survey titled "21 Responsibilities." If a staff member chooses to participate, he clicks on a link embedded in the email. The link opens a web page that welcomes the participant and displays The "Letter of Consent" (Appendix L and M). After reading the "Letter of Consent" and clicking on "I Agree" at the bottom of the page, a participant

is presented the web-based 21 Responsibilities survey (Appendix U). The time to complete the survey is approximately 15 minutes. Data collected from this tool is housed in a private Survey Monkey account for download by the researcher. The survey, for the purposes of this study, will be open for a period of a three weeks. Every three to four days, an electronic reminder requesting participation will be sent by email to encourage and increase survey completion (Iarossi, 2006).

From the participating administrators who complete 21RS, at least ten administrators will be selected and successfully interviewed. The open-ended interview commences a week after the survey opens and should close two weeks after the survey. Principals selected to interview will reflect a stratified sample of the variable attributes, education, ethnic groups, and leadership experience as a principal, listed in 21RS. The researcher will contact a prospective principal by phone to set an appointment to interview the principal for 45 minutes. An email (Appendix O) will follow the phone conversation to the principal restating the purpose and goals of the research and interview and include a copy of informed consent (Appendix P and Q). When the appointment for interview begins, the researcher will use the Interview Protocol (Appendix R) (Creswell, 2009; Issac & Michael, 1997; Leedy & Ormrod, 2005). A computer to text program will record the interview and a tape recorder will be used for a back up recording.

There are extrinsic and intrinsic motivators for staff to participate in the survey and for principals to consent to interview. External motivations come in the form of opportunities for a district to share the progress and benefits of Baldrige with others and, for the individual to win an iTunes or Amazon.com gift card. While no information from a single individual will be divulged or related back to any individual without express written consent, survey data and coded interview data will assist in developing a leadership narrative of how an administrator applies the leadership responsibilities, if any, in their roles as principal. In turn, the study complements the urging from Baldrige Performance Excellence Program of awarded organizations to promote and share information so that others may increase their awareness and knowledge about Baldrige Criteria for Excellence (*Introduction to Baldrige Award*, 2011). For the individual participant of the 21 Responsibilities Survey, an opportunity at the completion of the survey is given to win an Amazon or iTunes gift card. The researcher does not determine the sweepstakes or card giveaway winner, however a partner organization of Survey Monkey, ePrize, is contracted to facilitate the giveaway. Also, each principal who participates and completes the interview portion of the study will receive an electronic $15 iTunes or Amazon.com gift card (Weisberg, 2005).

Describe the direct and substantial alignment to the I-SS Strategic Plan. Indicate Specific goal(s)	Strategic Priority 4 I-SS Goal: By 2012, the correlation between student learning and the principal performance evaluation rating will be 0.50. I-SS Goal: By 2012, I-SS performance on the leadership and professional development portion of the Teacher Working Conditions Survey will average 4.50. Study's Alignment to Priority: The study supports and is aligned with both goals listed in Strategic Priority 4. The data produced will assist in the continuous improvement process with regard to data collection, studying and reflecting. By participating in this study, I-SS is afforded an additional platform to share information regarding the application, development and implementation of Baldrige principals. Other authors and researchers who have expressed interest in this study are Fullan, Senge, and members of McREL, American Society of Quality and the Blanchard organization.
Potential risks to Iredell-Statesville Schools or its students	Potential risks and/or discomforts for adults might include; social pressure to participate, fatigue, and/or a sense of having been inconvenienced in terms of time demands. In every communication from the researcher, participants will be reminded that he/she can opt out of the study at any time without consequence. No single person will be identifiable in the study unless express written consent is given. Students and parents do not participate in this study.
All schools, students, and staff	Schools Brawley Middle (List all schools requested) CCTL (Early College)

members directly involved in the research	Career Academy and Technical School
	Celeste Henkel Elementary
	Central Elementary
	Cloverleaf Elementary
	Coddle Creek Elementary
	Cool Spring Elementary
	East Iredell Elementary
	East Iredell Middle
	Harmony Elementary
	Lake Norman Elementary
	Lake Norman High
	Lakeshore Elementary
	Lakeshore Middle
	Monticello School
	Mount Mourne
	N.B. Mills Elementary
	North Iredell High
	North Iredell Middle
	Northview
	Pressly School
	Scotts Elementary
	Sharon Elementary
	Shepherd Elementary
	South Iredell High
	Statesville High
	Statesville Middle

	Third Creek Elementary
	Troutman Elementary
	Troutman Middle
	Union Grove Elementary
	Visual & Performing Arts Center (Early College and Magnet Program)
	West Iredell High
	West Iredell Middle
	Woodland Heights Elementary
Number of teachers involved	Approx. 1660
Number of students involved	0
Number of parents of involved	0
Name of each administrator involved	David Blattner
	Jimmie Dancy
	Brad Sherrill
	Jonathan Ribbeck
	Diana Eller
	Andy Trotter
	Brian Foster
	Judy Hix
	Amy Rhyne
	Jimmy Elliott
	Wayne Harwell
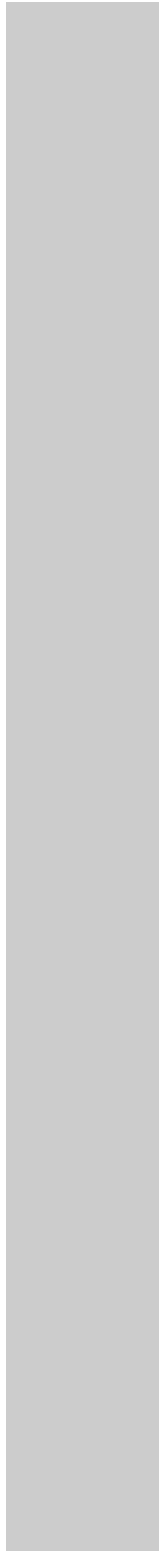
Bobbie Ellis

Todd Griffin

Kelly Hinson

Jim Gaghan

Keith Gentle

Boen Nutting

Kim Mitchell

Teresa Evans

David Ivey

Patricia Moreira-Garcia

Sheila Alston

LeAnne Hall

Steve Sheets

Julia Stikeleather

Aron Gabriel

Larry Rogers

Billy Thompson

Angel Oliphant

Kim Cressman

Jeff James

Teresa Waugh

Lisa Miller

Todd Holden

Garry Moore

	Other people involved 0	
Description of target population	Building level principals and their staff. Of the building level staff, teachers are preferred.	
Time requirements: SURVEY (building level staff)	Time student time involved (in-school)	Length of each session: approx. 12 min. Number of sessions: 1 Location of sessions: online
	Total teacher and Administrator time involved (in-school)	Survey can be completed on non-contractual time. If the district decides to fully support and allow teachers to complete on planning time or time before or after school during the contractual day, please see next box, below.
	Non-school time involved	12 min per person x 1660 teachers = 19,920 min 12 min per person x 36 principals = 432 min Total = 20,352 min or 339.2 hours
Time requirements: INTERVIEW (5 Building Level Principals)	Time student time involved (in-school)	Length of each session: NA Number of sessions: NA Location of sessions: NA
	Total teacher and Administrator time involved (in-school)	If the district supports contractual, non-student contact time for the survey = 20,352 min or 339.2 hours
	Non-school time involved	If the district prefers no contractual time is utilized, it is still the same amount of time as listed above.

Data needed from school or district	(*Only de-identified data will be provided – please review FERPA, open records legislation and I-SS data guidelines*) Employee school email addresses of principals and teachers sent to researcher to be used in Survey Monkey. The researcher's email and the Survey Monkey email address should be included in an email rule through IT so emails are not screened as spam in the email filter. After the study is over, the rule can be removed.
Involvement of non-I-SS students and staff	(*Describe the nature of the involvement and the time commitment*) A single point of contact from the district should be identified. This person will assist in sending the researcher the emails of potential participants and communicate the district approval for study. This includes sending the participants an email/letter of introduction regarding the researcher and study (Appendix K).
Additional information	Desired beginning date 2/1/2012 Desired end date 3/21/2012 Date research will be provided 6/15/2012 to I-SS (within 60 days)

Other   Edited Dissertation Completed, Estimated for

10/2012. Earlier copies are negotiable.

Please submit completed applications to:

Dr. Melanie Taylor

Associate Superintendent of Curriculum and Instruction

410 Garfield Street

Statesville, NC 28677

Fax: 704-871-9973

***The appendices on this application do not align with the dissertation document. The appendices from this document were reorganized to meet the needs of the application.

APPENDIX H
IRB Approval

PEPPERDINE UNIVERSITY

Graduate & Professional Schools Institutional Review Board

October 27th, 2011

Kimberly L. Ibach
5304 Thorncliff Dr.
Greensboro, NC 27410

Protocol #: E1011D08
Project Title: Leadership and Quality Management

Dear Ms. Ibach:

Thank you for submitting your application *Leadership and Quality Management,* for exempt review to Pepperdine University's Graduate and Professional Schools Institutional Review Board (GPS IRB). The IRB appreciates the work you and your faculty advisor, Dr. Devin Vodicka, have done on the proposal. The IRB has reviewed your submitted IRB application and all ancillary materials. Upon review, the IRB has determined that the above entitled project meets the requirements for exemption under the federal regulations (45 CFR 46 - http://www.nihtraining.com/ohsrsite/guidelines/45cfr46.html) that govern the protections of human subjects. Specifically, section 45 CFR 46.101(b)(1) states:

> (b) Unless otherwise required by Department or Agency heads, research activities in which the only involvement of human subjects will be in one or more of the following categories are exempt from this policy:

> **Category (1) of 45 CFR 46.101**, research conducted in established or commonly accepted educational settings, involving normal educational practices, such as, research on regular and special education instructional strategies, or research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

In addition, your application to waive documentation of consent, as indicated in your **Application for Waiver or Alteration of Informed Consent Procedures** form has been **approved.**

Your research must be conducted according to the proposal that was submitted to the IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit a **Request for Modification Form** to the GPS IRB. Because your study falls under exemption, there is no requirement for continuing IRB review of your project. Please be aware that changes to your protocol may prevent the research from qualifying for exemption from 45 CFR 46.101 and require submission of a new IRB application or other materials to the GPS IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the GPS IRB as soon as possible. We will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the GPS IRB and the appropriate form to be used to report this information can be found in the *Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual* (see link to "policy material" at http://www.pepperdine.edu/irb/graduate/).

6100 Center Drive, Los Angeles, California 90045 ▪ 310-568-5600

Please refer to the protocol number denoted above in all further communication or correspondence related to this approval. Should you have additional questions, please contact me. On behalf of the GPS IRB, I wish you success in this scholarly pursuit.

Sincerely,

Jean Kang, CIP
Manager, GPS IRB & Dissertation Support
Pepperdine University
Graduate School of Education & Psychology
6100 Center Dr. 5th Floor
Los Angeles, CA 90045
jean.kang@pepperdine.edu
W: 310-568-5753
F: 310-568-5755

cc: Dr. Lee Kats, Associate Provost for Research & Assistant Dean of Research, Seaver College
Ms. Alexandra Roosa, Director Research and Sponsored Programs
Dr. Yuying Tsong, Interim Chair, Graduate and Professional Schools IRB
Ms. Jean Kang, Manager, Graduate and Professional Schools IRB
Dr. Devin Vodicka
Ms. Kristin Bailey

APPENDIX I
Procedures to Conduct Research, Jenks Public Schools, OK

This school district recognizes the importance of valid and meaningful research. However, the first responsibility of the school district is the education of the students currently enrolled. Therefore, any cooperation in research endeavors by individuals or institutions from outside the school district must occur in the context of this primary obligation and in conformity with all applicable legal constraints.

CRITERIA

Jenks Public Schools will consider research requests from responsible researchers, representing recognized educational or private agencies, to conduct a study which meets the following criteria:

1. Shows evidence of careful planning, including a thorough review of related literature to assure that the question proposed for study has not already been answered by previous research.

2. Offers promise for improving teaching and learning in the classroom, or for otherwise increasing the quality of public school education.

3. Is not offensive to the values and standards of the school community.

4. Does not require the involuntary participation of students or employees, makes no undue demands upon their time, and poses no serious interruption to the regular school program.

S. Is in accordance with the laws of Oklahoma, makes available for inspection by the parents of participating students all instructional material, including textbooks, teachers' manuals, curriculum guides, pamphlets, films, tapes, computer programs, or any other items to be used in the project.

6. Is planned well in advance to avoid conflicts in scheduling. (For example, requests to gather data in the schools after May 1 will not be approved.)

7. In conformity with the Family rights and Privacy Act of 1974, does not require access

to employee or student records that identify the individual without a signed release

from the employee, or from the parent or guardian of the student. Even with such

authorized release, the confidentiality of personal data regarding pupils or employees

is to be strictly maintained.

8. As prescribed by Oklahoma state law, does not require any student to submit to

psychiatric or psychological examination, testing or treatment, unless prior written

consent has been granted by the parent or guardian. Nor without such consent shall

any survey, questionnaire or examination be used to elicit from any student information of a personal nature concerning religious beliefs, mental or psychological

problems potentially embarrassing to the student or his family, sexual behavior and

attitudes, critical appraisals of other individuals with whom the student has a close

family relationship, or legally recognized privileged communication.

-"",

9. Involves no expense to the Jenks Public Schools.

10. Will be conducted under the supervision of the Assistant Superintendent for

Curriculum and Instruction, the building principal, or other administrator designated

by the Jenks Public Schools.

11. In the case of a graduate student, the proposed study must be for a dissertation, thesis, or final masters research paper. Requests by undergraduate students, or requests by graduate students to gather data for a single course, will not be considered.

OBLIGATIONS OF THE RESEARCHER

All requests for permission to conduct research or to collect data in this school district are to

be directed, in writing, to the following: Assistant Superintendent for Secondary Curriculum and Instruction, Jenks Public Schools, 205 East B Street, Jenks, Oklahoma 74037-3900.

It is the responsibility of the individual requesting this permission to submit a detailed description of the proposed research project. This description must include the following:

1. The name, background, and agency represented by the person who will conduct the research.

2. A complete description of the problem being studied, including hypothesis to be tested, data gathering procedures, and statistical treatment.

3. An explicit statement as to the number of students to be involved, the schools in which the study will be conducted, the dates when the study will begin and end, the approximate amount of pupil and personnel time required, and the specific data items needed from school records.

4. A copy of each test, questionnaire, or set of interview questions to be used in the study and, if required, a copy of the release form to be signed by each participant or parent.

5. Procedures for distributing and returning materials. (These cannot be sent by school mail.)

6. Procedures for explaining the study to participants and/or parents and for securing signatures, as needed, on release forms.

7. A research proposal from a student must also be accompanied by a letter from the graduate adviser indicating (a) that the student's graduate committee has approved the proposed thesis or dissertation study, and (b) that in behalf of the student, the university requests permission to conduct the study in the Jenks Public Schools.

8. An agreement from the researcher that at the conclusion of the study he/she will forward an abstract of the findings to the Assistant superintendent for Secondary

Curriculum and Instruction and to the principal of each school which was involved in

the study.

APPENDIX J
Procedures for Research Approval, Montgomery Public Schools, MD

Office of Shared Accountability

MONTGOMERY COUNTY PUBLIC SCHOOLS

Rockville, Maryland 20850

REQUEST FOR A RESEARCH ACTIVITY

SUMMARY

Montgomery County Public Schools (MCPS) endeavors to provide opportunities for research studies of quality to be conducted within the system by graduate students and by other professionally and technically qualified individuals and research organizations. Factors which are considered in assessing whether the school system can cooperate in a proposal for research include the folllowing:

1. The technical soundness of the proposal design

2. The appropriateness of the research topic for support in the public setting

3. The availability of research sites and subjects of the kinds requested

4. The nature and amount of the interruption required in the ongoing educational program

5. The kinds of background data on subjects required for the proposed study and the kinds of information of a personal nature

to be secured from the subjects themselves

6. The kind and number of data-gathering procedures or instruments to be used in the study

7. The need for the schools to safeguard the personal and legal rights of students, parents, and staff

The following categories of research will be accepted for screening and evaluation:

1. Proposals for research activities originating within MCPS offices, departments, divisions, and other units, transmitted through their central office administrative channels

2. Responses to MCPS requests for proposals (RFP's) for external audits and research

3. Unsolicited research proposals from individuals or organizations independent of MCPS

4. Proposals for studies for master's theses and doctoral dissertations originating from MCPS employees

5. Proposals for studies for doctoral dissertations originating from proponents other than MCPS employees

Applications for support of research projects to meet requirements of undergraduate or graduate course papers *cannot* be accepted from any individuals or groups. The Office of Shared Accountability is responsible for screening and evaluating a request for support of a research project, and the signatures of both the associate superintendent of the Office of Shared Accountability and the deputy superintendent of schools are required to certify approval before a research study can proceed. Proposals involving sensitive issues or substantial commitment of MCPS resources may be referred to the superintendent of schools for approval, disapproval, or transmittal to the Board of Education for comment and approval.

Applications to conduct research in MCPS cannot be accepted after April 1 in any given school year. Research activities involving students may not be conducted from April 15 through September 15, unless the project is for MCPS.

The Office of Shared Accountability cannot provide applicants with assistance in research design, instrument development, data analysis, or report writing except as represented in the evaluation provisions of MCPS Regulation AFA-RA: *Conducting Research in the Montgomery County Public Schools.*

Student and parent participation in a study is voluntary. Participation of school personnel also is voluntary unless specifically indicated by the deputy superintendent of schools. Any instruments to be administered to the research subjects must display a clarifying statement to this effect on its fact sheet. Anonymity of any participant must be preserved. The identity of schools or the school system can be revealed *only* if authorized by the superintendent of schools.

The applicant is responsible for submitting an acceptable health certificate for all project staff who are not MCPS employees whenever the research activity requires contact with students.

For additional details on MCPS policy and procedures on supporting and screening research proposals, refer to MCPS Regulation AFA-RA. Copies are available on request.

MCPS Form 495-1, Rev. 5/08

INSTRUCTIONS: Applicants wishing to conduct research in MCPS are required to complete two forms, MCPS Form 495-1: *Request*

for a Research Activity and MCPS Form 226-1: *Data Acquisition Clearance Request.* Submit both forms and accompanying materials

to: Office of Shared Accountability, Montgomery County Public Schools, 850 Hungerford Drive, Room 11, Rockville,

MD 20850.

Research Request Date / / Applicant Name

Project Name

- 2 -

NOTE: Type or print requested information in spaces provided. Enter check marks in appropriate answer choice blocks.

A. IDENTIFICATION OF APPLICANT

1. Applicant Name: □ Mr. □ Mrs. □ Miss □ Ms. □ Dr.

Home Address

Street City State Zip

Business Name

Business Address

Street City State Zip

Your Professional Position/Title

Home Telephone Number - - Business Telephone Number - -

E-mail Address

2. Are you employed by Montgomery County Public Schools? □ Yes □ No

If "Yes," are you a: □ Full-time employee □ Part-time employee □ Employee on leave

3. Are you proposing this study in connection with the degree requirements of a college or university?

□ Yes (If "Yes," answer parts a, b, and c of this question.) □ No (Skip to Question 4.)

a) What degree requirements? □ Master's □ Doctoral □ Other (specify)

b) Who is your advisor or committee chairperson?

Name Phone - -

Institution Department

Address

Street City State Zip

c) What is the approval status of your proposal at your college or university?

□ Formally approved □ Approved by advisor but not by dissertation committee □ Not at the approval stage

4. If you answered "No" in Question 3, indicate whether you are proposing this study as:

□ An MCPS Program Unit. □ An external research organization.

□ A response to a request for proposals (RFP) or grant announcement.

□ An individual researcher. Briefl y describe your area of research specialization and activity:

5. Indicate your degree status: Nondegree Baccalaureate Master's Master's equivalent Doctoral

6. How are the costs of this proposed study being financed?

By applicant By applicant's institution, organization, or business By MCPS program funds

By government foundation or other research grant (explain)

- 3 -

B. MAJOR FEATURES OF PROPOSED STUDY

NOTE: All applications must be accompanied by a full technical proposal, submitted as an attachment to this application

form and project summary. See page 7 for format.

1. Title of research

2. Desired time schedule for carrying out the research: From / to /

Mo./Yr. Mo./Yr.

3. The research problems and subproblems to be studied:

4. Type of research site(s) required:

a) Check all that apply: □ Elementary □ Middle □ High □ Central or Field Office

b) Do you want to work with a specific school or schools? □ Yes □ No

If "Yes," specify

c) Are there other types of research sites required? □ Yes □ No

If "Yes," specify

C. REQUIREMENTS FOR STUDY

1. Will data be collected from/on students?

Yes (Answer parts a and b of this question.) No (Skip to Question 2.)

a) Total number of students needed for this study

b) Check and describe any specific criteria for selection of students to take part in the study.

□ Grade level

□ Ability/Achievement level

□ Racial/Ethnic background

□ Sex

□ Enrollment in special programs

□ Receiving special education services

□ Other (specify)

- 4 -

2. Will data be collected from/on school staff, parents, or former students?

□ Yes (Answer part a of this question.) □ No (Skip to Section D.)

a) Check all that are applicable; indicate number needed and briefly describe individuals' roles in study.

Total Number

Description of Individuals Needed of Individuals Role of Individuals

□ Classroom Teachers

□ School-based Administrators

□ Central Office Administrators

□ Parents

□ Former Students, Graduates, and/or

   Their Family Members

□ Support Services Staff (i.e., technology, instructional assistants, etc.)

□ Other (specify)

D. INSTRUMENTS, EQUIPMENT, AND INSTRUCTIONAL MATERIALS

1. What tests, observation guides, questionnaires, attitude scales, interest inventories, and other typed or printed instruments will be

used? Specify here.

Who will Is Instrument Estimated

Name of Description Complete/Answer Researcher Made? Time Required

Type of Instrument of Instrument or be Observed? Yes No to Administer

□ Group Test □ □

□ Individual Test □ □

□ Questionnaire □ □

□ Interview Protocol □ □

□ Observation Guide □ □

□ Attitude/Interest □ □

Inventory

□ Other (specify) □ □

NOTE: All data collection instruments used as part of a research study are subject to the clearance procedure prescribed

in MCPS Regulation AFA-RA: *Clearance of Data Acquisition Activities.* By this regulation, MCPS Form 226-17: *Data Acquisition Clearance Request,* must be submitted to the Office of Shared Accountability; and approval of requests

for data requires the signatures of both the associate superintendent of the Office of Shared Accountability and the

deputy superintendent of schools.

2. Will instructional materials be used for research purposes? □ Yes □ No

If "Yes," specify

- 5 -

E. REQUESTED PARTICIPATION OF MCPS STAFF

1. Will teachers be asked to assist with the study? □ Yes □ No If "Yes," for how much time?

2. Will other school system personnel be asked to assist with the study? □ Yes □ No If "Yes," who and for how much time?

F. ATTACHMENTS

Check items which you are attaching to this application:

□ Proposal Description (REQUIRED). See page 7 for outline of narrative description required.

□ Instruments to be used (if available) with a completed MCPS Form 226-17: *Data Acquisition Clearance Request,* listing all instruments.

□ Copy of the documents submitted to the Institutional Review Board for Human Subjects and the decision document

(REQUIRED).

□ Consent forms (if applicable) if studies include parents, students, and MCPS staff members (REQUIRED).

□ Letter or e-mail of support from offices, departments, or schools impacted by the research study and the data collection activities (REQUIRED).

G. RESEARCH ACTIVITY REPORTS

Indicate compliance with the following statement: I have read MCPS Regulation AFA-RA, Section IX.C, *Research Activity*

Reports, regarding report requirements and understand that I must comply.

/ /

Signature, Applicant Date

MCPS Regulation AFA-RA, Section IX.C, *Research Activity Reports,* provides:

When students, MCPS staff members, or parents are participants in a research study, an executive summary of no more than 25 pages will be prepared and reproduced by the researcher and one copy provided to the Office of Shared Accountability. In addition, the office may request one complete copy of each report or product developed as a part or outcome of the research project. No charge will be made to MCPS for any of these reports, copies, or products; and all will be provided within 30 days of the development of the report or product, or within 30 days of the end of the study, whichever comes first.

H. SIGNATURE OF THESIS COMMITTEE CHAIRPERSON

The following is to be signed by the chairperson of the applicant's thesis/dissertation committee (if applicable).

I have reviewed the enclosed research proposal and fi nd it to be technically competent, theoretically sound, and significant in focus.

Signature, Chairperson Title Date

Title of research

- 6 -

NOTICE OF ACTION ON RESEARCH ACTIVITY REQUEST

To Be Completed by Office of Shared Accountability

1. Clearance Recommendation:

□ Approval □ Disapproval □ Provisional Approval (approval contingent on acceptance of modifications indicated below.)

2. Remarks (Include specific modifications needed or reason(s) for disapproval, as appropriate.)

Signature, Associate Superintendent, Office of Shared Accountability Date

To Be Completed By Office of the Deputy Superintendent of Schools

1. Clearance recommendation: □ Approved □ Disapproved Participation in study is: □ Voluntary □ Compulsory

2. Remarks (Include specific modifications needed or reason(s) for disapproval, as appropriate.)

Signature, Deputy Superintendent of Schools Date

REQUIREMENTS FOR NARRATIVE DESCRIPTION OF PROPOSAL

Any proposal which is submitted will discuss the research issues and rationale of the investigation; present a list of hypotheses; name specific instruments that will be used to meet specific study requirements; and discuss in detail the sampling, data collection, and data analysis strategies which will be used in the study.

Proposals are to be limited to no more than 50 pages. Resumes and write-ups of previous personal experience, if required, need not be included in the above page count.

The proposal should be organized in the following manner; required chapters are asterisked.

CHAPTER

* 1. The applicant's completed MCPS Form 495-1: *Request For A Research Activity*, constitutes the PROPOSAL OVERVIEW.

*2. BACKGROUND AND STUDY DESIGN

This chapter should address in detail the background and specific research objectives of the study, hypotheses to be tested, and questions to be addressed. It should demonstrate the applicant's familiarity with the research issues to be considered in developing and implementing the activities described in the proposal. Awareness of relevant ongoing and previous research should be demonstrated, and attention should be devoted to describing the strengths and weaknesses of related efforts. The chapter should discuss how the proposed research complements or improves upon previous efforts.

*3. INSTRUMENT DEVELOPMENT/IDENTIFICATION

This chapter should address the instrumentation requirements of the study. Specific instruments should be identified. Where questionnaires, unobtrusive observation protocols, or interview protocols are specified, content and respondent burden should be addressed. Applicants should indicate for each instrument to be used the approximate amount of response time required. If instrument development is proposed as part of the research, a justification must be presented which documents the need for new measures and explicates why existing alternatives are not satisfactory. In developing instrument specifications, it must be kept in mind that *respondent burden must be minimized.* In evaluating proposals, this will be a major consideration. A listing of key data elements to be collected from each type of respondent should be included along with a rationale for collecting each of the key items of information. Copies of instruments proposed for use in the study should be attached to the proposal.

*4. SAMPLING

The sampling schema should be discussed fully in this chapter. If the plan includes the sampling of students, teachers, parents, etc., the methodology for accomplishing this should be clearly presented in this chapter; and the number of respondents for each type should be specified.

- 7 -

*5. DATA COLLECTION METHODOLOGY

Both the data collection strategies and the data collection procedures for the proposed study should be fully addressed in this chapter.

*6. DATA ANALYSIS

This chapter should address the detailed analytic procedures that will be used in the study. Each of the key data elements identified in Chapter 3 should be addressed *vis-a-vis* the analytic techniques to be used with each element or set of related elements. Relationships between the analysis proposed and the hypothesis identified for testing in Chapter 2 should be specified.

*7. PROPOSED SCHEDULE OF PERFORMANCE

The time frame during which each task will be accomplished needs to be specified. Time spans should be denoted in calendar

days and/or months.

*8. SUMMARY OF STAFF ASSIGNMENTS AND USE OF RESOURCES

This chapter should identify the specific individuals who will be used to accomplish each task. Specific time commitments should be made for each individual on each task to which he/she is assigned. The chapter should include an exhibit which summarizes the time commitments of each individual by task. In a similar manner, the chapter also should discuss any sizable nonpersonnel resources which may be required on a task-by-task basis. The use of charts in this chapter is encouraged. If data are requested from MCPS to conduct the study, the applicant/organization must indicate the kinds of data and the amount of staff time the request may entail. Such requests may require the applicant/organization to pay for staff time in order

to fulfill the request.

9. CONSULTANTS AND SUBCONTRACTORS

The manner in which any consultants or subcontractors will be used should be addressed in this chapter. Of particular concern is the manner in which their efforts will be coordinated with those of the regular research study staff. A discussion of previous experience in working with the same organizations/individuals is highly appropriate, as is a summary of their technical qualifications. Dissertation committee members or advisors may be included in this chapter if they will play a significant role in the conduct of the study.

10. RELEVANT EXPERIENCE

A brief discussion of relevant studies completed by the applicant and/or the organization should be presented in this chapter. This chapter should not extend beyond two pages. Any project descriptions should include the dollar value of the award, the dates started and completed, and the telephone numbers of the project and contract officers.

*11. BENEFIT TO MCPS

This chapter should present a detailed discussion of the specific benefits of this research activity to MCPS. Please note that the request to conduct research in MCPS by individuals, private groups, and other agencies will not be approved except in instances where the benefit to MCPS of such research is very substantial or where such research may be required by law.

(See MCPS Regulation AFA-RA.)

12. AUTHORSHIP

This chapter should list, in decreasing order of involvement, the authors of each chapter of the proposal.

13. BUDGET

A detailed task-by-task budget for the proposed research activity should be presented in this chapter along with a discussion of the sources from which the funds are being made available.

*14. RESUMES

Resumes for all senior and mid-level staff should be provided. A preliminary statement of the manner in which each person is relevant to his/her assigned tasks should be provided.

APPENDIX K
Letter of Introduction to Single Point of Contact

Dear Colleague,

Thank you for the opportunity to work with you and your district in regards to leadership roles of principals in a school district recognized as a national Baldrige award winner. This project is research being conducted in partial fulfillment of dissertation study through Pepperdine University's Educational Leadership, Administration and Policy program. The purpose of this multiple case study, through a mixed-methods explanatory design, is to determine to what extent, if any, do principals and staff have a common perception of the 21 Leadership Responsibilities expressed through the work of principals in Baldrige school districts that have been recognized at the national award level.

Research Questions:

1. To what extent, if at all, do principals of Baldrige schools self report the manifestation of each of the 21 Balanced Leadership responsibilities in their work?
2. To what extent, if at all, do principals and their staffs agree about the principals' expression of the 21 Balanced Leadership responsibilities in Baldrige schools?
3. Based on the responses of principals and staff at Baldrige schools, how are the 21 Balanced Leadership responsibilities implemented in the daily work of a principal?

The flow of the study will operate in the order noted in the table, below. Through your assistance, the study will be as unobtrusive as possible and able to collect valuable data that will

Action Item	Target Dates

Initial phone discussion between a district's single point of contact (SPoC) and researcher	(Researcher to enter date or date range here.)
SPoC sends researcher list of Principals and their school staff. The list includes email addresses and notes the principal.	(Researcher to enter date or date range here.)
SPoC promotes the survey within the district to the effected staff. See attached template, modify as needed.	(Researcher to enter date or date range here.)
Researcher sends email of introduction with link to survey.	(Researcher to enter date or date range here.)
Once the survey window is open, reminders will be sent to eligible staff each week inviting participation.	(Researcher to enter date or date range here.)
Based on principal participation, researcher will contact qualified administrator to set a 30-40 minute interview.	(Researcher to enter date or date range here.)
Open-ended interviews will conclude the study.	(Researcher to enter date or date range here.)

assist leaders, consultants, designers of professional development and other organizations desiring to promote the benefits of Baldrige.

I will be in contact with your office in the next two working days to set an amicable time to meet over the phone and answer any questions or be aware of any needs that the researcher might assist.

I look forward to working with you in this study and will be in touch soon.

Sincerely,

Kimberly Ibach

Email Template to Notify the District's Participation in this Study:

Dear Principals and School Staff,

A fellow educator and graduate student, Kim Ibach, is conducting a study to learn more about leadership responsibilities in a school district recognized through the Baldrige award program. This project is research being conducted in partial fulfillment of dissertation study through Pepperdine University's Educational Leadership, Administration and Policy program. The purpose of this multiple case study, through a mixed-methods explanatory design, is to determine to what extent, if any, do principals and staff have a common perception of the 21 Leadership Responsibilities expressed through the work of principals in Baldrige school districts that have been recognized at the national award level.

You are invited to participate in this study to share experiences and observations through a 10-15 minute survey. Shortly, you will receive an email invitation from the researcher through Survey Monkey to participate. Simply click the link provided to begin.

Those who contribute by participating in the study will assist other educators in a deeper knowledge about Baldrige and leadership responsibilities at the school level and be entered to win an Amazon.com gift card. Your participation in this study is anonymous and voluntary. Should you decide to participate, you may elect to stop your participation at any time and without any consequence. You are not required to answer every question and will not be

penalized in any way if you do so. Job status will not be affected by refusal to participate or withdrawal from this study.

If you have questions about the district's participation in this study, please feel free to contact me at the office or the researcher, Kim Ibach, at either XXXXXXX.

Thank you in advance for your consideration of this request!

Sincerely,

(Insert: Name,

Position,

Institution and

Contact Information)

APPENDIX L
Introduction Email to Staff for Survey

Dear Educators,

My name is Kim Ibach and I am currently a social studies specialist for a school district and a student in the Graduate School of Education at Pepperdine University. I am interested in learning more about leadership responsibilities in a school district recognized by the National Baldrige Award. This project is research being conducted in partial fulfillment of dissertation study through Pepperdine University's Educational Leadership, Administration and Policy program. This research will attempt to address the need to know more about how leadership roles are expressed in an educational system that implements Baldrige.

As a member of your school who has experiences and observations related to the goals of this study, you are being asked to participate in this study. If you decide to participate, your involvement will entail reviewing and affirming a "Consent to Study" and responding to an online questionnaire that asks you for demographic information and then rate statements regarding assorted roles regarding the implementation of Baldrige at your school. You are not required to answer every question and will not be penalized in any way if you do so.

It is anticipated that your participation will be needed for 10-15 minutes to complete the online questionnaire. It is believed your participation and the participation of others will provide other educational leaders with important and useful information to help them lead and or to support and develop other leaders who are planning and/or engaged in implementing Baldrige within their educational organizations.

Your participation in this study is anonymous and voluntary. Should you decide to participate, you may elect to stop your participation at any time and without any consequence. Job status or review will not be affected by refusal to participate or withdrawal from this study.

If you choose to participate, please click on the link below. The informed consent for this survey will open and give you more details about the study including research purpose and questions, window to participate, possible risks, confidentiality statement, contact information, information about a sweepstakes to win an Amazon.com gift card.

Once you have read the informed consent letter, please click *accept* if you would like to participate in the study and continue on to respond to the online questionnaire. You do not need to sign the informed consent letter. However, if you would like to generate, sign, and return a hard copy, you may do so. Directions are provided at the end of the informed consent letter.

At the end of participating in the survey, you may enter to win a $50 Amazon.com gift card that may be used to purchase books or songs for any mp3 or iPod.

Thank you for your consideration of this invitation to participate in this study!

Sincerely,
Kim Ibach
Educational Leadership, Education and Policy Doctoral Program
Pepperdine University

To begin, please click on the link below to read and accept the informed consent letter and then begin the survey.

(Add the link to the survey here.)

APPENDIX M
Survey Letter of Consent, Electronic

Dear Educational Professional,

Thank you for clicking on the link to voluntarily participate in this study. Before the survey begins, you are presented with an Informed Consent Letter further explaining the purpose, procedures, minimal risks or discomforts, your rights as a study participant and other elements of participating in the survey.

Principal Investigator: Kim Ibach

Title of Project: Twenty-one Leadership Responsibilities and Quality Management in the Context of Educational Baldrige Systems

Purpose: The purpose of this multiple case study, through a mixed-methods explanatory design, is to determine to what extent, if any, do principals and teachers have a common perception of the 21 Leadership Responsibilities expressed through the work of principals in Baldrige school districts that have been recognized at the national award level.

Research Questions: (A) To what extent, if at all, do principals of Baldrige schools self report the manifestation of each of the 21 Balanced Leadership responsibilities in their work? (B) To what extent, if at all, do principals and their staffs agree about the principals' expression of the 21 Balanced Leadership responsibilities in Baldrige schools? (C) Based on the responses of principals and staff at Baldrige schools, how are the 21 Balanced Leadership responsibilities implemented in the daily work of a principal?

1. I understand my participation in the study will take approximately 15 minutes, the time to respond to the online questionnaire.

2. My participation in the study will involve me completing an online questionnaire consisting of six background questions and nine groups of rating scales consisting of a total of 92 statements.

3. If I consent to participate in the study, I will have a three-week time period in which to respond to the questionnaire. If I am not able to respond during the initial three-week period, I may receive a reminder email extending the time for me to respond. I understand the timeframe for the study will be from (insert month) 2011 through (insert month) 2011 and that the actual data will be collected in (insert month) 2011.

4. I understand that the possible benefits to myself or society from this research are the experience and shared insights that I might offer to other educational leaders who desire to lead and sustain inquiry-based change initiatives by making them aware of: challenges they may encounter, strategies they might replicate to address challenges, and support that may be needed to sustain change efforts. While I am not required to answer every question in the survey, I know that answering as many questions as possible will assist in adding to the data to possibly better inform others. My responses, aggregated with other responses, may also provide university professors, researchers and consultants with ideas for how they might support inquiry-based change initiative efforts in local educational organizations.

5. I understand that there are certain risks and discomforts that might be associated with this research. Potential risks and/or discomforts might include; social pressure to participate, fatigue, and/or a sense of having been inconvenienced in terms of time demands.

6. I understand that my participation is voluntary and that I may refuse to participate and/or withdraw my consent and discontinue participation in the project or activity at any time without penalty or loss of benefits to which I am otherwise entitled.

7. As a result of completing the survey, I may leave my name and email address so that I may be contacted if I am randomly selected to receive a $50 Amazon.com gift card. I understand that a company, ePrize, which is affiliated with Survey Monkey, collects this information. As

a result, I understand that there is no way to identify my responses with the personal information I may choose to give.

8. I understand that the investigator will take all reasonable measures to protect the confidentiality of my records and my identity will not be revealed in any publication that may result from this project. The confidentiality of my records will be maintained in accordance with applicable state and federal laws. Under North Carolina law, there are exceptions to confidentiality, including suspicion that a child, elder, or dependent adult is being abused, or if an individual discloses an intent to harm him/herself or others.

9. I understand that I will be presented with a link to more information if I choose to participate in the sweepstakes for the $50 Amazon.com gift card. This includes information about eligibility, sponsor, timing, entry, prize, publicity, general conditions, limitations of liability and winner list.

10. I understand that the investigator is willing to answer any inquiries I may have concerning the research herein described. I understand that I may contact Kimberly Ibach at XXXXXX if I have questions or concerns about this research. If I have questions about my rights as a research participant, I understand that I can contact Dr. Yuying Tsong, Chairperson of the GSEP IRB Committee, Pepperdine University, at yuying.tsong@pepperdine.edu or 310-568-5768 or Dr. Devin Vodika, Committee Chairperson, Pepperdine University at XXXXXX.

11. For a printable version of this informed consent form I understand that I may contact Kimberly Ibach at Kimberly.Ibach-Sullivan@pepperdine.edu and request an electronic copy. Upon receipt of the form I can keep a copy for my records or if I prefer, I may print, sign and return a hard copy to the researcher.

12. I understand that I do not need to sign an informed consent letter. However, if I would like to generate a copy for my records, I may do so by printing this page or emailing the investigator and request a copy.

13. I understand to my satisfaction the information regarding participation in the research project. All my questions have been answered to my satisfaction.

14. I acknowledge that the researcher has explained and defined in detail the research procedure in which I have consented to participate.

15. By clicking "I accept," below, I indicate that I understand my rights as a participant in this study and my willingness to participate in the research study under the direction of graduate student, Kim Ibach.

Thank you for reading the informed consent form. Below, please verify your intent to participate in the study as described in the introduction letter and the informed consent form.

I understand that by clicking "accept" that I agree to willingly participate in this study.

- ⭕ I accept -- I understand the above statements and give my consent to participate in this study.
- ⭕ I decline -- I do not want to participate in this study.

APPENDIX N
Survey Letter of Consent, Printable

Dear Educational Professional,

Thank you for clicking on the link to voluntarily participate in this study. Before the survey begins, you are presented with an Informed Consent Letter further explaining the purpose, procedures, minimal risks or discomforts, your rights as a study participant and other elements of participating in the survey.

Principal Investigator: Kim Ibach

Title of Project: Twenty-one Leadership Responsibilities and Quality Management in the Context of Educational Baldrige Systems

Purpose: The purpose of this multiple case study, through a mixed-methods explanatory design, is to determine to what extent, if any, do principals and teachers have a common perception of the 21 Leadership Responsibilities expressed through the work of principals in Baldrige school districts that have been recognized at the national award level.

Research Questions: (A) To what extent, if at all, do principals of Baldrige schools self report the manifestation of each of the 21 Balanced Leadership responsibilities in their work? (B) To what extent, if at all, do principals and their staffs agree about the principals' expression of the 21 Balanced Leadership responsibilities in Baldrige schools? (C) Based on the responses of principals and staff at Baldrige schools, how are the 21 Balanced Leadership responsibilities implemented in the daily work of a principal?

1. I understand my participation in the study will take approximately 15 minutes, the time to respond to the online questionnaire.

2. My participation in the study will involve me completing an online questionnaire consisting of six background questions and nine groups of rating scales consisting of a total of 92 statements.

3. If I consent to participate in the study, I will have a three-week time period in which to respond to the questionnaire. If I am not able to respond during the initial three-week period, I may receive a reminder email extending the time for me to respond. I understand the timeframe for the study will be from (insert month) 2011 through (insert month) 2011 and that the actual data will be collected in (insert month) 2011.

4. I understand that the possible benefits to myself or society from this research are the experience and shared insights that I might offer to other educational leaders who desire to lead and sustain inquiry-based change initiatives by making them aware of: challenges they may encounter, strategies they might replicate to address challenges, and support that may be needed to sustain change efforts. While I am not required to answer every question in the survey, I know that answering as many questions as possible will assist in adding to the data to possibly better inform others. My responses, aggregated with other responses, may also provide university professors, researchers and consultants with ideas for how they might support inquiry-based change initiative efforts in local educational organizations.

5. I understand that there are certain risks and discomforts that might be associated with this research. Potential risks and/or discomforts might include; social pressure to participate, fatigue, and/or a sense of having been inconvenienced in terms of time demands.

6. I understand that my participation is voluntary and that I may refuse to participate and/or withdraw my consent and discontinue participation in the project or activity at any time without penalty or loss of benefits to which I am otherwise entitled.

7. As a result of completing the survey, I may leave my name and email address so that I may be contacted if I am randomly selected to receive a $50 Amazon.com gift card. I understand that a company, ePrize, which is affiliated with Survey Monkey, collects this information. As a result, I understand that there is no way to identify my responses with the personal information I may choose to give.

8. I understand that the investigator will take all reasonable measures to protect the confidentiality of my records and my identity will not be revealed in any publication that may result from this project. The confidentiality of my records will be maintained in accordance with applicable state and federal laws. Under North Carolina law, there are exceptions to confidentiality, including suspicion that a child, elder, or dependent adult is being abused, or if an individual discloses an intent to harm him/herself or others.

9. I understand that I will be presented with a link to more information if I choose to participate in the sweepstakes for the $50 Amazon.com gift card. This includes information about eligibility, sponsor, timing, entry, prize, publicity, general conditions, limitations of liability and winner list.

10. I understand that the investigator is willing to answer any inquiries I may have concerning the research herein described. I understand that I may contact Kimberly Ibach at XXXXXXif I have questions or concerns about this research. If I have questions about my rights as a research participant, I understand that I can contact Dr. Yuying Tsong, Chairperson of the GSEP IRB Committee, Pepperdine University, at yuying.tsong@pepperdine.edu or 310-568-5768 or Dr. Devin Vodika, Committee Chairperson, Pepperdine University at XXXXX.

11. For a printable version of this informed consent form I understand that I may contact Kimberly Ibach at Kimberly.Ibach-Sullivan@pepperdine.edu and request an electronic copy. Upon receipt of the form I can keep a copy for my records or if I prefer, I may print, sign and return a hard copy to the researcher.

12. I understand that I do not need to sign an informed consent letter. However, if I would like to generate a copy for my records, I may do so by printing this page or emailing the investigator and request a copy.

13. I understand to my satisfaction the information regarding participation in the research project. All my questions have been answered to my satisfaction.

14. I acknowledge that the researcher has explained and defined in detail the research procedure in which I have consented to participate.

15. By clicking "I accept," below, I indicate that I understand my rights as a participant in this study and my willingness to participate in the research study under the direction of graduate student, Kim Ibach.

Thank you for reading the informed consent form. Below, please verify your intent to participate in the study as described in the introduction letter and the informed consent form by signing and dating in the areas provided.

_____

Signature

_____

Printed Name

_____

Signature

APPENDIX O
Interview Introduction Letter

Dear Principal [LastName],

This email is in regards to a second and final stage of data collection regarding leadership responsibilities in a school district recognized by the National Baldrige Award. As the principal of your school and a person who has experiences and observations related to the goals of this study, you are being asked to participate in a 45-minute interview over the phone or through Skype. It is believed your participation and the participation of other administrators will help to support and develop other leaders.

As a small token for your time and assistance, you will receive a $15 Amazon.com gift card that may be used to purchase books, songs or other items.

Your involvement will entail reviewing and affirming the "Consent to Study" and, later, responding to interview questions. The informed consent will give you more details about the study including research purpose and questions, window to participate, possible risks, confidentiality statement, contact information, and appreciation. Information about the Amazon.com gift card is included too. If you have questions, you are encouraged to contact the researcher at any time.

To begin, please click on the link below to read and accept the informed consent letter.

[SurveyLink]

Your participation in this interview is anonymous and voluntary. Information during the interview will be recorded and coded to protect your anonymity. The recordings and coded

information will be destroyed after the conclusion of final defense of the dissertation. Should you decide to participate, you may elect to stop your participation at any time and without any consequence. You are not required to answer every question and will not be penalized in any way if you do so. Job status will not be affected by refusal to participate or withdrawal from this study. This project is research being conducted in partial fulfillment of dissertation study through Pepperdine University's Educational Leadership, Administration and Policy program.

If you choose to participate, please click on the link: [SurveyLink]. Once you have read the informed consent letter and given desirable times for the interview, please click *accept* if you would like to participate in the interview portion of the study.

Sincerely,

Kim Ibach

Educational Leadership, Education and Policy Doctoral Program

Pepperdine University

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.

[RemoveLink]

APPENDIX P
Interview Letter of Consent, Electronic

Dear (Principal's Name),

Thank you for clicking on the link to voluntarily participate in the interview portion of this study. Before the interview begins, you are presented with an informed consent letter further explaining the purpose, procedures, minimal risks or discomforts, your rights as a study participant and other elements of participating in the survey.

Principal Investigator: Kim Ibach

Title of Project: Twenty-one Leadership Responsibilities and Quality Management in the Context of Educational Baldrige Systems

Purpose: The purpose of this multiple case study, through a mixed-methods explanatory design, is to determine to what extent, if any, do principals and teachers have a common perception of the 21 Leadership Responsibilities expressed through the work of principals in Baldrige school districts that have been recognized at the national award level.

Research Questions: (A) To what extent, if at all, do principals of Baldrige schools self report the manifestation of each of the 21 Balanced Leadership responsibilities in their work? (B) To what extent, if at all, do principals and their staffs agree about the principals' expression of the 21 Balanced Leadership responsibilities in Baldrige schools? (C) Based on the responses of principals and staff at Baldrige schools, how are the 21 Balanced Leadership responsibilities implemented in the daily work of a principal?

1. I understand my participation in this portion of the study will take 45 minutes, the time to respond to the interview questions.

2. My participation in the study will involve me verbally answering ten interview questions. I understand I am not required to answer every question and will not be penalized in any way if I do so.

3. If I consent to participate in the interview phase of the study, I will have a three-week time period in which to participate in the interview. If I am not able to respond during the initial three-week period, I may contact the researcher and reschedule. I understand the timeframe for the study will be from (insert month) 2011 through (insert month) 2011 and that the actual data will be collected in (insert month) 2011.

4. I understand that the possible benefits to myself or society from this research are the experience and shared insights that I might offer to other educational leaders who desire to lead and sustain inquiry-based change initiatives by making them aware of: challenges they may encounter, strategies they might replicate to address challenges, and support that may be needed to sustain change efforts. My responses, aggregated with other responses, may also provide university professors, researchers and consultants with ideas for how they might support inquiry-based change initiative efforts in local educational organizations.

5. I understand that there are certain risks and discomforts that might be associated with this research. Potential risks and/or discomforts might include; social pressure to participate, fatigue, and/or a sense of having been inconvenienced in terms of time demands.

6. I understand that my participation is voluntary and that I may refuse to participate and/or withdraw my consent and discontinue participation in the project or activity at any time without penalty or loss of benefits to which I am otherwise entitled.

7. As a result of completing the interview, I may leave my name and email address so that the researcher can forward me an electronic Amazon.com gift card in the amount of $15. If I choose, I may refuse acceptance of the gift card and will inform the researcher of this decision. There will be no bias from the researcher for which ever choice I make in this regard.

8. I understand that the investigator will take all reasonable measures to protect the confidentiality of my records and my identity will not be revealed in any publication that may result from this project. The confidentiality of my records will be maintained in accordance with applicable state and federal laws. Under North Carolina law, there are exceptions to confidentiality, including suspicion that a child, elder, or dependent adult is being abused, or if an individual discloses an intent to harm him/herself or others.

9. I understand information during the interview will be recorded and coded to protect my anonymity. The coded information will be destroyed after the conclusion of final defense of the dissertation.

10. I understand that the investigator is willing to answer any inquiries I may have concerning the research herein described. I understand that I may contact Kimberly Ibach at XXXXXXXXXX if I have questions or concerns about this research. If I have questions about my rights as a research participant, I understand that I can contact Dr. Yuying Tsong, Chairperson of the GSEP IRB Committee, Pepperdine University, at yuying.tsong@pepperdine.edu or 310-568-5768 or Dr. Devin Vodika, Committee Chairperson, Pepperdine University at XXXXXXX.

11. For a printable version of this informed consent form I understand that I may contact Kimberly Ibach at XXXXXXXXX and request an electronic copy. Upon receipt of the form I can keep a copy for my records or if I prefer, I may print, sign and return a hard copy to the researcher.

12. I understand that I do not need to sign an informed consent letter. However, if I would like to generate a copy for my records, I may do so by printing this page or emailing the investigator and request a copy.

13. I understand to my satisfaction the information regarding participation in the research project. All my questions have been answered to my satisfaction.

14. I acknowledge that the researcher has explained and defined in detail the research procedure in which I have consented to participate.

15. If an appointment for interview has not already been confirmed, I suggest the following dates for said interview to take place on the date and time listed in the text box below. (insert text box)

16. By clicking "I accept," below, I indicate that I understand my rights as a participant in this study and my willingness to participate in the research study under the direction of graduate student, Kim Ibach.

Thank you for reading the informed consent form. Below, please verify your intent to participate in the study as described in the introduction letter and the informed consent.

I understand that by clicking "I accept" that I agree to willingly participate in this study.

- ⃝ I accept -- I understand the above statements and give my consent to participate in this study.
- ⃝ I decline -- I do not want to participate in this study.

APPENDIX Q
Interview Letter of Consent, Printable

Dear Educational Professional,

Thank you for clicking on the link to voluntarily participate in the interview portion of this study. Before the interview begins, you are presented with an informed consent letter further explaining the purpose, procedures, minimal risks or discomforts, your rights as a study participant and other elements of participating in the survey.

Principal Investigator: Kim Ibach

Title of Project: Twenty-one Leadership Responsibilities and Quality Management in the Context of Educational Baldrige Systems

Purpose: The purpose of this multiple case study, through a mixed-methods explanatory design, is to determine to what extent, if any, do principals and teachers have a common perception of the 21 Leadership Responsibilities expressed through the work of principals in Baldrige school districts that have been recognized at the national award level.

Research Questions: (A) To what extent, if at all, do principals of Baldrige schools self report the manifestation of each of the 21 Balanced Leadership responsibilities in their work? (B) To what extent, if at all, do principals and their staffs agree about the principals' expression of the 21 Balanced Leadership responsibilities in Baldrige schools? (C) Based on the responses of

principals and staff at Baldrige schools, how are the 21 Balanced Leadership responsibilities implemented in the daily work of a principal?

1. I understand my participation in this portion of the study will take 45 minutes, the time to respond to the interview questions.

2. My participation in the study will involve me verbally answering ten interview questions. I understand I am not required to answer every question and will not be penalized in any way if I do so.

3. If I consent to participate in the interview phase of the study, I will have a three-week time period in which to participate in the interview. If I am not able to respond during the initial three-week period, I may contact the researcher and reschedule. I understand the timeframe for the study will be from (insert month) 2011 through (insert month) 2011 and that the actual data will be collected in (insert month) 2011.

4. I understand that the possible benefits to myself or society from this research are the experience and shared insights that I might offer to other educational leaders who desire to lead and sustain inquiry-based change initiatives by making them aware of: challenges they may encounter, strategies they might replicate to address challenges, and support that may be needed to sustain change efforts. My responses, aggregated with other responses, may also provide university professors, researchers and consultants with ideas for how they might support inquiry-based change initiative efforts in local educational organizations.

5. I understand that there are certain risks and discomforts that might be associated with this research. Potential risks and/or discomforts might include; social pressure to participate, fatigue, and/or a sense of having been inconvenienced in terms of time demands.

6. I understand that my participation is voluntary and that I may refuse to participate and/or withdraw my consent and discontinue participation in the project or activity at any time without penalty or loss of benefits to which I am otherwise entitled.

7. As a result of completing the interview, I may leave my name and email address so that the researcher can forward me an electronic Amazon.com gift card in the amount of $10. If I

choose, I may refuse acceptance of the gift card and will inform the researcher of this decision. There will be no bias from the researcher for which ever choice I make in this regard.

8. I understand that the investigator will take all reasonable measures to protect the confidentiality of my records and my identity will not be revealed in any publication that may result from this project. The confidentiality of my records will be maintained in accordance with applicable state and federal laws. Under North Carolina law, there are exceptions to confidentiality, including suspicion that a child, elder, or dependent adult is being abused, or if an individual discloses an intent to harm him/herself or others.

9. I understand information during the interview will be recorded and coded to protect my anonymity. The coded information will be destroyed after the conclusion of final defense of the dissertation.

10. I understand that the investigator is willing to answer any inquiries I may have concerning the research herein described. I understand that I may contact Kimberly Ibach at XXXXXXX if I have questions or concerns about this research. If I have questions about my rights as a research participant, I understand that I can contact Dr. Yuying Tsong, Chairperson of the GSEP IRB Committee, Pepperdine University, at yuying.tsong@pepperdine.edu or 310-568-5768 or Dr. Devin Vodika, Committee Chairperson, Pepperdine University at XXXXX.

11. For a printable version of this informed consent form I understand that I may contact Kimberly Ibach at Kimberly.Ibach-Sullivan@pepperdine.edu and request an electronic copy. Upon receipt of the form I can keep a copy for my records or if I prefer, I may print, sign and return a hard copy to the researcher.

12. I understand that I do not need to sign an informed consent letter. However, if I would like to generate a copy for my records, I may do so by printing this page or emailing the investigator and request a copy.

13. I understand to my satisfaction the information regarding participation in the research project. All my questions have been answered to my satisfaction.

14. I acknowledge that the researcher has explained and defined in detail the research procedure in which I have consented to participate.

15. If an appointment for interview has not already been confirmed, I suggest the following dates for said interview to take place on the date and time listed in the text box below. (insert text box)

16. By clicking "I accept," below, I indicate that I understand my rights as a participant in this study and my willingness to participate in the research study under the direction of graduate student, Kim Ibach.

Thank you for reading the informed consent form. Below, please verify your intent to participate in the study as described in the introduction letter and the informed consent form by signing and dating in the areas provided.

_____

Signature

_____

Printed Name

_____

Signature

APPENDIX R
Interview Protocol

After the researcher initially contacts a possible interviewee by phone and an email containing the letter of consent is sent to a principal, the researcher will confirm an assigned date and time for the interview to take place. When the interview is set to begin, the researcher will adhere to this protocol by following these steps:

1. Just prior to the interview starting the researcher will test recording equipment and make sure that the interview takes place in an area with as little interruption as possible.

2. At the beginning of the interview, the researcher will:

a. Greet the administrator and thank him for participating.

b. Ask for permission to record the conversation.

c. Begin recording the conversation when consent is given.

d. Refer to the consent information emailed and ask for verbal consent under the parameters of the consent letter or affirm that the electronic version of consent has been completed. Specific information to highlight includes:

i. This project is research being conducted in partial fulfillment of dissertation study through Pepperdine University's Educational Leadership, Administration and Policy program.

ii. The purpose of this multiple case study, through a mixed-methods explanatory design, is to determine to what extent, if any, do principals and staff have a common perception of the 21 Leadership Responsibilities expressed through the work of principals in Baldrige school districts that have been recognized at the national award level.

iii. Participation in this study is anonymous and voluntary. Should one decide to participate, he may elect to stop your participation at any time and without any consequence.

iv. Reminder of audiotaping and that the information will be coded for anonymity. The audio and data that results will be destroyed after the final defense of the dissertation.

v. There is no requirement to answer every question and a participant will not be penalized in any way.

3. Prior to starting the interview questions, the researcher will record information about the interview including:

a. Date

b. Time of interview

c. Name of interviewee

d. District and School where interviewee is the principal

4. The body of the interview will focus on asking ten questions taken from the pool of interview questions developed from the American Society for Quality's school assessment guide (Appendix V)(LaBonte, 2010).

5. At the conclusion of the interview the researcher will

a. Ask the principal if there is any information he would like to add.

b. Inquire if the principal wishes to receive a $10 Amazon.com gift card. If the response is affirmative, the researcher will collect name and email information so the gift card may be sent to the principal.

c. Thank the principal for the time for the interview.

APPENDIX S
Survey Questions, Leadership Responsibilities and Literature Review

Q #	Questionnaire Used for the Factor Analysis	Leadership Role	References
15	The accomplishments of individual teachers in my school are recognized and celebrated.	**Affirmation**	Collins, 2001 Day, Leithwood, & Sammons, 2008 Hallinger, 2005
38	The accomplishments of the students and the school in general are recognized and celebrated.	**Affirmation**	Leithwood, & Mascall, 2008 Louis, & Wahlstrom, 2008 Marzano, McNulty, & Waters, 2005
60	In my school, we systematically acknowledge our failures as well as celebrate our accomplishments.	**Affirmation**	Moos, Krejsler, & Kofod, 2008 Sergiovanni, 2007 Schlechty, 2002
17	I consciously try to challenge the status quo to get people to thinking.	**Change Agent**	Bridges, 2003 & 2005
24	In my school, we systematically consider new-and-better ways of doing things.	**Change Agent**	Cuddapah, Masci, & Pajack, 2008 Fullan, 2010
40	I am comfortable initiating change without being sure where it might lead us.	**Change Agent**	Heifetz, 2003 Hyle & McLaughlin, 2001
77	In my school, we consistently ask ourselves, "Are we operating at the furthest reaches of our competence?"	**Change Agent**	Marzano, McNulty & Waters, 2005 Zimmerman, 2006
12	Teachers have ready and easy access to me.	**Communication**	Bass & Bass, 2008

35	Effective ways for teachers to communicate with one another have been established in my school.	**Communication**	Catano, Richard, & Stronge, 2008 Cotton, 2003 Geijsel, Meijers, & Wardekker, 2007
57	Lines of communication are strong between teachers and myself.	**Communication**	Grubb & Waters, 2004 Hackman, & Johnson, 1995 Hallinger, 2005 Kotter, 1995 Marzano, McNulty & Waters, 2005
11	Individuals who excel in my school are recognized and rewarded.	**Contingent rewards**	
34	In my school, seniority is not the primary basis for reward or advancement.	**Contingent rewards**	Bass & Bass, 2008
74	In my school, advancement and reward are not automatically given for simply "putting in your time."	**Contingent rewards**	Blasé, & Blasé, 2004 Catano, Richard, & Stronge, 2008 Marzano, McNulty & Waters, 2005
90	Individuals who work hard and produce results are identified and rewarded in my school.	**Contingent rewards**	
2	Teachers in my school regularly share ideas.	**Culture**	Argyris, 1991 Bass, 1995
26	I have successfully developed a sense of cooperation within my school.	**Culture**	Bass & Bass, 2008 Bouckenooghe & Devos, 2009
48	There is a strong team spirit in my school.	**Culture**	Catano, Richard, & Stronge, 2008
56	In my school, we have a common language that is used by both administrators and teachers.	**Culture**	Cotton, 2003 Eaker, DuFour & DuFour, 2002 Fullan, 2001

67	In my school, we have a shared understanding of our purpose.	**Culture**	Halawah, 2005 Hallinger, 2005
92	In my school, we share a vision of what we could be like.	**Culture**	Hallinger, & Heck, 1996 Leithwood, 2005 Marzano, McNulty & Waters Senge, 2006
3	In my school, the instructional time of teachers is well protected.	**Discipline**	
5	I have been successful in protecting teachers from undue distractions and interruptions to their teaching.	**Discipline**	Catano, Richard, & Stronge, 2008 Cuban, 1988 Collins, 2001 & 2005
70	In my school, teachers are not brought into issues external to the school that would detract from their emphasis on teaching.	**Discipline**	D'Amico, L. & Stein, M.K., 2000 Leithwood, 2005 Marzano, McNulty & Waters, 2005 McTighe, & Wiggins, 2007
71	In my school controversies or disagreement involving only one or a few staff members do not escalate into schoolwide issues.	**Discipline**	
28	One of the biggest priorities in my school is to keep the staff's energy level up and maintain the progress we have already made.	FIRST ORDER CHANGE	Argyris, 1991 Argyris & Schön, 1978 Conley & Enomote, 2005
30	We have made good progress, but we need another "shot in the arm" to keep us moving forward on our improvement efforts.	FIRST ORDER CHANGE	Deming, 1982 & 2000 Drucker, 2009 Earl & Fullan, 2003

81	In my school, we are currently experiencing a period during which things are going fairly well.	FIRST ORDER CHANGE	Fullan, 1994
			Grubb & Waters, 2004
			Heifetz, 2003
88	In my school, it would be useful to have a period of time during which we do not undertake any new, big initiatives.	FIRST ORDER CHANGE	Kotter, 1996
			Marzano, McNulty & Waters, 2005
			Senge, 2006
			Sergiovanni, 2007
			Smith, 2001
21	I am comfortable making major changes in how things are done.	**Flexibility**	
			Argyris, 1991
43	I encourage people to express opinions that are contrary to my own.	**Flexibility**	Cotton, 2003
			Day, Leithwood & Sammons, 2008
47	I can be highly directive or nondirective as the situation warrants.	**Flexibility**	Hallinger, 2003
			Hargreaves, 2004
66	I adapt my leadership style to the specific needs of the situation.	**Flexibility**	Higham, & Hopkins, 2007
			Huber, 2004
			Kise & Russell, 2009
			Marzano, McNulty & Waters, 2005
			Strodl, 1993
8	Concrete goals for achievement have been established for each student in my school.	**Focus**	Kotter, 1996
			Heifetz, 2003
31	In my school, we have designed concrete goals for our curriculum.	**Focus**	Marzano, McNulty & Waters, 2005
			Moos, Krejsler, & Kofod, 2008
53	We have specific goals for instructional	**Focus**	Leithwood, 2005

	practices in my school.		Schmoker, 1999
72	We have established specific goals for our assessment practices in my school.	**Focus**	
84	Our schoolwide goals are understood by all our teachers.	**Focus**	
86	Our schoolwide goals are a prominent part of our day-to-day lives.	**Focus**	
64	I have well-defined beliefs about schools, teaching, and learning.	**Ideals/Beliefs**	Begley, & Stefkovich, 2007
79	I have explicitly communicated my strong beliefs and ideals to the teachers.	**Ideals/Beliefs**	Cotton, 2003 Frick, 2009
87	My behavior is consistent with my ideals and beliefs regarding schools, teachers, and learning.	**Ideals/Beliefs**	Marzano, McNulty & Waters, 2005 Sergiovanni, 2007
19	The teachers in my school are aware of my beliefs regarding schools, teaching, and learning.	**Ideas/Beliefs**	
14	In my school, teachers have direct input into all important decisions.	**Input**	Argyris, 1991 Blasé & Blasé, 1999
37	Teachers are directly involved in establishing policy in my school.	**Input**	Cotton, 2003 Danielson, 2007
59	In my school, decisions are made using a team approach.	**Input**	Fisher, & Ury, 1991 Hallinger & Heck, 2010 Hargreaves & Fink, 2003 Leithwood, 2005 Marzano, McNulty & Waters, 2005

			Moos, Krejsler, & Kofod, 2008 Robinson, 2008
23	I stay informed about the current research and theory regarding effective schooling.	**Intellectual Stimulation**	Ghere, Montie, Sommers,& York-Barr, 2001 Heifetz, 2003
45	I continually expose teachers in my school to cutting-edge ideas about how to be effective.	**Intellectual Stimulation**	Kurland, Hertz-Lazarowitz, & Peretz, 2010 Marzano, McNulty & Waters, 2005 Niska, & Thompson, Gregg, 2004
68	In my school, we systematically have discussions about current research and theory.	**Intellectual Stimulation**	Ozaralli, 2002 Robinson, 2008 Schlechty, 2002
83	In my school, we systematically read articles and books about effective practices.	**Intellectual Stimulation**	Sergiovanni, 2007
7	I am directly involved in helping teachers design curricular activities for their classes.	**Involvement in CIA**	Catano, Richard, & Stronge, 2008 Collins, 2001 & 2005 Cuban, 1988
25	I am directly involved in helping teachers address instructional issues in their classrooms.	**Involvement in CIA**	D'Amico, & Stein, 2000 Leithwood, 2005 Marzano, McNulty & Waters, 2005
50	I am directly involved in helping teachers address assessment issues in their classrooms.	**Involvement in CIA**	McTighe, & Wiggins, 2007
9	I am very knowledgeable about effective instructional practices.	**Knowledge of CIA**	Catano, Richard, & Stronge, 2008 Collins, 2001 & 2005
32	I am very knowledgeable about classroom curricular issues.	**Knowledge of CIA**	Cuban, 1988

54	I am very knowledgeable about effective classroom assessment practices.	**Knowledge of CIA**	D'Amico, & Stein, 2000 Leithwood, 2005
73	I provide conceptual guidance for the teachers in my school regarding effective classroom practice.	**Knowledge of CIA**	Marzano, McNulty & Waters, 2005 McTighe, & Wiggins, 2007
20	I continually monitor the effectiveness of our curriculum.	**Monitor/Evaluate**	
42	I continually monitor the effectiveness of the instructional practices used in our school.	**Monitor/Evaluate**	Blasé, & Blasé, 2004 Elmore, 2004 Geijsel, Meijers, & Wardekker, 2007 Goldstein, 2004
65	I continually monitor the effectiveness of the assessment practices used in my school.	**Monitor/Evaluate**	Hope, 2002 Marzano, McNulty & Waters, 2005 Schmoker, 2006
80	At any time, I can accurately determine how effective our school is in terms of enhancing student learning.	**Monitor/Evaluate**	Sergiovanni, 2000
18	I try to inspire the teachers to accomplish things that might seem beyond their grasp.	**Optimizer**	
41	I always portray a positive attitude about our ability to accomplish substantive things.	**Optimizer**	Andrews, & Chew, 2010 Fullan, 2009 Geijsel, Meijers, & Wardekker, 2007 Harris, 2008
63	I try to be the driving force behind major initiatives.	**Optimizer**	Heifetz 2003 Marks & Printy, 2006
78	I believe that we can accomplish just about anything, if we are willing to work hard enough and if we believe in	**Optimizer**	Marzano, McNulty & Waters 2005

	ourselves.		
4	There are well-established procedures in my school regarding how to bring up problems and concerns.	**Order**	Geijsel, Meijers, & Wardekker, 2007 Heck, 2000 Heifetz, 2003 Lambert, 2003 Marzano, McNulty & Waters, 2005 Robinson, Lloyd, & Rowe, 2008 Sergiovanni, 2000
27	I have successfully created a strong sense of order among teachers about the efficient running of the school.	**Order**	
49	There are well-established routines regarding the running of the school that staff understand and follow.	**Order**	
13	I make sure that our school complies with all district and state mandates.	**Outreach**	Anderson, Leithwood, Seashore-Louis, & Wahlstrom, 2004 Cotton, 2003 Fullan et al., 2004 Hiatt-Michael, 2003 Leithwood, 2005 Marzano, McNulty & Waters, 2005 Schmoker, 2006 Zaretsky, 2004
36	I am a strong advocate for our school to the community at large.	**Outreach**	
58	I am a strong advocate for my school to the parents of our students.	**Outreach**	
75	I make sure that the central office is aware of my school's accomplishments.	**Outreach**	
16	I am aware of the personal needs of the teachers in our school.	**Relationships**	Day, 2007 Geijsel, Meijers, & Wardekker, 2007 Lencioni, 2005 Louis, Wahlstrom, 2008 Marzano, McNulty & Waters, 2005
39	I have a personal relationship with the teachers in our school.	**Relationships**	
61	I stay informed about significant personal	**Relationships**	

	issues in the lives of the teachers.		Sergiovanni, 2007
76	I make sure that significant events in the lives of the teachers in my school are acknowledged.	**Relationships**	
6	In my school, I have been successful at ensuring that teachers have the necessary resources and professional opportunities to maintain a high standard of teaching.	**Resources**	Catano, Richard, & Stronge, 2008

Cotton, 2003

Danielson, 2002 |
| 51 | Teachers in my school are regularly involved in professional development activities that directly enhance their teaching. | **Resources** | Heifetz, 2003

Leithwood, 2005

McTighe & Wiggins, 2007 |
| 89 | In my school, the materials and resources teachers request are procured and delivered in a timely fashion. | **Resources** | Marzano, McNulty & Waters, 2005

Sergiovanni, 2000 |
| 1 | The changes I am trying to make in my school will represent a significant challenge to the status quo when they are implemented. | SECOND ORDER CHANGE | Argyris, 1991

Argyris & Schön, 1978

Conley & Enomote, 2005 |
| 29 | The changes we are trying to make in our school require the people making the changes to learn new concepts and skills. | SECOND ORDER CHANGE | Deming, 1982 & 2000

Drucker, 2009

Earl & Fullan, 2003 |
| 46 | There are deeply ingrained practices in my school that must be ended or changed if we are to make any significant progress. | SECOND ORDER CHANGE | Fullan, 1994

Grubb & Waters, 2004

Heifetz, 2003

Kotter, 1996 |
| 52 | The changes I am trying to make in my school will challenge the existing norms. | SECOND ORDER CHANGE | Marzano, McNulty & Waters, 2005 |

62	Unless we make significant changes in my school, student achievement is not going to improve much.	SECOND ORDER CHANGE	Senge, 2006 Sergiovanni, 2007 Smith, 2001
69	The most important changes we need to make in my school are the ones the staff most strongly resists.	SECOND ORDER CHANGE	
22	I am aware of the informal groups and relationships among the teachers in my school.	**Situational Awareness**	Andrews, & Chew, 2010 Geijsel, Meijers, & Wardekker, 2007 Hallinger, 2005 Heifetz, 2003 Marzano, McNulty & Waters, 2005
44	I am aware of the issues in my school that have not formally come to the surface but might cause discord.	**Situational Awareness**	
82	I can accurately predict things that may go wrong in my school on a day-to-day basis.	**Situational Awareness**	
85	I am aware of both what is and what is not running smoothly in my school.	**Situational Awareness**	
91	I am aware of the details regarding the day-to-day running of the school.	**Situational Awareness**	
10	I make systematic and frequent visits to classrooms.	**Visibility**	Anderson, Leithwood, Seashore-Louis, & Wahlstrom, 2004 Blasé, & Blasé, 2004 Hallinger, 2003 Hunt, & Spillane, 2010 Louis & Wahlstrom, 2008 Marzano, McNulty & Waters, 2005 Senge, 2006
33	I have frequent contact with the students in my school.	**Visibility**	
55	I am highly visible to both the teachers and the students in my school.	**Visibility**	

		Spillane, 2009

APPENDIX T
McREL Permissions

4601 DTC Boulevard, Suite 500 • Denver, Colorado 80237-2596
303.337.0990 • Fax: 303.337.3005 • www.mcrel.org

Date: August 1, 2011

To: Kim Ibach

From: James Eck
Senior Director, Field Services

Re: Permission to use factor analysis questions for dissertation research.

Kim:

This memo serves as written permission for you to use the items from McREL's factor analysis of school level leadership responsibilities and change factors for your dissertation research.

You may use the items from *School Leadership That Works* (Technical Notes, pp. 162-164) verbatim, with appropriate reference to the book and McREL's permission. You may not modify the questions in any way.

Please let me know if there is anything more I may do for you. Best wishes to you with your research.

Jim

James Eck
Senior Director
McREL
Mid-continent Research for Education and Learning

APPENDIX U
21 Responsibilities Survey

1.

Dear Educational Professional,

Thank you for clicking on the link to participate in this study. Before the survey begins, you are presented with an Informed Consent Letter further explaining the purpose, procedures, minimal risks or discomforts and other elements of participating in the survey.

Dear Educational Professional,

Thank you for clicking on the link to voluntarily participate in this study. Before the survey begins, you are presented with an Informed Consent Letter further explaining the purpose, procedures, minimal risks or discomforts, your rights as a study participant and other elements of participating in the survey.

Principal Investigator: Kim Ibach

Title of Project: Twenty-one Leadership Responsibilities and Quality Management in the Context of Educational Baldrige Systems

Purpose: The purpose of this multiple case study, through a mixed-methods explanatory design, is to determine to what extent, if any, do principals and teachers have a common perception of the 21 leadership roles expressed through the work of principals in Baldrige school districts that have been recognized at the national award level.

Research Questions: (A) To what extent, if at all, do principals of Baldrige schools self report the manifestation of each of the 21 Balanced Leadership responsibilities in their work? (B) To what extent, if at all, do principals and their staffs agree about the principals' expression of the 21 Balanced Leadership responsibilities in Baldrige schools? (C) Based on the responses of principals and staff at Baldrige schools, how are the 21 Balanced Leadership responsibilities implemented in the daily work of a principal?

1. I understand my participation in the study will take approximately 15 minutes, the time to respond to the online questionnaire.
2. My participation in the study will involve me completing an online questionnaire consisting of six background questions and nine groups of rating scales consisting of a total of 92 statements.
3. If I consent to participate in the study, I will have a three-week time period in which to respond to the questionnaire. If I am not able to respond during the initial three-week period, I may receive a reminder email extending the time for me to respond. I understand the timeframe for the study will be from (insert month) 2011 through (insert month) 2011 and that the actual data will be collected in (insert month) 2011.
4. I understand that the possible benefits to myself or society from this research are the experience and shared insights that I might offer to other educational leaders who desire to lead and sustain inquiry-based change initiatives by making them aware of: challenges they may encounter, strategies they might replicate to address challenges, and support that may be needed to sustain change efforts. While I am not required to answer every question in the survey, I know that answering as many questions as possible will assist in adding to the data to possibly better inform others. My responses, aggregated with other responses, may also provide university professors, researchers and consultants with ideas for how they might support inquiry-based change initiative efforts in local educational organizations.
5. I understand that there are certain risks and discomforts that might be associated with this research. Potential risks and/or discomforts might include; social pressure to participate, fatigue, and/or a sense of having been inconvenienced in terms of time demands.
6. I understand that my participation is voluntary and that I may refuse to participate and/or withdraw my consent and discontinue participation in the project or activity at any time without penalty or loss of benefits to which I am otherwise entitled.
7. As a result of completing the survey, I may leave my name and email address so that I may be contacted if I am randomly selected to receive a $50 Amazon.com gift card. I understand that a company, ePrize, which is affiliated with Survey Monkey, collects this information. As a result, I understand that there is no way to identify my responses with the personal information I may choose to give.
8. I understand that the investigator will take all reasonable measures to protect the confidentiality of my records and my identity will not be revealed in any publication that may result from this project. The confidentiality of my records will be maintained in accordance with applicable state and federal laws. Under North Carolina law, there are exceptions to confidentiality, including suspicion that a child, elder, or dependent adult is being abused, or if an individual discloses an intent to harm him/herself or others.
9. I understand that I will be presented with a link to more information if I choose to participate in the sweepstakes for the $50 Amazon.com gift card. This includes information about eligibility, sponsor, timing, entry, prize, publicity, general conditions, limitations of liability and winner list.
10. I understand that the investigator is willing to answer any inquiries I may have concerning the research herein described. I understand that I may contact Kimberly Ibach at Kimberly.Ibach-Sullivan@pepperdine.edu or 336-285-8566 if I have questions or concerns about this research. If I have questions about my rights as a research participant, I understand that I can contact Dr. Yuying Tsong, Chairperson of the GSEP IRB Committee, Pepperdine University, at yuying.tsong@pepperdine.edu or 310-568-5768 or Dr. Devin Vodika, Committee Chairperson, Pepperdine University at Devin.Vodicka@pepperdine.edu or 310-568-2361.

11. For a printable version of this informed consent form I understand that I may contact Kimberly Ibach at Kimberly.Ibach-Sullivan@pepperdine.edu and request an electronic copy. Upon receipt of the form I can keep a copy for my records or if I prefer, I may print, sign and return a hard copy to the researcher.

12. I understand that I do not need to sign an informed consent letter. However, if I would like to generate a copy for my records, I may do so by printing this page or emailing the investigator and request a copy.

13. I understand to my satisfaction the information regarding participation in the research project. All my questions have been answered to my satisfaction.

14. I acknowledge that the researcher has explained and defined in detail the research procedure in which I have consented to participate.

15. By clicking "I accept," below, I indicate that I understand my rights as a participant in this study and my willingness to participate in the research study under the direction of graduate student, Kim Ibach.

1. Thank you for reading the informed consent form. By clicking "I accept," below, I indicate that I understand my rights as a participant in this study and my willingness to participate in the research study under the direction of graduate student, Kimberly Ibach.

○ I accept – I understand the above statements and give my consent to participate in this study.

○ I decline – I do not want to participate in this study.

The following page shows for those who select "I decline."

2. Thank you for your time!

You may close the browser window to exit the survey.

The following page shows for those who select "I accept."

3. Demographic Information

1. What is your highest level of education?

- ○ None
- ○ High School Diploma/GED
- ○ Technical Certification
- ○ Associate's Degree
- ○ Bachelor's Degree
- ○ Master's Degree
- ○ Ed.D. or Ph.D.

2. In which district do you work?

- ○ x
- ○ xx
- ○ xxx

4.

1. At which school do you work?

- ○ 1
- ○ 2
- ○ 3

7. Position Info

1. How long have you been in your current position at this school?

- ○ 0-3 years
- ○ 4-7 years
- ○ 8-15 years
- ○ 16+ years

2. How many TOTAL years experience do you have in this position?

- ○ 0-3 years
- ○ 4-7 years
- ○ 8-15 years
- ○ 16+ years

3. What is your current position?

- ○ Principal
- ○ Assistant Principal
- ○ Teacher Leader (ie. grade/department chair, curriculum facilitator, instructional facilitator, teacher mentor)
- ○ Teacher
- ○ Classified
- ○ Other

All staff, except principals, continue to the next page. Principals are directed to the page that begins with "Page 1."

8. Survey Page 1

When answering each question, please consider what you personally experienced and observed, as well as things you know to be true based on your experiences working in the school.

To adhere to proper research methodology, the questions below have not been modified in any way. Please know that they were originally designed for principals and some of the wording may seem as if it does not apply to you in your current role. When this occurs, please reflect on how frequently your principal demonstrates or performs work related to this role.

1. Think about your school and the Baldrige or continuous improvement initiative. To what degree do the following statements describe the principal, fellow teachers, or your school?

	Never	Infrequently	Frequently	Almost Always	Not Sure
The changes I am trying to make in my school will represent a significant challenge to the status quo when they are implemented.	○	○	○	○	○
Teachers in my school regularly share ideas.	○	○	○	○	○
In my school, the instructional time of teachers is well protected.	○	○	○	○	○
There are well-established procedures in my school regarding how to bring up problems and concerns.	○	○	○	○	○
I have been successful in protecting teachers from undue distractions and interruptions to their teaching.	○	○	○	○	○
In my school, I have been successful at ensuring that teachers have the necessary resources and professional opportunities to maintain a high standard of teaching.	○	○	○	○	○
I am directly involved in helping teachers design curricular activities for their classes.	○	○	○	○	○
Concrete goals for achievement have been established for each student in my school.	○	○	○	○	○
I am very knowledgeable about effective instructional practices.	○	○	○	○	○
I make systematic and frequent visits to classrooms.	○	○	○	○	○

Individuals who excel in my school are recognized and rewarded.

2. Think about your school and the Baldrige or continuous improvement initiative. To what degree do the following statements describe the principal, fellow teachers, or your school?

	Never	Infrequently	Frequently	Almost Always	Not Sure
Teachers have ready and easy access to me.	○	○	○	○	○
I make sure that our school complies with all district and state mandates.	○	○	○	○	○
In my school, teachers have direct input into all important decisions.	○	○	○	○	○
The accomplishments of individual teachers in my school are recognized and celebrated.	○	○	○	○	○
I am aware of the personal needs of the teachers in our school.	○	○	○	○	○
I consciously try to challenge the status quo to get people to thinking.	○	○	○	○	○
I try to inspire the teachers to accomplish things that might seem beyond their grasp.	○	○	○	○	○
The teachers in my school are aware of my beliefs regarding schools, teaching, and learning.	○	○	○	○	○
I continually monitor the effectiveness of our curriculum.	○	○	○	○	○
I am comfortable making major changes in how things are done.	○	○	○	○	○
I am aware of the informal groups and relationships among the teachers in my school.	○	○	○	○	○

3. Think about your school and the Baldrige or continuous improvement initiative. To what degree do the following statements describe the principal, fellow teachers, or your school?

	Never	Infrequently	Frequently	Almost Always	Not Sure
I stay informed about the current research and theory regarding effective schooling.	○	○	○	○	○
In my school, we systematically consider new-and-better ways of doing things.	○	○	○	○	○
I am directly involved in helping teachers address instructional issues in their classrooms.	○	○	○	○	○
I have successfully developed a sense of cooperation within my school.	○	○	○	○	○
I have successfully created a strong sense of order among teachers about the efficient running of the school.	○	○	○	○	○
One of the biggest priorities in my school is to keep the staff's energy level up and maintain the progress we have already made.	○	○	○	○	○
The changes we are trying to make in our school require the people making the changes to learn new concepts and skills.	○	○	○	○	○
We have made good progress, but we need another "shot in the arm" to keep us moving forward on our improvement efforts.	○	○	○	○	○
In my school, we have designed concrete goals for our curriculum.	○	○	○	○	○
I am very knowledgeable about classroom curricular issues.	○	○	○	○	○

9. Survey Page 2

When answering each question, please consider what you personally experienced and observed, as well as things you know to be true based on your experiences working in the school.

To adhere to proper research methodology, the questions below have not been modified in any way. Please know that they were originally designed for principals and some of the wording may seem as if it does not apply to you in your current role. When this occurs, please reflect on how frequently your principal demonstrates or performs work related to this role.

1. Think about your school and the Baldrige or continuous improvement initiative. To what degree do the following statements describe the principal, fellow teachers, or your school?

	Never	Infrequently	Frequently	Almost Always	Not Sure
I have frequent contact with the students in my school.	○	○	○	○	○
In my school, seniority is not the primary basis for reward or advancement.	○	○	○	○	○
Effective ways for teachers to communicate with one another have been established in my school.	○	○	○	○	○
I am a strong advocate for our school to the community at large.	○	○	○	○	○
Teachers are directly involved in establishing policy in my school.	○	○	○	○	○
The accomplishments of the students and the school in general are recognized and celebrated.	○	○	○	○	○
I have a personal relationship with the teachers in our school.	○	○	○	○	○
I am comfortable initiating change without being sure where it might lead us.	○	○	○	○	○
I always portray a positive attitude about our ability to accomplish substantive things.	○	○	○	○	○
I continually monitor the effectiveness of the instructional practices used in our school.	○	○	○	○	○

2. Think about your school and the Baldrige or continuous improvement initiative. To what degree do the following statements describe the principal, fellow teachers, or your school?

	Never	Infrequently	Frequently	Almost Always	Not Sure
I encourage people to express opinions that are contrary to my own.	○	○	○	○	○
I am aware of the issues in my school that have not formally come to the surface but might cause discord.	○	○	○	○	○
I continually expose teachers in my school to cutting-edge ideas about how to be effective.	○	○	○	○	○
There are deeply ingrained practices in my school that must be ended or changed if we are to make any significant progress.	○	○	○	○	○
I can be highly directive or nondirective as the situation warrants.	○	○	○	○	○
There is a strong team spirit in my school.	○	○	○	○	○
There are well-established routines regarding the running of the school that staff understand and follow.	○	○	○	○	○
I am directly involved in helping teachers address assessment issues in their classrooms.	○	○	○	○	○
Teachers in my school are regularly involved in professional development activities that directly enhance their teaching.	○	○	○	○	○
The changes I am trying to make in my school will challenge the existing norms.	○	○	○	○	○

3. Think about your school and the Baldrige or continuous improvement initiative. To what degree do the following statements describe the principal, fellow teachers, or your school?

	Never	Infrequently	Frequently	Almost Always	Not Sure
We have specific goals for instructional practices in my school.	○	○	○	○	○
I am very knowledgeable about effective classroom assessment practices.	○	○	○	○	○
I am highly visible to both the teachers and the students in my school.	○	○	○	○	○
In my school, we have a common language that is used by both administrators and teachers.	○	○	○	○	○
Lines of communication are strong between teachers and myself.	○	○	○	○	○
I am a strong advocate for my school to the parents of our students.	○	○	○	○	○
In my school, decisions are made using a team approach.	○	○	○	○	○
In my school, we systematically acknowledge our failures as well as celebrate our accomplishments.	○	○	○	○	○
I stay informed about significant personal issues in the lives of the teachers.	○	○	○	○	○
Unless we make significant changes in my school, student achievement is not going to improve much.	○	○	○	○	○

10. Survey Page 3

When answering each question, please consider what you personally experienced and observed, as well as things you know to be true based on your experiences working in the school.

To adhere to proper research methodology, the questions below have not been modified in any way. Please know that they were originally designed for principals and some of the wording may seem as if it does not apply to you in your current role. When this occurs, please reflect on how frequently your principal demonstrates or performs work related to this role.

1. Think about your school and the Baldrige or continuous improvement initiative. To what degree do the following statements describe the principal, fellow teachers, or your school?

	Never	Infrequently	Frequently	Almost Always	Not Sure
I try to be the driving force behind major initiatives.	○	○	○	○	○
I have well-defined beliefs about schools, teaching, and learning.	○	○	○	○	○
I continually monitor the effectiveness of the assessment practices used in my school.	○	○	○	○	○
I adapt my leadership style to the specific needs of the situation.	○	○	○	○	○
In my school, we have a shared understanding of our purpose.	○	○	○	○	○
In my school, we systematically have discussions about current research and theory.	○	○	○	○	○
The most important changes we need to make in my school are the ones the staff most stongly resists.	○	○	○	○	○
In my school, teachers are not brought into issues external to the school that would detract from their emphasis on teaching.	○	○	○	○	○
In my school controversies or disagreement involving only one or a few staff members do not escalate into schoolwide issues.	○	○	○	○	○
We have established specific goals for our assessment practices in my school.	○	○	○	○	○

2. Think about your school and the Baldrige or continuous improvement initiative. To what degree do the following statements describe the principal, fellow teachers, or your school?

	Never	Infrequently	Frequently	Almost Always	Not Sure
I provide conceptual guidance for the teachers in my school regarding effective classroom practice.	○	○	○	○	○
In my school, advancement and reward are not automatically given for simply "putting in your time."	○	○	○	○	○
I make sure that the central office is aware of my school's accomplishments.	○	○	○	○	○
I make sure that significant events in the lives of the teachers in my school are acknowledged.	○	○	○	○	○
In my school, we consistently ask ourselves, "Are we operating at the furthest reaches of our competence?"	○	○	○	○	○
I believe that we can accomplish just about anything, if we are willing to work hard enough and if we believe in ourselves.	○	○	○	○	○
I have explicitly communicated my strong beliefs and ideals to the teachers.	○	○	○	○	○
At any time, I can accurately determine how effective our school is in terms of enhancing student learning.	○	○	○	○	○
In my school, we are currently experiencing a period during which things are going fairly well.	○	○	○	○	○
I can accurately predict things that may go wrong in my school on a day-to-day basis.	○	○	○	○	○

3. Think about your school and the Baldrige or continuous improvement initiative. To what degree do the following statements describe the principal, fellow teachers, or your school?

	Never	Infrequently	Frequently	Almost Always	Not Sure
In my school, we systematically read articles and books about effective practices.	○	○	○	○	○
Our schoolwide goals are understood by all our teachers.	○	○	○	○	○
I am aware of both what is and what is not running smoothly in my school.	○	○	○	○	○
Our schoolwide goals are a prominent part of our day-to-day lives.	○	○	○	○	○
My behavior is consistent with my ideals and beliefs regarding schools, teachers, and learning.	○	○	○	○	○
In my school, it would be useful to have a period of time during which we do not undertake any new, big initiatives.	○	○	○	○	○
In my school, the materials and resources teachers request are procured and delivered in a timely fashion.	○	○	○	○	○
Individuals who work hard and produce results are identified and rewarded in my school.	○	○	○	○	○
I am aware of the details regarding the day-to-day running of the school.	○	○	○	○	○
In my school, we share a vision of what we could be like.	○	○	○	○	○

From this page, staff are directed to the page to enter the sweepstakes for the gift card if chosen.

11. Page 1

The next several questions are going to ask you to rate how often a set of behaviors or actions occur. When answering each question, please consider what you personally experienced and observed, as well as things you know to be true based on your experiences working in the school.

1. Think about your school and the Baldrige or continuous improvement initiative. To what degree do the following statements describe you as principal, your teachers, or your school?

	Never	Infrequently	Frequently	Almost Always	Not Sure
The changes I am trying to make in my school will represent a significant challenge to the status quo when they are implemented.	○	○	○	○	○
Teachers in my school regularly share ideas.	○	○	○	○	○
In my school, the instructional time of teachers is well protected.	○	○	○	○	○
There are well-established procedures in my school regarding how to bring up problems and concerns.	○	○	○	○	○
I have been successful in protecting teachers from undue distractions and interruptions to their teaching.	○	○	○	○	○
In my school, I have been successful at ensuring that teachers have the necessary resources and professional opportunities to maintain a high standard of teaching.	○	○	○	○	○
I am directly involved in helping teachers design curricular activities for their classes.	○	○	○	○	○
Concrete goals for achievement have been established for each student in my school.	○	○	○	○	○
I am very knowledgeable about effective instructional practices.	○	○	○	○	○
I make systematic and frequent visits to classrooms.	○	○	○	○	○
Individuals who excel in my school are recognized and rewarded.	○	○	○	○	○

2. Think about your school and the Baldrige or continuous improvement initiative. To what degree do the following statements describe you as principal, your teachers, or your school?

	Never	Infrequently	Frequently	Almost Always	Not Sure
Teachers have ready and easy access to me.	○	○	○	○	○
I make sure that our school complies with all district and state mandates.	○	○	○	○	○
In my school, teachers have direct input into all important decisions.	○	○	○	○	○
The accomplishments of individual teachers in my school are recognized and celebrated.	○	○	○	○	○
I am aware of the personal needs of the teachers in our school.	○	○	○	○	○
I consciously try to challenge the status quo to get people to thinking.	○	○	○	○	○
I try to inspire the teachers to accomplish things that might seem beyond their grasp.	○	○	○	○	○
The teachers in my school are aware of my beliefs regarding schools, teaching, and learning.	○	○	○	○	○
I continually monitor the effectiveness of our curriculum.	○	○	○	○	○
I am comfortable making major changes in how things are done.	○	○	○	○	○
I am aware of the informal groups and relationships among the teachers in my school.	○	○	○	○	○

3. Think about your school and the Baldrige or continuous improvement initiative. To what degree do the following statements describe you as principal, your teachers, or your school?

	Never	Infrequently	Frequently	Almost Always	Not Sure
I stay informed about the current research and theory regarding effective schooling.	○	○	○	○	○
In my school, we systematically consider new-and-better ways of doing things.	○	○	○	○	○
I am directly involved in helping teachers address instructional issues in their classrooms.	○	○	○	○	○
I have successfully developed a sense of cooperation within my school.	○	○	○	○	○
I have successfully created a strong sense of order among teachers about the efficient running of the school.	○	○	○	○	○
One of the biggest priorities in my school is to keep the staff's energy level up and maintain the progress we have already made.	○	○	○	○	○
The changes we are trying to make in our school require the people making the changes to learn new concepts and skills.	○	○	○	○	○
We have made good progress, but we need another "shot in the arm" to keep us moving forward on our improvement efforts.	○	○	○	○	○
In my school, we have designed concrete goals for our curriculum.	○	○	○	○	○
I am very knowledgeable about classroom curricular issues.	○	○	○	○	○

12. Page 2

This is a continuation of questions which ask you to rate how often a set of behaviors or actions occur. When answering each question, please consider what you personally experienced and observed, as well as things you know to be true based on your experiences working in the school.

1. Think about your school and the Baldrige or continuous improvement initiative. To what degree do the following statements describe you as principal, your teachers, or your school?

	Never	Infrequently	Frequently	Almost Always	Not Sure
I have frequent contact with the students in my school.	○	○	○	○	○
In my school, seniority is not the primary basis for reward or advancement.	○	○	○	○	○
Effective ways for teachers to communicate with one another have been established in my school.	○	○	○	○	○
I am a strong advocate for our school to the community at large.	○	○	○	○	○
Teachers are directly involved in establishing policy in my school.	○	○	○	○	○
The accomplishments of the students and the school in general are recognized and celebrated.	○	○	○	○	○
I have a personal relationship with the teachers in our school.	○	○	○	○	○
I am comfortable initiating change without being sure where it might lead us.	○	○	○	○	○
I always portray a positive attitude about our ability to accomplish substantive things.	○	○	○	○	○
I continually monitor the effectiveness of the instructional practices used in our school.	○	○	○	○	○

2. Think about your school and the Baldrige or continuous improvement initiative. To what degree do the following statements describe you as principal, your teachers, or your school?

	Never	Infrequently	Frequently	Almost Always	Not Sure
I encourage people to express opinions that are contrary to my own.	○	○	○	○	○
I am aware of the issues in my school that have not formally come to the surface but might cause discord.	○	○	○	○	○
I continually expose teachers in my school to cutting-edge ideas about how to be effective.	○	○	○	○	○
There are deeply ingrained practices in my school that must be ended or changed if we are to make any significant progress.	○	○	○	○	○
I can be highly directive or nondirective as the situation warrants.	○	○	○	○	○
There is a strong team spirit in my school.	○	○	○	○	○
There are well-established routines regarding the running of the school that staff understand and follow.	○	○	○	○	○
I am directly involved in helping teachers address assessment issues in their classrooms.	○	○	○	○	○
Teachers in my school are regularly involved in professional development activities that directly enhance their teaching.	○	○	○	○	○
The changes I am trying to make in my school will challenge the existing norms.	○	○	○	○	○

3. Think about your school and the Baldrige or continuous improvement initiative. To what degree do the following statements describe you as principal, your teachers, or your school?

	Never	Infrequently	Frequently	Almost Always	Not Sure
We have specific goals for instructional practices in my school.	○	○	○	○	○
I am very knowledgeable about effective classroom assessment practices.	○	○	○	○	○
I am highly visible to both the teachers and the students in my school.	○	○	○	○	○
In my school, we have a common language that is used by both administrators and teachers.	○	○	○	○	○
Lines of communication are strong between teachers and myself.	○	○	○	○	○
I am a strong advocate for my school to the parents of our students.	○	○	○	○	○
In my school, decisions are made using a team approach.	○	○	○	○	○
In my school, we systematically acknowledge our failures as well as celebrate our accomplishments.	○	○	○	○	○
I stay informed about significant personal issues in the lives of the teachers.	○	○	○	○	○
Unless we make significant changes in my school, student achievement is not going to improve much.	○	○	○	○	○

13. Page 3

This is the last set of questions which ask you to rate how often a set of behaviors or actions occur. When answering each question, please consider what you personally experienced and observed, as well as things you know to be true based on your experiences working in the school.

1. Think about your school and the Baldrige or continuous improvement initiative. To what degree do the following statements describe you as principal, your teachers, or your school?

	Never	Infrequently	Frequently	Almost Always	Not Sure
I try to be the driving force behind major initiatives.	○	○	○	○	○
I have well-defined beliefs about schools, teaching, and learning.	○	○	○	○	○
I continually monitor the effectiveness of the assessment practices used in my school.	○	○	○	○	○
I adapt my leadership style to the specific needs of the situation.	○	○	○	○	○
In my school, we have a shared understanding of our purpose.	○	○	○	○	○
In my school, we systematically have discussions about current research and theory.	○	○	○	○	○
The most important changes we need to make in my school are the ones the staff most stongly resists.	○	○	○	○	○
In my school, teachers are not brought into issues external to the school that would detract from their emphasis on teaching.	○	○	○	○	○
In my school controversies or disagreement involving only one or a few staff members do not escalate into schoolwide issues.	○	○	○	○	○
We have established specific goals for our assessment practices in my school.	○	○	○	○	○

2. Think about your school and the Baldrige or continuous improvement initiative. To what degree do the following statements describe you as principal, your teachers, or your school?

	Never	Infrequently	Frequently	Almost Always	Not Sure
I provide conceptual guidance for the teachers in my school regarding effective classroom practice.	○	○	○	○	○
In my school, advancement and reward are not automatically given for simply "putting in your time."	○	○	○	○	○
I make sure that the central office is aware of my school's accomplishments.	○	○	○	○	○
I make sure that significant events in the lives of the teachers in my school are acknowledged.	○	○	○	○	○
In my school, we consistently ask ourselves, "Are we operating at the furthest reaches of our competence?"	○	○	○	○	○
I believe that we can accomplish just about anything, if we are willing to work hard enough and if we believe in ourselves.	○	○	○	○	○
I have explicitly communicated my strong beliefs and ideals to the teachers.	○	○	○	○	○
At any time, I can accurately determine how effective our school is in terms of enhancing student learning.	○	○	○	○	○
In my school, we are currently experiencing a period during which things are going fairly well.	○	○	○	○	○
I can accurately predict things that may go wrong in my school on a day-to-day basis.	○	○	○	○	○

3. Think about your school and the Baldrige or continuous improvement initiative. To what degree do the following statements describe you as principal, your teachers, or your school?

	Never	Infrequently	Frequently	Almost Always	Not Sure
In my school, we systematically read articles and books about effective practices.	○	○	○	○	○
Our schoolwide goals are understood by all our teachers.	○	○	○	○	○
I am aware of both what is and what is not running smoothly in my school.	○	○	○	○	○
Our schoolwide goals are a prominent part of our day-to-day lives.	○	○	○	○	○
My behavior is consistent with my ideals and beliefs regarding schools, teachers, and learning.	○	○	○	○	○
In my school, it would be useful to have a period of time during which we do not undertake any new, big initiatives.	○	○	○	○	○
In my school, the materials and resources teachers request are procured and delivered in a timely fashion.	○	○	○	○	○
Individuals who work hard and produce results are identified and rewarded in my school.	○	○	○	○	○
I am aware of the details regarding the day-to-day running of the school.	○	○	○	○	○
In my school, we share a vision of what we could be like.	○	○	○	○	○

Explain your prize in more detail here, for example: When you complete this survey, you will have a chance to enter our sweepstakes to win a $50 Amazon.com Gift Card!

Custom Sweepstakes

amazon.com Gift Card

$50 Amazon.com Gift Card
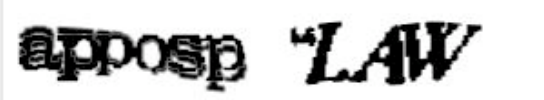
*Amazon.com is not a sponsor of this promotion. Amazon, Amazon.com, the Amazon.com logo, and the Amazon Gift Cards logo are trademarks of Amazon.com, Inc. or its affiliates. Amazon.com Gift Cards ("GCs") may be used only for purchases of eligible goods on Amazon.com or its affiliated website Endless.com. GCs cannot be redeemed for purchases of gift cards. Except as required by law, GCs cannot be reloaded, resold, transferred for value, redeemed for cash, or applied to any other account. See www.amazon.com/gc-legal for complete terms and conditions. GCs are issued and ©2011 by ACI Gift Cards, Inc., a Washington corporation.

Next

Enter Sweepstakes for a Chance to Win a $100 Amazon.com Gift Card!

Fill out the form below to enter a sweepstakes to win a $100 Amazon.com Gift Card. Your information will only be used to contact you if you win.

First Name:

Last Name:

Email Address:

Confirm Email Address:

Contest Rules: ☐ Yes, I have read and agree to the rules of this contest.

apposp "LAW

reCAPTCHA™

stop spam.
read books.

Cancel   **Register**

Info provided in this form may be shared with SurveyMonkey if you win, but it will not be associated with your survey responses.
View prize rules. Send questions to: surveymonkey@eprize.com

14. End of Survey Thanks

Thank you for your time!
You may close the browser window to exit the survey.

APPENDIX V
Pool of Interview Questions and Literature Review

Baldrige Core Values and Concepts	Proposed Interview Questions	Reflected in the Literature
Visionary Leadership	In what ways have you set directions in regards to creating a student-focused, learning-orientated climate with clear and visible values and high expectations?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Visionary Leadership	In regards to those directions, values and expectations balance the needs of all of your stakeholders?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Visionary Leadership	What actions do you take to inspire and encourage your entire workforce to contribute, to develop and learn, to be innovative and to embrace change?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Visionary Leadership	What specific processes do you use to reinforce ethics, values and expectations while building leadership, commitment and initiative at your school site?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010

Baldrige Core Values and Concepts	Proposed Interview Questions	Reflected in the Literature
Learning Centered Education	What methods do you employ to understand desired outcomes of student performance?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Learning Centered Education	In what ways do you facilitate the use of that data (desired outcomes of student performance) to impact teaching and learning at your school?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Learning Centered Education	What specific processes do you employ to ensure active learning is provided to students?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Learning Centered Education	What models of formative and/or summative assessment is used to measure student learning and the progress of their learning at your school?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010

Baldrige Core Values and Concepts	Proposed Interview Questions	Reflected in the Literature
School & Personal Learning	What sources for learning do you include in written communication, meetings and individual conversation to staff and provide for intellectual stimulation and growth?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
School & Personal Learning	In what ways do you support building learning or professional development into the way your school operates?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
School & Personal Learning	How do you model and support continuous improvement and innovative change at your school site?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
School & Personal Learning	In what ways do you create opportunities for personal learning and practice of skills for staff growth?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010

Baldrige Core Values and Concepts	Proposed Interview Questions	Reflected in the Literature
Valuing Workforce Members and Partners	In what ways do you commit to the engagement, satisfaction, development and well-being of staff at your building site?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Valuing Workforce Members and Partners	What methods do you employ to increase staff participation in regards to school activities such as policies, programs and curricula?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Valuing Workforce Members and Partners	How do you work to eliminate disincentives for groups and individuals in order to sustain important, learning-focused professional development?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Valuing Workforce Members and Partners	What methods to you use to engage and sustain rich internal and external partnerships?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010

Baldrige Core Values and Concepts	Proposed Interview Questions	Reflected in the Literature
Agility	In what ways do you support building capacity for faster and more flexible responses to the needs of your students and stakeholders?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Agility	Have there been or is there any current efforts to improve time performance for any processes in your school? This could include work systems, quality, cost, student and stakeholder focus and productivity.	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Agility	In what ways have you worked to improve your own response time for staff, students or stakeholders?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Focus on the Future	What actions have you used to create and sustain a mission-oriented assessment system focused on learning?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010

Baldrige Core Values and Concepts	Proposed Interview Questions	Reflected in the Literature
Focus on the Future	What understandings do you have on short and long-term factors that affect the willingness of staff to commit to the vision and direction of the school?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Focus on the Future	What sources and methods do you use to plan for a change initiative for your school site?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Focus on the Future	In focusing on the future of your school site, what methods have you employed to build capacity in leadership, innovation and addressing stakeholder's expectations of student learning?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Managing for Innovation	How do you model and support integrating innovation into daily work?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010

Baldrige Core Values and Concepts	Proposed Interview Questions	Reflected in the Literature
Managing for Innovation	In what ways have you facilitated the learning culture of your school site to include innovation?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Managing for Innovation	As the speed of innovation increases, what supports have you supported or implemented so that, as innovation builds on the accumulated knowledge, the information is disseminated and capitalized upon by staff?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Management by Fact	What types or categories of data do you use to evaluate student learning (input, environments, performance, comparative/competitive, workforce, cost, process performance and operational performance data)?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Management by Fact	How do these different types of data align with the school's needs and strategies?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010

Baldrige Core Values and Concepts	Proposed Interview Questions	Reflected in the Literature
Management by Fact	What methods do you use data to drive or support evaluation, decision making, improvement and innovation at your school site?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Societal Responsibility	In what manor do you model ethical behavior regarding the protection of public health, safety and environment?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Societal Responsibility	In what fashion to you emphasize resource conversation and waste reduction?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Societal Responsibility	In what ways do you encourage or support staff in not only meeting all local, state and federal laws and regulatory requirements, but also go "beyond mere compliance?"	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010

Baldrige Core Values and Concepts	Proposed Interview Questions	Reflected in the Literature
Societal Responsibility	What methods do you use or support in your school site in regards to stressing and monitoring ethical behavior in all stakeholder transactions and interactions?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Focus on Results and Creating Value	What methods do you employ to communicate short and long-term priorities based on goals and data?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Focus on Results and Creating Value	How do you communicate progress and challenges in meeting goals?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Focus on Results and Creating Value	How do you, with staff or individually, avoid adverse impacts on staff or stakeholders when working through a change initiative?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010

Baldrige Core Values and Concepts	Proposed Interview Questions	Reflected in the Literature
Systems Perspective	What methods do you use to ensure consistency of plans, processes, measures and actions?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Systems Perspective	What staff do you enlist to focus on strategic directions?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Systems Perspective	What staff do you enlist to monitor, respond to and manage performance based on your results?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010
Systems Perspective	What methods do you employ to alignment of resources to improve overall performance and your focus on students and stakeholders?	American Society for Quality, 2010 Baxter & Byrnes, 2006 Blanchard, 2007 NIST, 2011 Shipley, 2010

Printed with permission from the American Society of Quality, Appendix W.

APPENDIX W
American Society for Quality Permissions

ASQ
The Global Voice of Quality

June 24, 2011

Kim Ibach
Pepperdine University, Graduate School of Education and Psychology

Dear Kim:

We are pleased to grant you non-exclusive world rights to reproduce the following material in both print and electronic formats:

Item:	**reflection questions**
From:	*ASQ Education School Self-Assessment Guide to Performance Excellence: Aligning Your School and School District with the Malcolm Baldrige Education Criteria for Performance Excellence*
By:	**Peter G. Labonte, ASQ**
ISBN:	**978-0-87389-776-1**
Copyright Yr:	2010

This material is to be used, with some revision, as interview questions in the dissertation/paper "Twenty-one Leadership Responsibilities and Total Quality Management." Copyright clearance is granted for this use.

The following acknowledgement must appear somewhere within the paper:

Reproduced by permission of Peter G. Labonte, *ASQ Education School Self-Assessment Guide to Performance Excellence: Aligning Your School and School District with the Malcolm Baldrige Education Criteria for Performance Excellence* (Milwaukee: ASQ Quality Press, 2010). To order this book, visit ASQ at http://www.asq.org/quality-press.

There is no fee for this use.

This permission is valid only for the use specifically described in this agreement. Any other use requires separate permission. Please contact me if you have any questions.

Sincerely,

Paul O'Mara, CQIA
Project Editor
ASQ Quality Press

600 N. Plankinton Ave. • Milwaukee, WI 53203-2914 • 800-248-1946 • www.asq.org

APPENDIX X:
Frequency Table: 21 Leadership Responsibilities Survey

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS

Frequency Distribution of Change_Agent_1

Change_Agent_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	8	8	2.24	2.24	|
2	75	83	21.01	23.25	|||||||
3	178	261	49.86	73.11	||||||||||||||||
4	96	357	26.89	100.00	|||||||||

Frequency Distribution of Change_Agent_2

Change_Agent_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	6	6	1.63	1.63	|
2	33	39	8.99	10.63	|||
3	170	209	46.32	56.95	|||||||||||||||
4	158	367	43.05	100.00	||||||||||||||

Frequency Distribution of Change_Agent_3

Change_Agent_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	18	18	5.28	5.28	||
2	81	99	23.75	29.03	||||||||
3	147	246	43.11	72.14	||||||||||||||
4	95	341	27.86	100.00	||||||||||

Frequency Distribution of Change_Agent_4

Change_Agent_4	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	11	11	3.08	3.08	|
2	54	65	15.13	18.21	|||||
3	167	232	46.78	64.99	|||||||||||||||
4	125	357	35.01	100.00	|||||||||||

Frequency Distribution of Flexibility_1

Flexibility_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	13	13	3.65	3.65	|
2	58	71	16.29	19.94	|||||
3	136	207	38.20	58.15	|||||||||||||
4	149	356	41.85	100.00	|||||||||||||

Frequency Distribution of Flexibility_2

Flexibility_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	12	12	3.34	3.34	|

	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
2	72	84	20.06	23.40	|||||||||
3	156	240	43.45	66.85	|||||||||||||||||
4	119	359	33.15	100.00	|||||||||||||

Frequency Distribution of Flexibility_3

Flexibility_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	9	9	2.63	2.63		
2	26	35	7.60	10.23	|||
3	187	222	54.68	64.91	||||||||||||||||||||||
4	120	342	35.09	100.00	|||||||||||||

Frequency Distribution of Flexibility_4

Flexibility_4	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	10	10	2.82	2.82		
2	47	57	13.28	16.10	|||||
3	166	223	46.89	62.99	|||||||||||||||||||
4	131	354	37.01	100.00	|||||||||||||

Frequency Distribution of Ideals_Beliefs_1

Ideals_Beliefs_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	2	2	0.56	0.56		
2	5	7	1.39	1.94		
3	145	152	40.28	42.22	||||||||||||||||
4	208	360	57.78	100.00	|||||||||||||||||||||

Frequency Distribution of Ideals_Beliefs_2

Ideals_Beliefs_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	6	6	1.65	1.65		
2	37	43	10.19	11.85	||||
3	142	185	39.12	50.96	||||||||||||||
4	178	363	49.04	100.00	|||||||||||||||||

Frequency Distribution of Ideals_Beliefs_3

Ideals_Beliefs_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	7	7	1.94	1.94		
2	17	24	4.71	6.65		
3	140	164	38.78	45.43	|||||||||||||
4	197	361	54.57	100.00	||||||||||||||||||||

Frequency Distribution of Ideas_Beliefs_4

Ideas_Beliefs_4	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	7	7	1.96	1.96		
2	32	39	8.94	10.89	|||
3	146	185	40.78	51.68	|||||||||||||

4	173	358	48.32	100.00	||||||||||||||||

Frequency Distribution of Intellectual_Stimulation_1

Intellectual_Stimulation_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	3	3	0.85	0.85		
2	28	31	7.95	8.81	|||
3	165	196	46.88	55.68	||||||||||||||||
4	156	352	44.32	100.00	|||||||||||||||

Frequency Distribution of Intellectual_Stimulation_2

Intellectual_Stimulation_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	14	14	3.88	3.88		
2	83	97	22.99	26.87	|||||||||
3	176	273	48.75	75.62	||||||||||||||||
4	88	361	24.38	100.00	|||||||||

Frequency Distribution of Intellectual_Stimulation_3

Intellectual_Stimulation_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	13	13	3.57	3.57		
2	90	103	24.73	28.30	|||||||||
3	165	268	45.33	73.63	||||||||||||||||
4	96	364	26.37	100.00	|||||||||

Frequency Distribution of Intellectual_Stimulation_4

Intellectual_Stimulation_4	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	16	16	4.37	4.37		
2	131	147	35.79	40.16	|||||||||||||
3	149	296	40.71	80.87	|||||||||||||||
4	70	366	19.13	100.00	|||||||

Frequency Distribution of Knowledge_of_CIA_1

Knowledge_of_CIA_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	2	2	0.56	0.56		
2	23	25	6.39	6.94	||
3	99	124	27.50	34.44	||||||||||
4	236	360	65.56	100.00	||||||||||||||||||||||||

Frequency Distribution of Knowledge_of_CIA_2

Knowledge_of_CIA_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	3	3	0.84	0.84		
2	43	46	12.04	12.89	||||
3	168	214	47.06	59.94	||||||||||||||||
4	143	357	40.06	100.00	||||||||||||||

Frequency Distribution of Knowledge_of_CIA_3

Knowledge_of_CIA_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent

	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	2	2	0.56	0.56	|
2	21	23	5.83	6.39	||
3	165	188	45.83	52.22	||||||||||||||||
4	172	360	47.78	100.00	||||||||||||||||

Frequency Distribution of Knowledge_of_CIA_4

Knowledge_of_CIA_4	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	14	14	3.94	3.94	|
2	70	84	19.72	23.66	|||||||
3	177	261	49.86	73.52	|||||||||||||||||
4	94	355	26.48	100.00	|||||||||

Frequency Distribution of Monitor_Evaluate_1

Monitor_Evaluate_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	9	9	2.54	2.54	|
2	50	59	14.08	16.62	|||||
3	164	223	46.20	62.82	||||||||||||||||
4	132	355	37.18	100.00	||||||||||||

Frequency Distribution of Monitor_Evaluate_2

Monitor_Evaluate_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	6	6	1.69	1.69	|
2	33	39	9.27	10.96	|||
3	166	205	46.63	57.58	||||||||||||||||
4	151	356	42.42	100.00	|||||||||||||

Frequency Distribution of Monitor_Evaluate_3

Monitor_Evaluate_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	4	4	1.11	1.11	|
2	41	45	11.42	12.53	||||
3	185	230	51.53	64.07	||||||||||||||||||
4	129	359	35.93	100.00	||||||||||||

Frequency Distribution of Monitor_Evaluate_4

Monitor_Evaluate_4	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	4	4	1.14	1.14	|
2	47	51	13.39	14.53	|||||
3	197	248	56.13	70.66	|||||||||||||||||||
4	103	351	29.34	100.00	||||||||||

Frequency Distribution of Optimizer_1

Optimizer_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	6	6	1.65	1.65	|
2	64	70	17.63	19.28	|||||||
3	182	252	50.14	69.42	||||||||||||||||||
4	111	363	30.58	100.00	||||||||||

Frequency Distribution of Optimizer_2

Optimizer_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	4	4	1.10	1.10	|
2	19	23	5.22	6.32	||
3	142	165	39.01	45.33	|||||||||||||
4	199	364	54.67	100.00	|||||||||||||||||

Frequency Distribution of Optimizer_3

Optimizer_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	8	8	2.25	2.25	|
2	62	70	17.42	19.66	||||||
3	177	247	49.72	69.38	||||||||||||||||
4	109	356	30.62	100.00	||||||||||

Frequency Distribution of Optimizer_4

Optimizer_4	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	1	1	0.27	0.27	|
2	14	15	3.85	4.12	|
3	129	144	35.44	39.56	||||||||||||
4	220	364	60.44	100.00	||||||||||||||||||||

Frequency Distribution of Culture_1

Culture_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	1	1	0.27	0.27	|
2	22	23	5.99	6.27	||
3	145	168	39.51	45.78	|||||||||||||
4	199	367	54.22	100.00	|||||||||||||||||

Frequency Distribution of Culture_2

Culture_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	13	13	3.62	3.62	|
2	46	59	12.81	16.43	|||||
3	166	225	46.24	62.67	|||||||||||||||
4	134	359	37.33	100.00	||||||||||||

Frequency Distribution of Culture_3

Culture_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	16	16	4.40	4.40	|
2	76	92	20.88	25.27	|||||||
3	163	255	44.78	70.05	||||||||||||||
4	109	364	29.95	100.00	||||||||||

Frequency Distribution of Culture_4

Culture_4	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	4	4	1.11	1.11	|
2	33	37	9.14	10.25	|||

		Cumulative		Cumulative	Graph of
3	167	204	46.26	56.51	|||||||||||||||
4	157	361	43.49	100.00	||||||||||||||

Frequency Distribution of Culture_5

Culture_5	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	10	10	2.72	2.72		
2	26	36	7.08	9.81	||
3	174	210	47.41	57.22	|||||||||||||||
4	157	367	42.78	100.00	||||||||||||||

Frequency Distribution of Culture_6

Culture_6	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	9	9	2.52	2.52		
2	38	47	10.64	13.17	||||
3	168	215	47.06	60.22	|||||||||||||||
4	142	357	39.78	100.00	|||||||||||

Frequency Distribution of Discipline_1

Discipline_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	3	3	0.82	0.82		
2	34	37	9.32	10.14	|||
3	154	191	42.19	52.33	|||||||||||||
4	174	365	47.67	100.00	||||||||||||||||

Frequency Distribution of Discipline_2

Discipline_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	9	9	2.47	2.47		
2	56	65	15.38	17.86	|||||
3	140	205	38.46	56.32	|||||||||||||
4	159	364	43.68	100.00	||||||||||||||

Frequency Distribution of Discipline_3

Discipline_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	14	14	4.28	4.28		
2	74	88	22.63	26.91	||||||||
3	152	240	46.48	73.39	||||||||||||||||
4	87	327	26.61	100.00	||||||||

Frequency Distribution of Discipline_4

Discipline_4	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	25	25	7.20	7.20	||
2	62	87	17.87	25.07	||||||
3	128	215	36.89	61.96	|||||||||||
4	132	347	38.04	100.00	|||||||||||

Frequency Distribution of Resources_1

		Cumulative		Cumulative	Graph of

Resources_1	Count	Count	Percent	Percent	Percent
1	7	7	2.01	2.01	|
2	57	64	16.33	18.34	||||||
3	157	221	44.99	63.32	||||||||||||||||
4	128	349	36.68	100.00	|||||||||||||

Frequency Distribution of Resources_2

Resources_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	10	10	2.73	2.73	|
2	51	61	13.93	16.67	|||||
3	156	217	42.62	59.29	|||||||||||||||
4	149	366	40.71	100.00	|||||||||||||||

Frequency Distribution of Resources_3

Resources_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	6	6	1.66	1.66	|
2	71	77	19.61	21.27	|||||||
3	183	260	50.55	71.82	|||||||||||||||||||
4	102	362	28.18	100.00	|||||||||||

Frequency Distribution of Involvement_in_CIA_1

Involvement_in_CIA_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	5	5	1.41	1.41	|
2	44	49	12.39	13.80	||||
3	153	202	43.10	56.90	||||||||||||||||
4	153	355	43.10	100.00	|||||||||||||||

Frequency Distribution of Involvement_in_CIA_2

Involvement_in_CIA_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	17	17	4.75	4.75	|
2	108	125	30.17	34.92	|||||||||||
3	153	278	42.74	77.65	|||||||||||||||
4	80	358	22.35	100.00	|||||||

Frequency Distribution of Involvement_in_CIA_3

Involvement_in_CIA_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	33	33	9.35	9.35	|||
2	108	141	30.59	39.94	|||||||||||
3	137	278	38.81	78.75	|||||||||||||
4	75	353	21.25	100.00	|||||||

Frequency Distribution of Order_1

Order_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	52	52	14.57	14.57	|||||
2	107	159	29.97	44.54	|||||||||||
3	127	286	35.57	80.11	|||||||||||||
4	71	357	19.89	100.00	||||||

Frequency Distribution of Order_2

Order_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	10	10	2.83	2.83	|
2	71	81	20.11	22.95	|||||||
3	165	246	46.74	69.69	|||||||||||||||
4	107	353	30.31	100.00	||||||||||

Frequency Distribution of Order_3

Order_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	3	3	0.82	0.82	|
2	49	52	13.39	14.21	|||||
3	149	201	40.71	54.92	|||||||||||||
4	165	366	45.08	100.00	||||||||||||||

Frequency Distribution of Focus_1

Focus_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	4	4	1.10	1.10	|
2	40	44	10.99	12.09	||||
3	157	201	43.13	55.22	||||||||||||||
4	163	364	44.78	100.00	||||||||||||||

Frequency Distribution of Focus_2

Focus_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	5	5	1.38	1.38	|
2	23	28	6.34	7.71	||
3	156	184	42.98	50.69	||||||||||||||
4	179	363	49.31	100.00	|||||||||||||||

Frequency Distribution of Focus_3

Focus_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	2	2	0.55	0.55	|
2	16	18	4.41	4.96	|
3	141	159	38.84	43.80	||||||||||||
4	204	363	56.20	100.00	|||||||||||||||||

Frequency Distribution of Focus_4

Focus_4	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	1	1	0.28	0.28	|
2	19	20	5.29	5.57	||
3	168	188	46.80	52.37	||||||||||||||
4	171	359	47.63	100.00	||||||||||||||

Frequency Distribution of Focus_5

Focus_5	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	3	3	0.82	0.82	|

	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
2	36	39	9.84	10.66	|||
3	169	208	46.17	56.83	||||||||||||||||
4	158	366	43.17	100.00	|||||||||||||||

Frequency Distribution of Focus_6

Focus_6	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	6	6	1.64	1.64		
2	52	58	14.25	15.89	|||||
3	183	241	50.14	66.03	||||||||||||||||||
4	124	365	33.97	100.00	|||||||||||

Frequency Distribution of Visibility_1

Visibility_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	29	29	8.26	8.26	|||
2	107	136	30.48	38.75	|||||||||||
3	116	252	33.05	71.79	|||||||||||
4	99	351	28.21	100.00	||||||||||

Frequency Distribution of Visibility_2

Visibility_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	4	4	1.10	1.10		
2	35	39	9.62	10.71	|||
3	85	124	23.35	34.07	|||||||||
4	240	364	65.93	100.00	|||||||||||||||||||||||

Frequency Distribution of Visibility_3

Visibility_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	9	9	2.45	2.45		
2	62	71	16.89	19.35	||||||
3	103	174	28.07	47.41	||||||||||
4	193	367	52.59	100.00	|||||||||||||||||||

Frequency Distribution of Contingent_rewards_1

Contingent_rewards_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	11	11	3.05	3.05		
2	77	88	21.33	24.38	||||||||
3	150	238	41.55	65.93	||||||||||||||
4	123	361	34.07	100.00	||||||||||||

Frequency Distribution of Contingent_rewards_2

Contingent_rewards_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	13	13	3.77	3.77		
2	55	68	15.94	19.71	||||||
3	126	194	36.52	56.23	||||||||||||
4	151	345	43.77	100.00	|||||||||||||||

Frequency Distribution of Contingent_rewards_3

Contingent_rewards_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	21	21	6.09	6.09	||
2	45	66	13.04	19.13	|||||
3	148	214	42.90	62.03	|||||||||||||||
4	131	345	37.97	100.00	||||||||||||

Frequency Distribution of Contingent_rewards_4

Contingent_rewards_4	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	13	13	3.62	3.62	|
2	87	100	24.23	27.86	||||||||
3	158	258	44.01	71.87	|||||||||||||||
4	101	359	28.13	100.00	||||||||||

Frequency Distribution of Communication_1

Communication_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	2	2	0.55	0.55	|
2	33	35	9.09	9.64	|||
3	132	167	36.36	46.01	|||||||||||||
4	196	363	53.99	100.00	|||||||||||||||||||

Frequency Distribution of Communication_2

Communication_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	8	8	2.19	2.19	|
2	42	50	11.51	13.70	||||
3	170	220	46.58	60.27	|||||||||||||||||
4	145	365	39.73	100.00	|||||||||||||

Frequency Distribution of Communication_3

Communication_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	14	14	3.83	3.83	|
2	64	78	17.49	21.31	||||||
3	142	220	38.80	60.11	|||||||||||||
4	146	366	39.89	100.00	|||||||||||||

Frequency Distribution of Outreach_1

Outreach_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	2	2	0.57	0.57	|
2	9	11	2.56	3.13	|
3	88	99	25.07	28.21	|||||||||
4	252	351	71.79	100.00	|||||||||||||||||||||||||

Frequency Distribution of Outreach_2

Outreach_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	3	3	0.83	0.83	|
2	33	36	9.17	10.00	|||
3	128	164	35.56	45.56	||||||||||||

4	196	360	54.44	100.00	|||||||||||||||||||

Frequency Distribution of Outreach_3

Outreach_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
2	17	17	4.72	4.72		
3	125	142	34.72	39.44	|||||||||||
4	218	360	60.56	100.00	||||||||||||||||||

Frequency Distribution of Outreach_4

Outreach_4	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	19	19	5.94	5.94	||
2	33	52	10.31	16.25	||||
3	146	198	45.63	61.88	|||||||||||||||
4	122	320	38.13	100.00	||||||||||||

Frequency Distribution of Input_1

Input_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	9	9	2.46	2.46		
2	89	98	24.32	26.78	||||||||
3	172	270	46.99	73.77	|||||||||||||||
4	96	366	26.23	100.00	|||||||||

Frequency Distribution of Input_2

Input_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	18	18	5.04	5.04	||
2	83	101	23.25	28.29	||||||||
3	156	257	43.70	71.99	||||||||||||||
4	100	357	28.01	100.00	||||||||||

Frequency Distribution of Input_3

Input_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	12	12	3.34	3.34		
2	51	63	14.21	17.55	|||||
3	152	215	42.34	59.89	||||||||||||||
4	144	359	40.11	100.00	|||||||||||||

Frequency Distribution of Affirmation_1

Affirmation_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	7	7	1.92	1.92		
2	77	84	21.10	23.01	|||||||
3	151	235	41.37	64.38	||||||||||||||
4	130	365	35.62	100.00	|||||||||||

Frequency Distribution of Affirmation_2

Affirmation_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent

	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	2	2	0.55	0.55	|
2	30	32	8.20	8.74	|||
3	133	165	36.34	45.08	||||||||||||||
4	201	366	54.92	100.00	|||||||||||||||||||

Frequency Distribution of Affirmation_3

Affirmation_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	7	7	1.94	1.94	|
2	59	66	16.39	18.33	||||||
3	166	232	46.11	64.44	|||||||||||||||||
4	128	360	35.56	100.00	||||||||||||||

Frequency Distribution of Relationships_1

Relationships_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	9	9	2.53	2.53	|
2	82	91	23.03	25.56	|||||||||
3	171	262	48.03	73.60	|||||||||||||||||||
4	94	356	26.40	100.00	||||||||||

Frequency Distribution of Relationships_2

Relationships_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	17	17	4.67	4.67	|
2	57	74	15.66	20.33	||||||
3	141	215	38.74	59.07	||||||||||||||
4	149	364	40.93	100.00	|||||||||||||||

Frequency Distribution of Relationships_3

Relationships_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	23	23	6.50	6.50	||
2	66	89	18.64	25.14	|||||||
3	167	256	47.18	72.32	|||||||||||||||||||
4	98	354	27.68	100.00	|||||||||||

Frequency Distribution of Relationships_4

Relationships_4	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	13	13	3.58	3.58	|
2	70	83	19.28	22.87	||||||
3	172	255	47.38	70.25	|||||||||||||||||
4	108	363	29.75	100.00	|||||||||||

Frequency Distribution of Situational_Awareness_1

Situational_Awareness_1	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	11	11	3.14	3.14	|
2	62	73	17.71	20.86	|||||||
3	148	221	42.29	63.14	|||||||||||||||
4	129	350	36.86	100.00	||||||||||||

Frequency Distribution of Situational_Awareness_2

Situational_Awareness_2	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	8	8	2.33	2.33	|
2	69	77	20.06	22.38	|||||||
3	175	252	50.87	73.26	||||||||||||||||||
4	92	344	26.74	100.00	|||||||||

Frequency Distribution of Situational_Awareness_3

Situational_Awareness_3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	15	15	4.69	4.69	|
2	75	90	23.44	28.13	||||||||
3	164	254	51.25	79.38	||||||||||||||||||
4	66	320	20.63	100.00	|||||||

Frequency Distribution of Situational_Awareness_4

Situational_Awareness_4	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	6	6	1.70	1.70	|
2	39	45	11.05	12.75	||||
3	186	231	52.69	65.44	|||||||||||||||||||
4	122	353	34.56	100.00	||||||||||||

Frequency Distribution of Situational_Awareness_5

Situational_Awareness_5	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	5	5	1.40	1.40	|
2	41	46	11.52	12.92	||||
3	164	210	46.07	58.99	||||||||||||||||
4	146	356	41.01	100.00	|||||||||||||

APPENDIX Y

Factor Analysis Report

Descriptive Statistics Section

Variables	Count	Mean	Standard Deviation	Communality
Affirmation_1	357	3.095238	0.7981051	0.613515
Affirmation_2	357	3.442577	0.6705541	0.527673
Affirmation_3	357	3.151261	0.7603812	0.413731

Variables	Count	Mean	Standard Deviation	Communality
Change_Agent_1	327	3.030581	0.7465549	0.466592
Change_Agent_2	327	3.321101	0.6857095	0.568543
Change_Agent_3	327	2.95107	0.8385225	0.265987
Change_Agent_4	327	3.134557	0.7755455	0.483392

Variables	Count	Mean	Standard Deviation	Communality
Communication_1	360	3.441667	0.6815822	0.540451
Communication_2	360	3.236111	0.7406437	0.441975
Communication_3	360	3.147222	0.8431227	0.647655

Variables	Count	Mean	Standard Deviation	Communality
Contingent_rewards_1	321	3.071651	0.8317001	0.641832
Contingent_rewards_2	321	3.211838	0.8246117	0.462253

Variables	Count	Mean	Standard Deviation	Communality
Contingent_rewards_3	321	3.143302	0.8540494	0.488893
Contingent_rewards_4	321	2.968847	0.8171759	0.666363

Variables	Count	Mean	Standard Deviation	Communality
Culture_1	341	3.492669	0.6212693	0.233125
Culture_2	341	3.175953	0.7848619	0.612933
Culture_3	341	3	0.83666	0.553997
Culture_4	341	3.331378	0.6807311	0.385659
Culture_5	341	3.302053	0.7273816	0.740983
Culture_6	341	3.255132	0.7491241	0.534110

Variables	Count	Mean	Standard Deviation	Communality
Discipline_1	315	3.384127	0.6641901	0.332788
Discipline_2	315	3.250794	0.788426	0.453047
Discipline_3	315	2.971429	0.8074945	0.324091
Discipline_4	315	3.057143	0.9046438	0.436808

Variables	Count	Mean	Standard Deviation	Communality
Flexibility_1	324	3.172839	0.848092	0.382896
Flexibility_2	324	3.08642	0.8131661	0.602247
Flexibility_3	324	3.222222	0.694962	0.598479
Flexibility_4	324	3.197531	0.7451765	0.578794

Variables	Count	Mean	Standard Deviation	Communality
Focus_1	350	3.328571	0.704497	0.418240
Focus_2	350	3.402857	0.6775084	0.542445
Focus_3	350	3.52	0.604093	0.560172
Focus_4	350	3.422857	0.6042285	0.486371
Focus_5	350	3.345714	0.6710736	0.660501
Focus_6	350	3.191429	0.7104909	0.696141

Variables	Count	Mean	Standard Deviation	Communality
Ideals_Beliefs_1	347	3.544669	0.5588428	0.493149
Ideals_Beliefs_2	347	3.380404	0.7168225	0.516051
Ideals_Beliefs_3	347	3.458213	0.6845616	0.463456
Ideas_Beliefs_4	347	3.37464	0.7077131	0.552168

Variables	Count	Mean	Standard Deviation	Communality
Input_1	350	2.98	0.7772923	0.705867
Input_2	350	2.957143	0.8401752	0.740117
Input_3	350	3.185714	0.8063654	0.641800

Variables	Count	Mean	Standard Deviation	Communality

Variables	Count	Mean	Standard Deviation	Communality
Intellect_Stimulation_1	345	3.35942	0.654661	0.406916
Intellect_Stimulation_2	345	2.950725	0.7816246	0.473108
Intellect_Stimulation_3	345	2.971014	0.791874	0.678312
Intellect_Stimulation_4	345	2.771014	0.8121715	0.649210

Variables	Count	Mean	Standard Deviation	Communality
Involvement_in_CIA_1	338	3.272189	0.73682	0.220534
Involvement_in_CIA_2	338	2.831361	0.8357508	0.742940
Involvement_in_CIA_3	338	2.724852	0.8974267	0.683994

Variables	Count	Mean	Standard Deviation	Communality
Knowledge_of_CIA_1	339	3.59882	0.6091986	0.541205
Knowledge_of_CIA_2	339	3.271386	0.6859375	0.610169
Knowledge_of_CIA_3	339	3.410029	0.62494	0.523720
Knowledge_of_CIA_4	339	3.029499	0.7531099	0.387701

Variables	Count	Mean	Standard Deviation	Communality
Monitor_Evaluate_1	335	3.191045	0.7577407	0.650186
Monitor_Evaluate_2	335	3.307463	0.7035652	0.700964
Monitor_Evaluate_3	335	3.238806	0.672148	0.615690
Monitor_Evaluate_4	335	3.131343	0.6750935	0.482218

Standard

Variables	Count	Mean	Deviation	Communality
Optimizer_1	348	3.117816	0.7285245	0.435706
Optimizer_2	348	3.479885	0.6461127	0.468505
Optimizer_3	348	3.097701	0.7490208	0.281947
Optimizer_4	348	3.557471	0.5876995	0.399407

Variables	Count	Mean	Standard Deviation	Communality
Order_1	343	2.603498	0.970434	0.230432
Order_2	343	3.040816	0.7899747	0.688785
Order_3	343	3.306123	0.7351993	0.606148

Variables	Count	Mean	Standard Deviation	Communality
Outreach_1	308	3.694805	0.5453734	0.229404
Outreach_2	308	3.461039	0.67658	0.548338
Outreach_3	308	3.568182	0.5751878	0.457584
Outreach_4	308	3.194805	0.7996573	0.415151

Variables	Count	Mean	Standard Deviation	Communality
Relationships_1	340	2.982353	0.771724	0.452830
Relationships_2	340	3.161765	0.8520372	0.715383
Relationships_3	340	2.955882	0.8593374	0.712563
Relationships_4	340	3.032353	0.7882697	0.585081

			Standard	
Variables	Count	Mean	Deviation	Communality
Resources_1	344	3.162791	0.7690889	0.396577
Resources_2	344	3.22093	0.7809863	0.300024
Resources_3	344	3.05814	0.7261007	0.385441

			Standard	
Variables	Count	Mean	Deviation	Communality
Situational_Aware_1	302	3.155629	0.8104087	0.386974
Situational_Aware_2	302	3.062914	0.7240635	0.531985
Situational_Aware_3	302	2.887417	0.777961	0.319393
Situational_Aware_4	302	3.221854	0.7015308	0.581721
Situational_Aware_5	302	3.321192	0.6960839	0.456692

			Standard	
Variables	Count	Mean	Deviation	Communality
Visibility_1	348	2.816092	0.9363456	0.390791
Visibility_2	348	3.528736	0.7216548	0.627311
Visibility_3	348	3.298851	0.8435542	0.763165

APPENDIX Z
Analysis of Variance (ANOVA) Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Affirmation_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-3.0419	0.002351	Reject
Kurtosis Normality of Residuals	-4.1296	0.000036	Reject
Omnibus Normality of Residuals	26.3068	0.000002	Reject
Modified-Levene Equal-Variance Test	0.2826	0.595327	Accept

Box Plot Section

Affirmation_1 vs Current_Position

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	363	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	3.672368	3.672368	5.87	0.015904*	0.675848
S(A)	363	227.1605	0.6257865			
Total (Adjusted)	364	230.8329				
Total	365					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response Affirmation_1

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	4.946823	0.026139	Reject H0
Corrected for Ties	1	5.655921	0.017397	Reject H0

Number Sets of Ties	4
Multiplicity Factor	6096462

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6519.50	224.81	2.2241	4
Teacher	336	60275.50	179.39	-2.2241	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	365	3.106849		3.262828
A: Current_Position				
Principal	29	3.448276	0.1468974	0.1854475
Teacher	336	3.077381	0.04315623	-0.1854475

Plots of Means Section
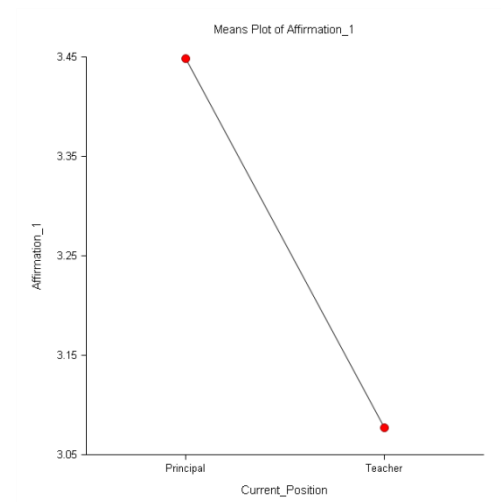
Means Plot of Affirmation_1

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Affirmation_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-6.4419	0.000000	Reject
Kurtosis Normality of Residuals	0.8316	0.405619	Accept
Omnibus Normality of Residuals	42.1902	0.000000	Reject
Modified-Levene Equal-Variance Test	0.2619	0.609160	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	364	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	0.1170306	0.1170306	0.26	0.609160	0.080335
S(A)	364	162.6835	0.4469327			
Total (Adjusted)	365	162.8006				
Total	366					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Affirmation_2

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	0.06557576	0.797891	Accept H0
Corrected for Ties	1	0.08344702	0.772679	Accept H0

Number Sets of Ties	4	
Multiplicity Factor	1.049988E+07	

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	5461.50	188.33	0.2561	4
Teacher	337	61699.50	183.08	-0.2561	4

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	366	3.456284		3.48414
A: Current_Position				
Principal	29	3.517241	0.124143	0.0331014
Teacher	337	3.451039	0.03641716	-0.0331014

Plots of Means Section
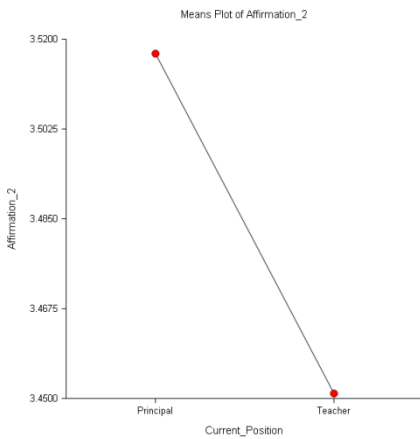
Means Plot of Affirmation_2

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Affirmation_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-3.8824	0.000103	Reject
Kurtosis Normality of Residuals	-1.2577	0.208496	Accept
Omnibus Normality of Residuals	16.6547	0.000242	Reject
Modified-Levene Equal-Variance Test	0.0048	0.944808	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	358	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	1.163323	1.163323	2.03	0.155369	0.294974
S(A)	358	205.4339	0.5738377			
Total (Adjusted)	359	206.5972				
Total	360					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Affirmation_3

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	1.575477	0.209413	Accept H0
Corrected for Ties	1	1.847839	0.174035	Accept H0

Number Sets of Ties	4
Multiplicity Factor	6876810

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	5909.00	203.76	1.2552	3
Teacher	331	59071.00	178.46	-1.2552	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	360	3.152778		3.24039
A: Current_Position				
Principal	29	3.344828	0.1406681	0.104438
Teacher	331	3.135952	0.04163711	-0.104438

Plots of Means Section
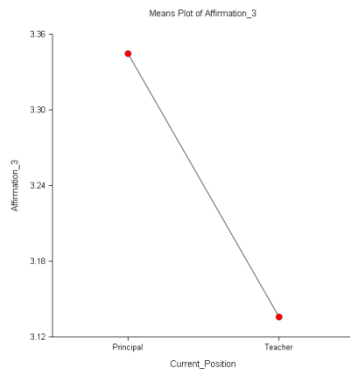
1

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Change_Agent_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-2.4717	0.013448	Reject
Kurtosis Normality of Residuals	-1.4903	0.136154	Accept
Omnibus Normality of Residuals	8.3301	0.015529	Reject
Modified-Levene Equal-Variance Test	0.0969	0.755726	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	355	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	5.95268	5.95268	10.73	0.001159*	0.904317
S(A)	355	196.9773	0.5548656			
Total (Adjusted)	356	202.93				
Total	357					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Change_Agent_1

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	9.174118	0.002455	Reject H0
Corrected for Ties	1	10.82714	0.001000	Reject H0

Number Sets of Ties   4
Multiplicity Factor   6946518

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6804.50	234.64	3.0289	4
Teacher	328	57098.50	174.08	-3.0289	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	357	3.014006		3.211943
A: Current_Position				
Principal	29	3.448276	0.1383232	0.2363331
Teacher	328	2.97561	0.04112983	-0.2363331

Plots of Means Section
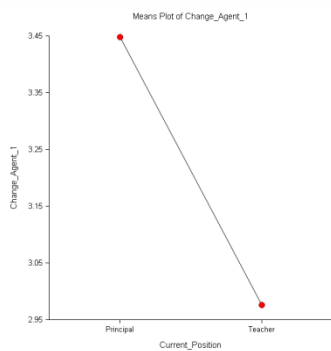
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Change_Agent_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-5.4621	0.000000	Reject
Kurtosis Normality of Residuals	1.5475	0.121731	Accept
Omnibus Normality of Residuals	32.2297	0.000000	Reject
Modified-Levene Equal-Variance Test	1.7691	0.184330	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	365	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	2.438874	2.438874	5.01	0.025839*	0.607167
S(A)	365	177.7682	0.4870362			
Total (Adjusted)	366	180.2071				
Total	367					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Change_Agent_2

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	3.755576	0.052632	Accept H0
Corrected for Ties	1	4.579475	0.032357	Reject H0

Number Sets of Ties	4
Multiplicity Factor	8893098

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6398.50	220.64	1.9379	4
Teacher	338	61129.50	180.86	-1.9379	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	367	3.307902		3.435115
A: Current_Position				
Principal	29	3.586207	0.129593	0.1510916
Teacher	338	3.284024	0.03795966	-0.1510916

Plots of Means Section
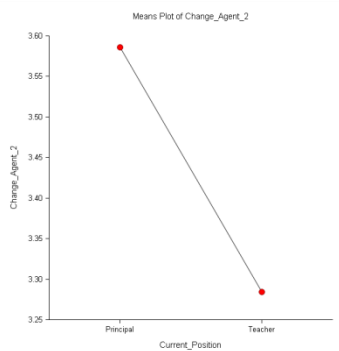
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Change_Agent_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-2.9314	0.003374	Reject
Kurtosis Normality of Residuals	-2.6419	0.008245	Reject
Omnibus Normality of Residuals	15.5729	0.000415	Reject
Modified-Levene Equal-Variance Test	0.0398	0.841918	Accept

Box Plot Section
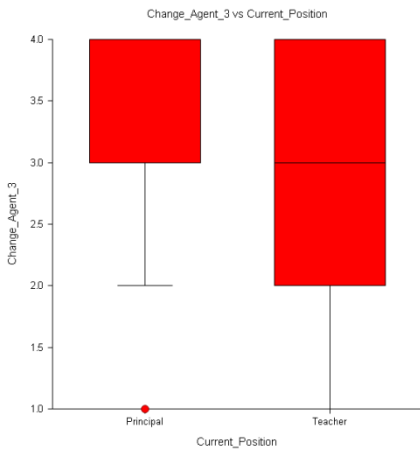
Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	339	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	1.311818	1.311818	1.81	0.179032	0.269014
S(A)	339	245.2688	0.7235069			
Total (Adjusted)	340	246.5806				
Total	341					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Change_Agent_3

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	1.709795	0.191012	Accept H0
Corrected for Ties	1	1.932572	0.164477	Accept H0

Number Sets of Ties	4
Multiplicity Factor	4570830

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	28	5441.50	194.34	1.3076	3
Teacher	313	52869.50	168.91	-1.3076	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	341	2.935484		3.029895
A: Current_Position				
Principal	28	3.142857	0.1607468	0.1129621
Teacher	313	2.916933	0.04807831	-0.1129621

Plots of Means Section
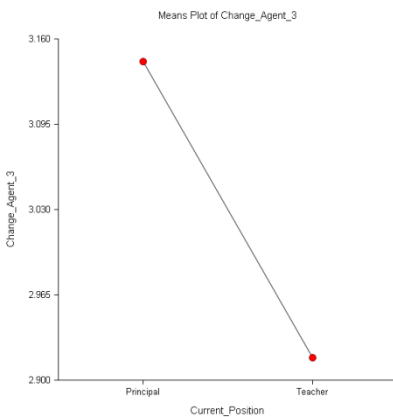
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Change_Agent_4

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-4.5471	0.000005	Reject
Kurtosis Normality of Residuals	0.0033	0.997376	Accept
Omnibus Normality of Residuals	20.6760	0.000032	Reject
Modified-Levene Equal-Variance Test	0.0548	0.814991	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	355	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	1.849363	1.849363	3.06	0.081018	0.415027
S(A)	355	214.4251	0.6040145			
Total (Adjusted)	356	216.2745				
Total	357					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Change_Agent_4

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	2.501302	0.113752	Accept H0
Corrected for Ties	1	2.938468	0.086493	Accept H0

Number Sets of Ties	4
Multiplicity Factor	6769026

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6033.50	208.05	1.5816	3
Teacher	328	57869.50	176.43	-1.5816	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	357	3.137255		3.247582
A: Current_Position				
Principal	29	3.37931	0.1443194	0.1317283
Teacher	328	3.115854	0.04291279	-0.1317283

Plots of Means Section
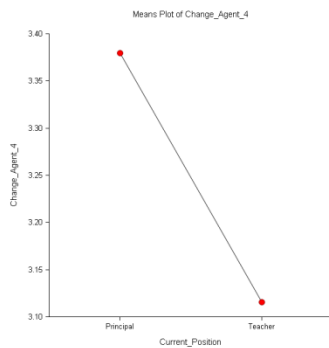
1

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Communication_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-6.0517	0.000000	Reject
Kurtosis Normality of Residuals	0.3104	0.756291	Accept
Omnibus Normality of Residuals	36.7192	0.000000	Reject
Modified-Levene Equal-Variance Test	7.1261	0.007940	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	361	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	3.239638	3.239638	7.13	0.007940*	0.758790
S(A)	361	164.1157	0.4546142			
Total (Adjusted)	362	167.3554				
Total	363					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Communication_1

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.

Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	5.519927	0.018801	Reject H0
Corrected for Ties	1	6.954198	0.008362	Reject H0

Number Sets of Ties	4
Multiplicity Factor	9865086

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6551.50	225.91	2.3495	4
Teacher	334	59514.50	178.19	-2.3495	4

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	363	3.438016		3.5844
A: Current_Position				
Principal	29	3.758621	0.1252052	0.1742205
Teacher	334	3.41018	0.03689336	-0.1742205

Plots of Means Section
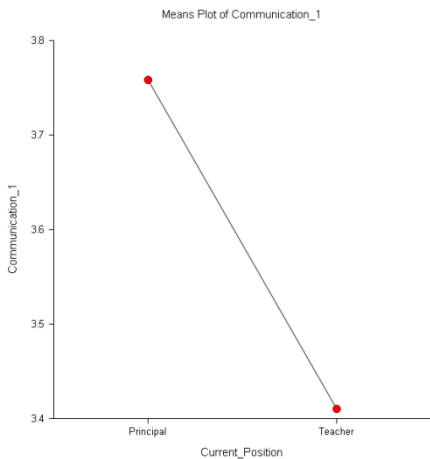
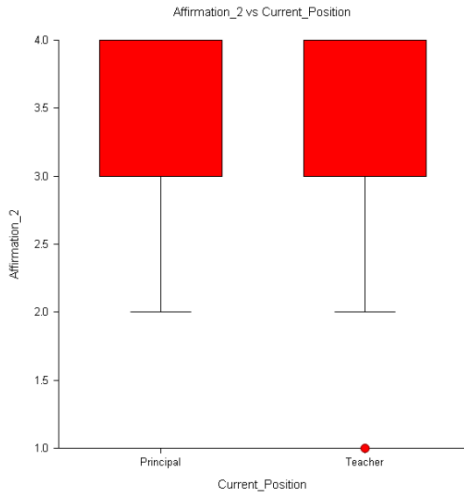Means Plot of Communication_1

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Communication_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-5.0697	0.000000	Reject
Kurtosis Normality of Residuals	0.9418	0.346319	Accept
Omnibus Normality of Residuals	26.5891	0.000002	Reject
Modified-Levene Equal-Variance Test	1.7850	0.182374	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	363	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	3.811864	3.811864	7.12	0.007982*	0.758209
S(A)	363	194.4512	0.5356781			
Total (Adjusted)	364	198.263				
Total	365					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Communication_2

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	5.68656	0.017095	Reject H0
Corrected for Ties	1	6.812339	0.009053	Reject H0

Number Sets of Ties	4
Multiplicity Factor	8035860

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6607.00	227.83	2.3847	4
Teacher	336	60188.00	179.13	-2.3847	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	365	3.238356		3.39727
A: Current_Position				
Principal	29	3.586207	0.1359105	0.1889368
Teacher	336	3.208333	0.03992844	-0.1889368

Plots of Means Section
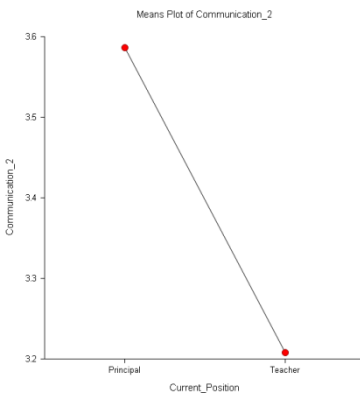
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Communication_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-4.5847	0.000005	Reject
Kurtosis Normality of Residuals	-1.6570	0.097517	Accept
Omnibus Normality of Residuals	23.7650	0.000007	Reject
Modified-Levene Equal-Variance Test	2.8126	0.094384	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	364	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	4.30476	4.30476	6.18	0.013401*	0.697970
S(A)	364	253.728	0.697055			
Total (Adjusted)	365	258.0328				
Total	366					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Communication_3

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	4.611301	0.031762	Reject H0
Corrected for Ties	1	5.283792	0.021525	Reject H0

Number Sets of Ties	4
Multiplicity Factor	6239946

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6495.50	223.98	2.1474	4
Teacher	337	60665.50	180.02	-2.1474	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	366	3.147541		3.316484
A: Current_Position				
Principal	29	3.517241	0.1550367	0.2007572
Teacher	337	3.115727	0.0454798	-0.2007572

Plots of Means Section
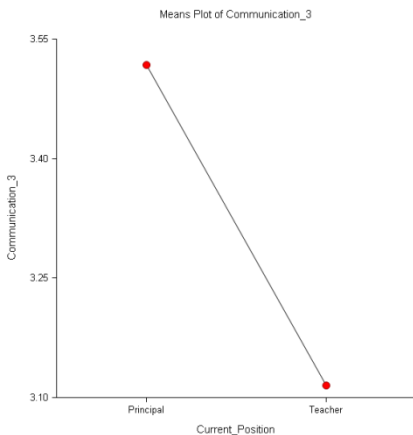
Means Plot of Communication_3

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Contingent_rewards_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-3.1619	0.001568	Reject
Kurtosis Normality of Residuals	-3.1032	0.001914	Reject
Omnibus Normality of Residuals	19.6275	0.000055	Reject
Modified-Levene Equal-Variance Test	1.1908	0.275908	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	359	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	5.704732	5.704732	8.65	0.003478*	0.834883
S(A)	359	236.6997	0.6593307			
Total (Adjusted)	360	242.4044				
Total	361					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Contingent_rewards_1

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	7.413184	0.006475	Reject H0
Corrected for Ties	1	8.433832	0.003683	Reject H0

Number Sets of Ties	4
Multiplicity Factor	5693370

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	28	6512.00	232.57	2.7227	4
Teacher	333	58829.00	176.66	-2.7227	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	361	3.066482		3.265015
A: Current_Position				
Principal	28	3.5	0.153452	0.234985
Teacher	333	3.03003	0.04449688	-0.234985

Plots of Means Section
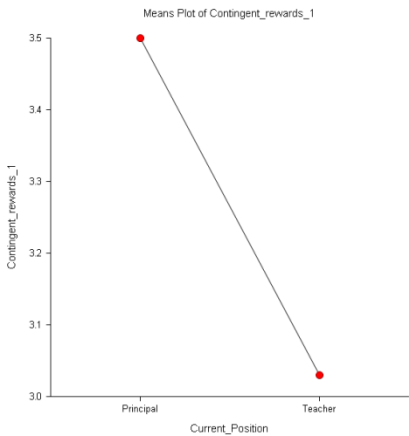
Means Plot of Contingent_rewards_1
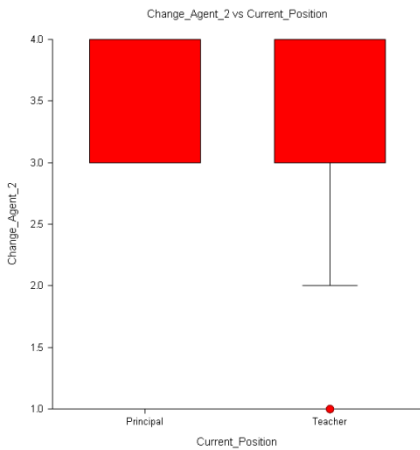
Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Contingent_rewards_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-5.4422	0.000000	Reject
Kurtosis Normality of Residuals	-0.3548	0.722711	Accept
Omnibus Normality of Residuals	29.7439	0.000000	Reject
Modified-Levene Equal-Variance Test	1.5840	0.209042	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	343	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	2.479773	2.479773	3.52	0.061311	0.465076
S(A)	343	241.3173	0.7035491			
Total (Adjusted)	344	243.7971				
Total	345					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Contingent_rewards_2

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	4.030691	0.044680	Reject H0
Corrected for Ties	1	4.668697	0.030717	Reject H0

Number Sets of Ties	4
Multiplicity Factor	5611554

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6049.00	208.59	2.0077	4
Teacher	316	53636.00	169.73	-2.0077	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	345	3.202899		3.329987
A: Current_Position				
Principal	29	3.482759	0.1557572	0.1527717
Teacher	316	3.177215	0.04718497	-0.1527717

Plots of Means Section
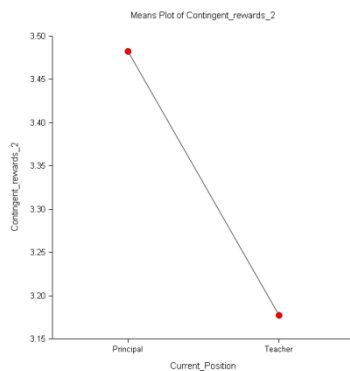
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Contingent_rewards_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-5.3641	0.000000	Reject
Kurtosis Normality of Residuals	0.6012	0.547678	Accept
Omnibus Normality of Residuals	29.1350	0.000000	Reject
Modified-Levene Equal-Variance Test	9.9945	0.001710	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	343	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	11.80718	11.80718	16.69	0.000055*	0.982764
S(A)	343	242.5812	0.7072339			
Total (Adjusted)	344	254.3884				
Total	345					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Contingent_rewards_3

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	15.93586	0.000066	Reject H0
Corrected for Ties	1	18.44705	0.000017	Reject H0

Number Sets of Ties	4
Multiplicity Factor	5589924

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	28	6863.50	245.13	3.9920	4
Teacher	317	52821.50	166.63	-3.9920	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	345	3.127536		3.411278
A: Current_Position				
Principal	28	3.75	0.1589288	0.3387224
Teacher	317	3.072555	0.04723369	-0.3387224

Plots of Means Section
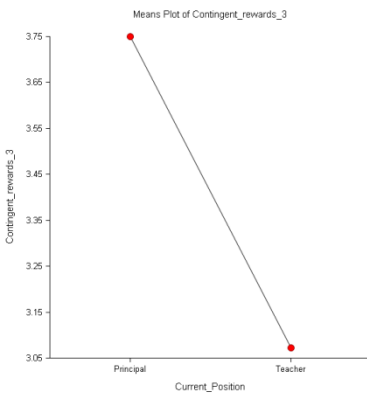
Means Plot of Contingent_rewards_3

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Contingent_rewards_4

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-2.1428	0.032125	Reject
Kurtosis Normality of Residuals	-2.9630	0.003047	Reject
Omnibus Normality of Residuals	13.3710	0.001249	Reject
Modified-Levene Equal-Variance Test	1.5383	0.215687	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	357	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	9.837017	9.837017	15.28	0.000111*	0.973752
S(A)	357	229.7619	0.6435907			
Total (Adjusted)	358	239.5989				
Total	359					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Contingent_rewards_4

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	13.37618	0.000255	Reject H0
Corrected for Ties	1	15.23118	0.000095	Reject H0

Number Sets of Ties	4
Multiplicity Factor	5634954

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	28	6968.50	248.88	3.6573	4
Teacher	331	57651.50	174.17	-3.6573	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	359	2.966574		3.227072
A: Current_Position				
Principal	28	3.535714	0.1516093	0.3086427
Teacher	331	2.918429	0.04409515	-0.3086427

Plots of Means Section
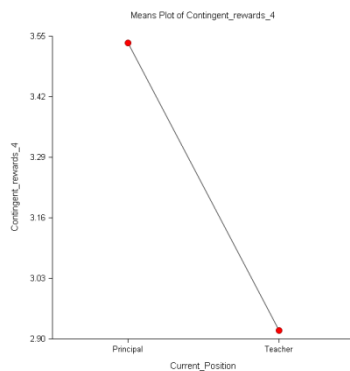
Means Plot of Contingent_rewards_4

1

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Culture_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-5.7951	0.000000	Reject
Kurtosis Normality of Residuals	0.1138	0.909401	Accept
Omnibus Normality of Residuals	33.5960	0.000000	Reject
Modified-Levene Equal-Variance Test	0.9738	0.324396	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	365	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	0.3766389	0.3766389	0.97	0.324396	0.166210
S(A)	365	141.1765	0.3867849			
Total (Adjusted)	366	141.5531				
Total	367					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Culture_1

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	0.4603674	0.497452	Accept H0
Corrected for Ties	1	0.5912083	0.441952	Accept H0

Number Sets of Ties	3
Multiplicity Factor	1.093951E+07

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	5708.00	196.83	0.6785	4
Teacher	338	61820.00	182.90	-0.6785	4

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	367	3.476839		3.526831
A: Current_Position				
Principal	29	3.586207	0.1154877	0.05937564
Teacher	338	3.467456	0.03382801	-0.05937564

Plots of Means Section
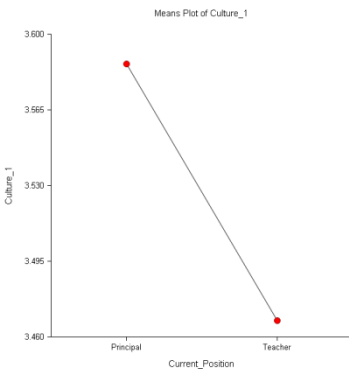
Means Plot of Culture_1

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Culture_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-5.1535	0.000000	Reject
Kurtosis Normality of Residuals	0.8257	0.408979	Accept
Omnibus Normality of Residuals	27.2400	0.000001	Reject
Modified-Levene Equal-Variance Test	0.7719	0.380222	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	357	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	3.745039	3.745039	6.15	0.013634*	0.695823
S(A)	357	217.5474	0.6093766			
Total (Adjusted)	358	221.2925				
Total	359					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Culture_2

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	4.707092	0.030038	Reject H0
Corrected for Ties	1	5.557453	0.018402	Reject H0

Number Sets of Ties	4
Multiplicity Factor	7079574

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6382.50	220.09	2.1696	4
Teacher	330	58237.50	176.48	-2.1696	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	359	3.172702		3.329833
A: Current_Position				
Principal	29	3.517241	0.1449586	0.1874086
Teacher	330	3.142424	0.04297204	-0.1874086

Plots of Means Section
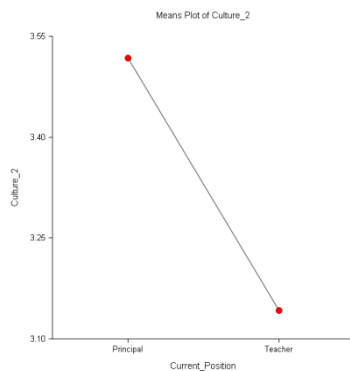
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Culture_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-3.3882	0.000703	Reject
Kurtosis Normality of Residuals	-1.7181	0.085784	Accept
Omnibus Normality of Residuals	14.4318	0.000735	Reject
Modified-Levene Equal-Variance Test	0.4593	0.498374	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	362	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	7.260351	7.260351	10.87	0.001073*	0.908010
S(A)	362	241.7369	0.6677815			
Total (Adjusted)	363	248.9973				
Total	364					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Culture_3

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	9.671102	0.001872	Reject H0
Corrected for Ties	1	11.06316	0.000881	Reject H0

Number Sets of Ties	4
Multiplicity Factor	6068484

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6983.00	240.79	3.1098	4
Teacher	335	59447.00	177.45	-3.1098	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	364	3.002747		3.221976
A: Current_Position				
Principal	29	3.482759	0.1517463	0.2607823
Teacher	335	2.961194	0.04464726	-0.2607823

Plots of Means Section
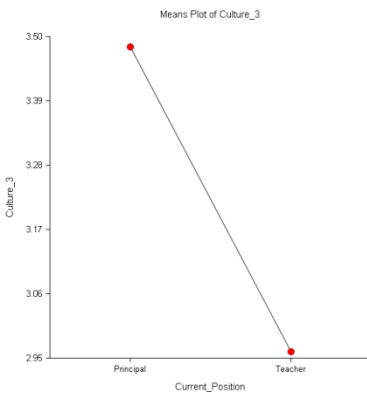
Means Plot of Culture_3

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Culture_4

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-5.0567	0.000000	Reject
Kurtosis Normality of Residuals	0.9553	0.339433	Accept
Omnibus Normality of Residuals	26.4831	0.000002	Reject
Modified-Levene Equal-Variance Test	2.3694	0.124612	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	359	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	2.825886	2.825886	6.12	0.013866*	0.693677
S(A)	359	165.8999	0.4621167			
Total (Adjusted)	360	168.7258				
Total	361					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Culture_4

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	5.276888	0.021610	Reject H0
Corrected for Ties	1	6.451083	0.011088	Reject H0

Number Sets of Ties	4
Multiplicity Factor	8562996

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6487.00	223.69	2.2971	4
Teacher	332	58854.00	177.27	-2.2971	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	361	3.32133		3.457935
A: Current_Position				
Principal	29	3.62069	0.1262341	0.1627545
Teacher	332	3.295181	0.03730841	-0.1627545

Plots of Means Section
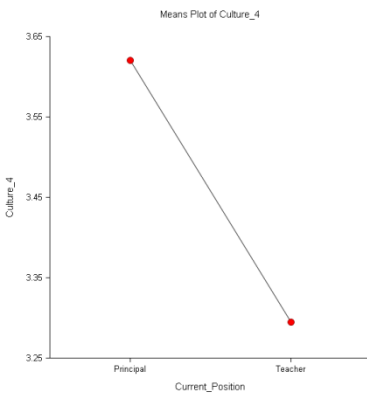
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Culture_5

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-6.5124	0.000000	Reject
Kurtosis Normality of Residuals	3.1273	0.001764	Reject
Omnibus Normality of Residuals	52.1917	0.000000	Reject
Modified-Levene Equal-Variance Test	4.4016	0.036592	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	365	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	4.720896	4.720896	9.33	0.002421*	0.861333
S(A)	365	184.7069	0.5060463			
Total (Adjusted)	366	189.4278				
Total	367					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Culture_5

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	8.741476	0.003111	Reject H0
Corrected for Ties	1	10.7288	0.001055	Reject H0

Number Sets of Ties	4
Multiplicity Factor	9156126

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6957.00	239.90	2.9566	4
Teacher	338	60571.00	179.20	-2.9566	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	367	3.302452		3.479443
A: Current_Position				
Principal	29	3.689655	0.132098	0.2102122
Teacher	338	3.269231	0.03869339	-0.2102122

Plots of Means Section
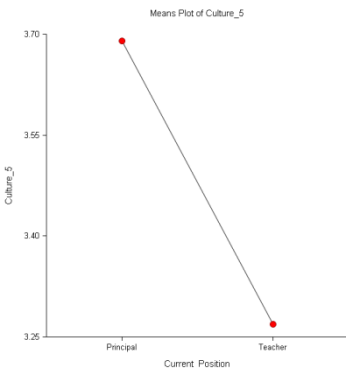
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Culture_6

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-5.3356	0.000000	Reject
Kurtosis Normality of Residuals	1.5310	0.125760	Accept
Omnibus Normality of Residuals	30.8124	0.000000	Reject
Modified-Levene Equal-Variance Test	3.1202	0.078185	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	355	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	4.909053	4.909053	9.15	0.002662*	0.854842
S(A)	355	190.3739	0.5362644			
Total (Adjusted)	356	195.2829				
Total	357					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Culture_6

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	7.756218	0.005353	Reject H0
Corrected for Ties	1	9.326404	0.002259	Reject H0

Number Sets of Ties   4
Multiplicity Factor   7660164

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	28	6472.00	231.14	2.7850	4
Teacher	329	57431.00	174.56	-2.7850	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	357	3.240896		3.424772
A: Current_Position				
Principal	28	3.642857	0.1383918	0.2180851
Teacher	329	3.206687	0.04037305	-0.2180851

Plots of Means Section
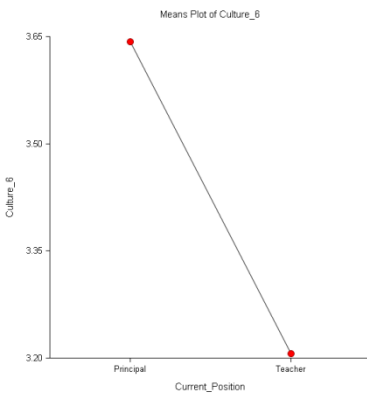
Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Discipline_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-5.1809	0.000000	Reject
Kurtosis Normality of Residuals	0.6258	0.531465	Accept
Omnibus Normality of Residuals	27.2333	0.000001	Reject
Modified-Levene Equal-Variance Test	18.9592	0.000017	Reject

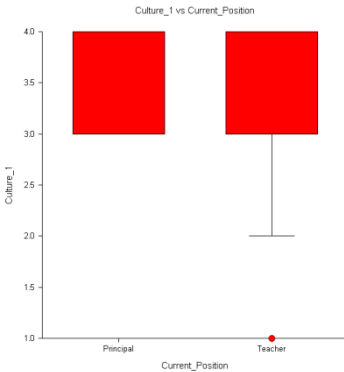**Box Plot Section**

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	363	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	7.717323	7.717323	17.18	0.000042*	0.985132
S(A)	363	163.0882	0.4492787			
Total (Adjusted)	364	170.8055				
Total	365					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Discipline_1

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	15.03029	0.000106	Reject H0
Corrected for Ties	1	18.42501	0.000018	Reject H0

Number Sets of Ties	4
Multiplicity Factor	8959254

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	7420.50	255.88	3.8769	4
Teacher	336	59374.50	176.71	-3.8769	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	365	3.367123		3.593237
A: Current_Position				
Principal	29	3.862069	0.1244683	0.2688321
Teacher	336	3.324405	0.03656691	-0.2688321

Plots of Means Section
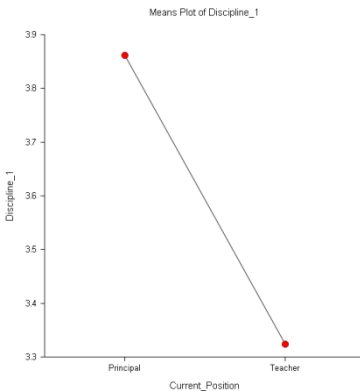
Means Plot of Discipline_1

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Discipline_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-4.9624	0.000001	Reject
Kurtosis Normality of Residuals	-0.7473	0.454885	Accept
Omnibus Normality of Residuals	25.1842	0.000003	Reject
Modified-Levene Equal-Variance Test	13.3792	0.000292	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	362	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	8.091575	8.091575	13.13	0.000332*	0.950954
S(A)	362	223.0595	0.6161866			
Total (Adjusted)	363	231.1511				
Total	364					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Discipline_2

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	11.61991	0.000652	Reject H0
Corrected for Ties	1	13.57295	0.000229	Reject H0

Number Sets of Ties	4	
Multiplicity Factor	6939660	

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	28	6933.50	247.63	3.4088	4
Teacher	336	59496.50	177.07	-3.4088	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	364	3.233516		3.470238
A: Current_Position				
Principal	28	3.75	0.1483464	0.2797619
Teacher	336	3.190476	0.04282393	-0.2797619

Plots of Means Section
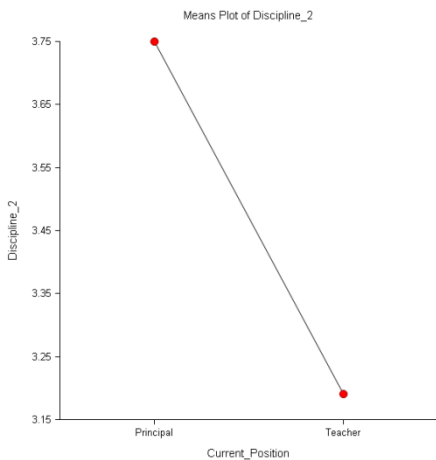
Means Plot of Discipline_2

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Discipline_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-2.9629	0.003048	Reject
Kurtosis Normality of Residuals	-1.5264	0.126904	Accept
Omnibus Normality of Residuals	11.1087	0.003871	Reject
Modified-Levene Equal-Variance Test	0.6996	0.403536	Accept

Box Plot Section
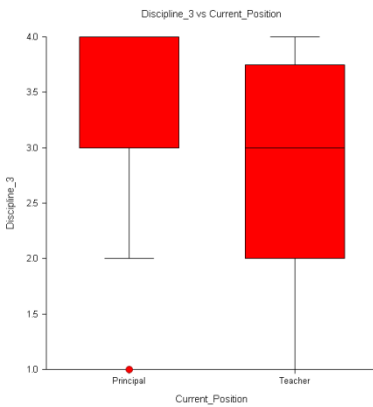
Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	325	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	2.11526	2.11526	3.21	0.074143	0.431118
S(A)	325	214.1967	0.6590667			
Total (Adjusted)	326	216.3119				
Total	327					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Discipline_3

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	3.17562	0.074745	Accept H0
Corrected for Ties	1	3.654035	0.055934	Accept H0

Number Sets of Ties	4
Multiplicity Factor	4577952

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	27	5266.50	195.06	1.7820	3
Teacher	300	48361.50	161.21	-1.7820	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	327	2.954129		3.076111
A: Current_Position				
Principal	27	3.222222	0.1562366	0.1461111
Teacher	300	2.93	0.04687098	-0.1461111

Plots of Means Section
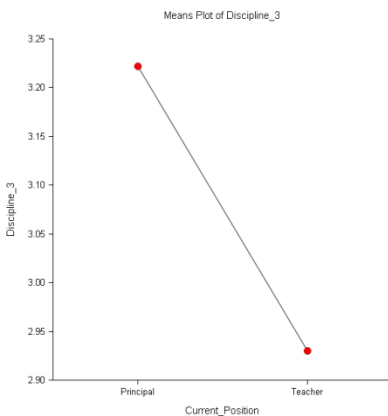
Means Plot of Discipline_3

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Discipline_4

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-4.8657	0.000001	Reject
Kurtosis Normality of Residuals	-1.7659	0.077409	Accept
Omnibus Normality of Residuals	26.7934	0.000002	Reject
Modified-Levene Equal-Variance Test	0.0001	0.993712	Accept

Box Plot Section
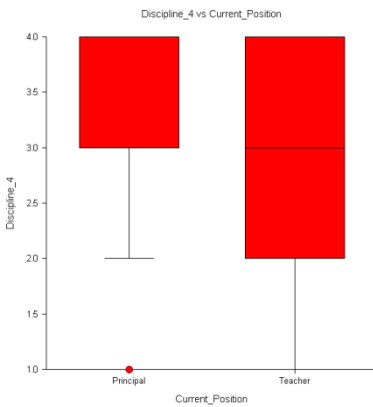
Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	345	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	2.020869	2.020869	2.40	0.122461	0.338952
S(A)	345	290.8264	0.8429751			
Total (Adjusted)	346	292.8473				
Total	347					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Discipline_4

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	3.032106	0.081632	Accept H0
Corrected for Ties	1	3.411884	0.064729	Accept H0

Number Sets of Ties	4
Multiplicity Factor	4650726

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	5946.50	205.05	1.7413	4
Teacher	318	54431.50	171.17	-1.7413	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	347	3.057637		3.172468
A: Current_Position				
Principal	29	3.310345	0.1704937	0.1378768
Teacher	318	3.034591	0.05148655	-0.1378768

Plots of Means Section
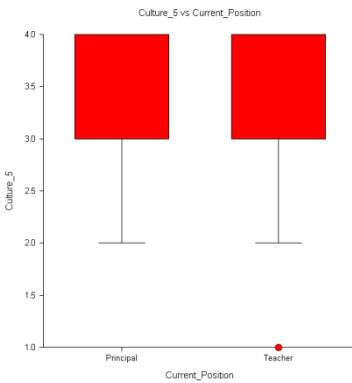

Means Plot of Discipline_4

Analysis of Variance Report
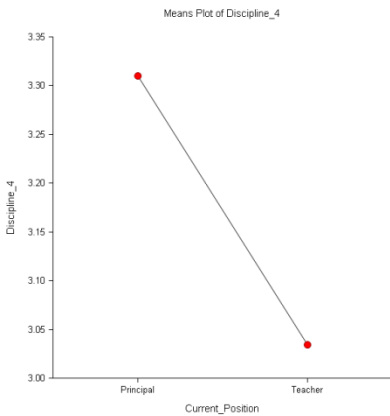
Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Flexibility_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-4.8782	0.000001	Reject
Kurtosis Normality of Residuals	-1.0212	0.307151	Accept
Omnibus Normality of Residuals	24.8395	0.000004	Reject
Modified-Levene Equal-Variance Test	6.8540	0.009224	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	354	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	6.059788	6.059788	8.90	0.003052*	0.844937
S(A)	354	241.0722	0.680995			
Total (Adjusted)	355	247.132				
Total	356					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Flexibility_1

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.

Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	7.28896	0.006938	Reject H0
Corrected for Ties	1	8.411344	0.003729	Reject H0

Number Sets of Ties	4
Multiplicity Factor	6020358

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6610.50	227.95	2.6998	4
Teacher	327	56935.50	174.11	-2.6998	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	356	3.182584		3.38221
A: Current_Position				
Principal	29	3.62069	0.1532403	0.2384794
Teacher	327	3.143731	0.045635	-0.2384794

Plots of Means Section
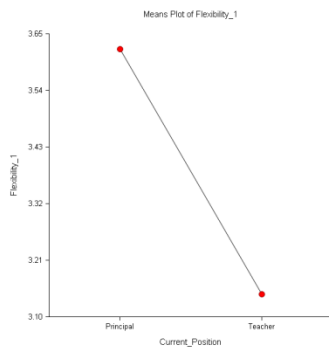
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Flexibility_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-3.4263	0.000612	Reject
Kurtosis Normality of Residuals	-1.7729	0.076244	Accept
Omnibus Normality of Residuals	14.8828	0.000586	Reject
Modified-Levene Equal-Variance Test	3.7842	0.052524	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	357	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	9.774633	9.774633	15.32	0.000109*	0.974039
S(A)	357	227.7518	0.6379603			
Total (Adjusted)	358	237.5265				
Total	359					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Flexibility_2

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	13.80732	0.000203	Reject H0
Corrected for Ties	1	15.80818	0.000070	Reject H0

Number Sets of Ties	4
Multiplicity Factor	5856192

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	7211.00	248.66	3.7158	4
Teacher	330	57409.00	173.97	-3.7158	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	359	3.064067		3.317921
A: Current_Position				
Principal	29	3.62069	0.1483193	0.3027691
Teacher	330	3.015152	0.04396832	-0.3027691

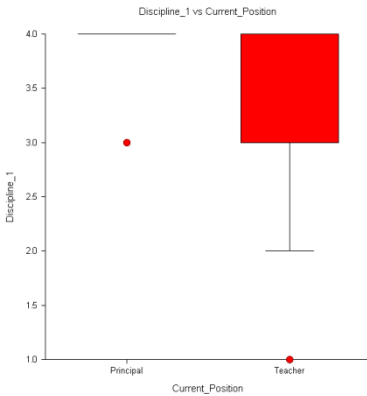**Plots of Means Section**
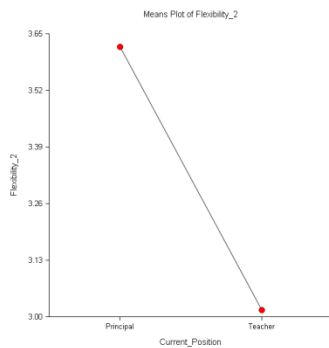
Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Flexibility_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-5.3667	0.000000	Reject
Kurtosis Normality of Residuals	3.0927	0.001984	Reject
Omnibus Normality of Residuals	38.3660	0.000000	Reject
Modified-Levene Equal-Variance Test	1.9839	0.159889	Accept

Box Plot Section
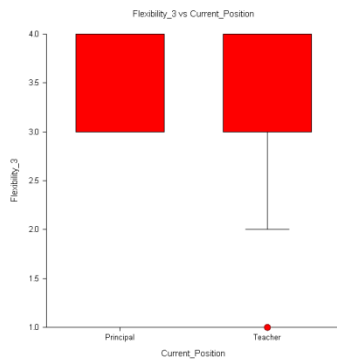
Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	340	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	6.923384	6.923384	14.88	0.000137*	0.970398
S(A)	340	158.1877	0.465258			
Total (Adjusted)	341	165.1111				
Total	342					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Flexibility_3

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	13.01366	0.000309	Reject H0
Corrected for Ties	1	16.4132	0.000051	Reject H0

Number Sets of Ties	4
Multiplicity Factor	8285166

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6811.00	234.86	3.6074	4
Teacher	313	51842.00	165.63	-3.6074	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	342	3.222222		3.434284
A: Current_Position				
Principal	29	3.689655	0.1266625	0.2553707
Teacher	313	3.178914	0.03855447	-0.2553707

Plots of Means Section
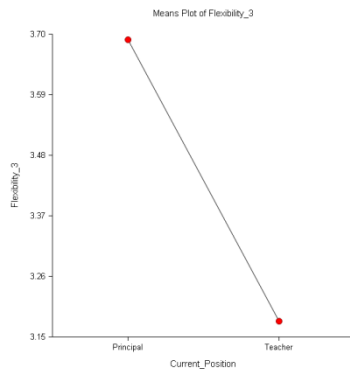
Means Plot of Flexibility_3

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Flexibility_4

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-4.7202	0.000002	Reject
Kurtosis Normality of Residuals	0.6908	0.489681	Accept
Omnibus Normality of Residuals	22.7574	0.000011	Reject
Modified-Levene Equal-Variance Test	3.7160	0.054699	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	352	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	7.108424	7.108424	12.55	0.000449*	0.942191
S(A)	352	199.321	0.5662527			
Total (Adjusted)	353	206.4294				
Total	354					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Flexibility_4

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	10.96485	0.000929	Reject H0
Corrected for Ties	1	12.99377	0.000313	Reject H0

Number Sets of Ties	4
Multiplicity Factor	6926856

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6896.00	237.79	3.3113	4
Teacher	325	55939.00	172.12	-3.3113	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	354	3.180791		3.396817
A: Current_Position				
Principal	29	3.655172	0.1397353	0.2583554
Teacher	325	3.138462	0.04174106	-0.2583554

Plots of Means Section

Means Plot of Flexibility_4
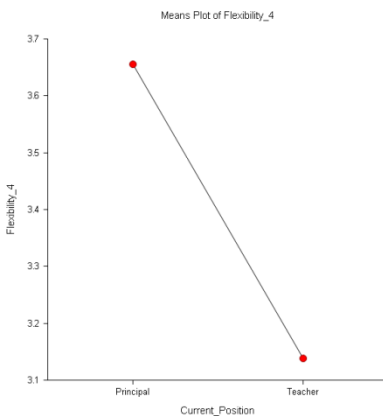
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Focus_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-5.1782	0.000000	Reject
Kurtosis Normality of Residuals	0.0226	0.981954	Accept
Omnibus Normality of Residuals	26.8139	0.000002	Reject
Modified-Levene Equal-Variance Test	3.2754	0.071153	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	362	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	0.02630604	0.02630604	0.05	0.819511	0.055962
S(A)	362	182.6413	0.5045339			
Total (Adjusted)	363	182.6676				
Total	364					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Focus_1

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	0.01386135	0.906278	Accept H0
Corrected for Ties	1	0.01672781	0.897092	Accept H0

Number Sets of Ties	4
Multiplicity Factor	8264340

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	5228.50	180.29	-0.1177	3
Teacher	335	61201.50	182.69	0.1177	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	364	3.315934		3.32913
A: Current_Position				
Principal	29	3.344828	0.1319004	0.01569737
Teacher	335	3.313433	0.03880814	-0.01569737

Plots of Means Section
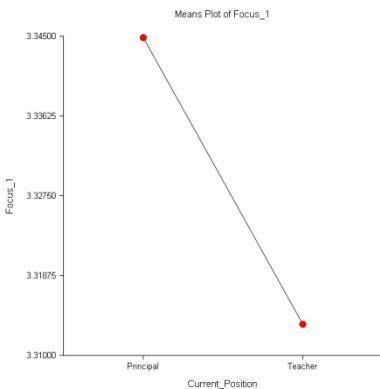
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Focus_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-6.4179	0.000000	Reject
Kurtosis Normality of Residuals	2.5389	0.011119	Reject
Omnibus Normality of Residuals	47.6361	0.000000	Reject
Modified-Levene Equal-Variance Test	1.1261	0.289316	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	361	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	0.4170971	0.4170971	0.92	0.336929	0.160172
S(A)	361	162.8611	0.4511389			
Total (Adjusted)	362	163.2782				
Total	363					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Focus_2

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	0.3550916	0.551245	Accept H0
Corrected for Ties	1	0.4436017	0.505389	Accept H0

Number Sets of Ties   4
Multiplicity Factor   9543684

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	5601.00	193.14	0.5959	4
Teacher	334	60465.00	181.03	-0.5959	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	363	3.402204		3.454728
A: Current_Position				
Principal	29	3.517241	0.1247258	0.0625129
Teacher	334	3.392215	0.03675208	-0.0625129

Plots of Means Section

Means Plot of Focus_2
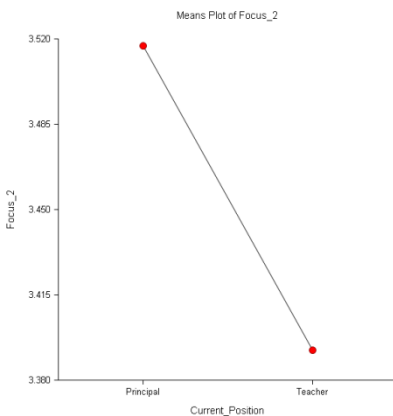
Analysis of Variance Report
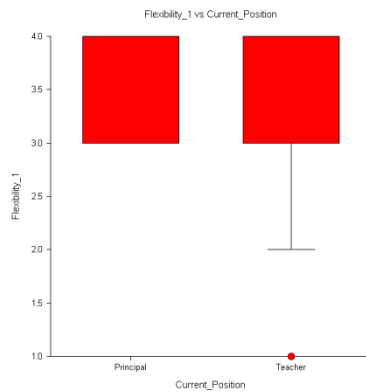
Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Focus_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-6.4234	0.000000	Reject
Kurtosis Normality of Residuals	2.2440	0.024830	Reject
Omnibus Normality of Residuals	46.2959	0.000000	Reject
Modified-Levene Equal-Variance Test	8.8995	0.003047	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	361	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	3.241558	3.241558	8.90	0.003047*	0.845016
S(A)	361	131.4912	0.3642416			
Total (Adjusted)	362	134.7328				
Total	363					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Focus_3

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.

Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	7.087092	0.007764	Reject H0
Corrected for Ties	1	9.278412	0.002319	Reject H0

Number Sets of Ties	4
Multiplicity Factor	1.129663E+07

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6721.00	231.76	2.6622	4
Teacher	334	59345.00	177.68	-2.6622	4

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	363	3.506887		3.653314
A: Current_Position				
Principal	29	3.827586	0.1120717	0.1742721
Teacher	334	3.479042	0.03302338	-0.1742721

Plots of Means Section
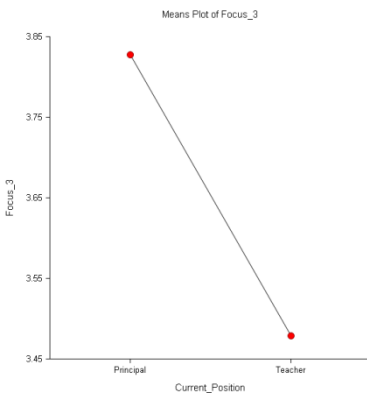
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Focus_4

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-4.3147	0.000016	Reject
Kurtosis Normality of Residuals	-0.5859	0.557922	Accept
Omnibus Normality of Residuals	18.9597	0.000076	Reject
Modified-Levene Equal-Variance Test	0.2302	0.631648	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	357	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	0.3117987	0.3117987	0.85	0.357282	0.151002
S(A)	357	131.0141	0.3669863			
Total (Adjusted)	358	131.3259				
Total	359					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Focus_4

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	0.6410345	0.423336	Accept H0
Corrected for Ties	1	0.8121489	0.367486	Accept H0

Number Sets of Ties	3
Multiplicity Factor	9748344

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	5649.00	194.79	0.8006	4
Teacher	330	58971.00	178.70	-0.8006	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	359	3.417827		3.463166
A: Current_Position				
Principal	29	3.517241	0.1124931	0.05407523
Teacher	330	3.409091	0.03334786	-0.05407523

Plots of Means Section

Means Plot of Focus_4
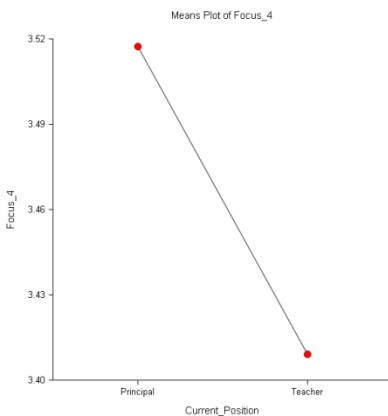
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Focus_5

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-4.6628	0.000003	Reject
Kurtosis Normality of Residuals	0.1544	0.877289	Accept
Omnibus Normality of Residuals	21.7652	0.000019	Reject
Modified-Levene Equal-Variance Test	3.4268	0.064956	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	364	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	3.60313	3.60313	7.92	0.005159*	0.801383
S(A)	364	165.6318	0.4550325			
Total (Adjusted)	365	169.235				
Total	366					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Focus_5

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	6.956933	0.008350	Reject H0
Corrected for Ties	1	8.482478	0.003586	Reject H0

Number Sets of Ties	4
Multiplicity Factor	8817438

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6763.50	233.22	2.6376	4
Teacher	337	60397.50	179.22	-2.6376	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	366	3.31694		3.471503
A: Current_Position				
Principal	29	3.655172	0.1252628	0.1836693
Teacher	337	3.287834	0.03674568	-0.1836693

Plots of Means Section

Means Plot of Focus_5
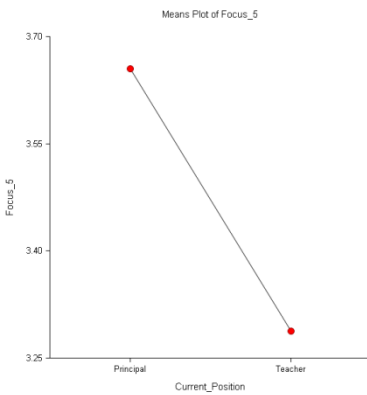
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Focus_6

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-3.7461	0.000180	Reject
Kurtosis Normality of Residuals	-0.3227	0.746918	Accept
Omnibus Normality of Residuals	14.1378	0.000851	Reject
Modified-Levene Equal-Variance Test	0.1158	0.733886	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	363	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	1.959646	1.959646	3.78	0.052634	0.491739
S(A)	363	188.1773	0.5183949			
Total (Adjusted)	364	190.137				
Total	365					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Focus_6

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	2.854185	0.091136	Accept H0
Corrected for Ties	1	3.431043	0.063982	Accept H0

Number Sets of Ties	4
Multiplicity Factor	8175570

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6228.00	214.76	1.6894	3
Teacher	336	60567.00	180.26	-1.6894	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	365	3.164384		3.278325
A: Current_Position				
Principal	29	3.413793	0.1337	0.135468
Teacher	336	3.142857	0.03927903	-0.135468

Plots of Means Section
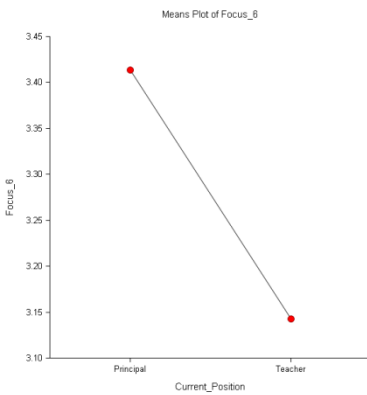
Means Plot of Focus_6

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Ideals_Beliefs_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-6.2952	0.000000	Reject
Kurtosis Normality of Residuals	2.8884	0.003872	Reject
Omnibus Normality of Residuals	47.9724	0.000000	Reject
Modified-Levene Equal-Variance Test	4.3629	0.037435	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	358	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	1.336424	1.336424	4.36	0.037435*	0.549047
S(A)	358	109.6608	0.3063151			
Total (Adjusted)	359	110.9972				
Total	360					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Ideals_Beliefs_1

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	3.248234	0.071500	Accept H0
Corrected for Ties	1	4.378958	0.036385	Reject H0

Number Sets of Ties	4
Multiplicity Factor	1.204731E+07

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6203.00	213.90	1.8023	4
Teacher	331	58777.00	177.57	-1.8023	4

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	360	3.552778		3.646682
A: Current_Position				
Principal	29	3.758621	0.1027745	0.1119387
Teacher	331	3.534743	0.03042077	-0.1119387

Plots of Means Section
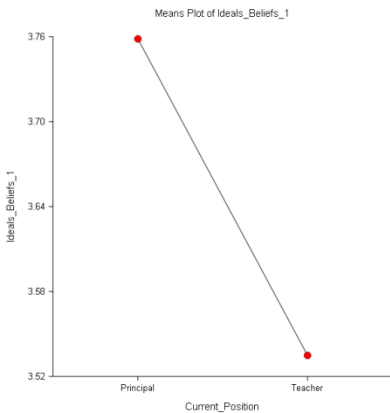
Means Plot of Ideals_Beliefs_1

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Ideals_Beliefs_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-6.0657	0.000000	Reject
Kurtosis Normality of Residuals	1.3014	0.193112	Accept
Omnibus Normality of Residuals	38.4867	0.000000	Reject
Modified-Levene Equal-Variance Test	13.8446	0.000230	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	361	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	5.125123	5.125123	9.84	0.001848*	0.878698
S(A)	361	188.0319	0.520864			
Total (Adjusted)	362	193.157				
Total	363					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Ideals_Beliefs_2

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.

Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	8.30951	0.003944	Reject H0
Corrected for Ties	1	10.11906	0.001467	Reject H0

Number Sets of Ties	4
Multiplicity Factor	8553546

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6840.50	235.88	2.8826	4
Teacher	334	59225.50	177.32	-2.8826	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	363	3.355372		3.53949
A: Current_Position				
Principal	29	3.758621	0.134018	0.2191307
Teacher	334	3.320359	0.03949016	-0.2191307

Plots of Means Section
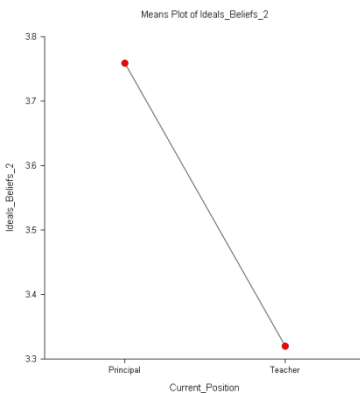
Means Plot of Ideals_Beliefs_2

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Ideals_Beliefs_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-7.7018	0.000000	Reject
Kurtosis Normality of Residuals	4.1349	0.000036	Reject
Omnibus Normality of Residuals	76.4149	0.000000	Reject
Modified-Levene Equal-Variance Test	11.4069	0.000812	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	359	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	5.101844	5.101844	11.41	0.000812*	0.920494
S(A)	359	160.5658	0.4472584			
Total (Adjusted)	360	165.6676				
Total	361					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Ideals_Beliefs_3

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	9.99714	0.001568	Reject H0
Corrected for Ties	1	12.83232	0.000341	Reject H0

Number Sets of Ties	4
Multiplicity Factor	1.039427E+07

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6953.00	239.76	3.1618	4
Teacher	332	58388.00	175.87	-3.1618	4

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	361	3.459834		3.643384
A: Current_Position				
Principal	29	3.862069	0.1241882	0.2186851
Teacher	332	3.424699	0.03670373	-0.2186851

Plots of Means Section
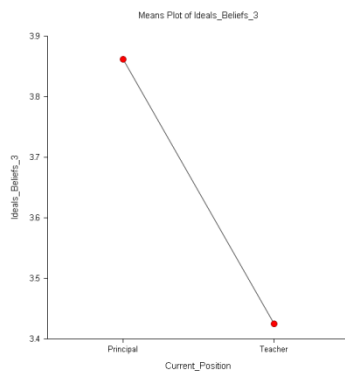
Means Plot of Ideals_Beliefs_3

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Ideas_Beliefs_4

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-6.2798	0.000000	Reject
Kurtosis Normality of Residuals	2.0488	0.040483	Reject
Omnibus Normality of Residuals	43.6340	0.000000	Reject
Modified-Levene Equal-Variance Test	12.3228	0.000505	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	356	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	5.147221	5.147221	10.02	0.001678*	0.884459
S(A)	356	182.7997	0.5134823			
Total (Adjusted)	357	187.9469				
Total	358					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Ideas_Beliefs_4

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	8.591647	0.003377	Reject H0
Corrected for Ties	1	10.49541	0.001197	Reject H0

Number Sets of Ties	4
Multiplicity Factor	8322606

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6771.50	233.50	2.9312	4
Teacher	329	57489.50	174.74	-2.9312	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	358	3.354748		3.538885
A: Current_Position				
Principal	29	3.758621	0.133065	0.2197359
Teacher	329	3.319149	0.03950616	-0.2197359

Plots of Means Section

Means Plot of Ideas_Beliefs_4
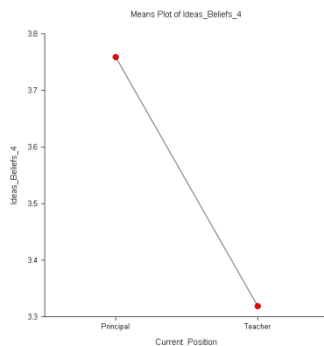
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Input_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-1.5997	0.109659	Accept
Kurtosis Normality of Residuals	-3.0398	0.002367	Reject
Omnibus Normality of Residuals	11.7997	0.002740	Reject
Modified-Levene Equal-Variance Test	1.2005	0.273952	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	364	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	7.206184	7.206184	12.29	0.000513*	0.937756
S(A)	364	213.4632	0.5864374			
Total (Adjusted)	365	220.6694				
Total	366					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Input_1

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	10.4936	0.001198	Reject H0
Corrected for Ties	1	12.14846	0.000491	Reject H0

Number Sets of Ties	4
Multiplicity Factor	6678516

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	7092.50	244.57	3.2394	3
Teacher	337	60068.50	178.24	-3.2394	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	366	2.969945		3.18853
A: Current_Position				
Principal	29	3.448276	0.142204	0.2597463
Teacher	337	2.928783	0.04171535	-0.2597463

Plots of Means Section
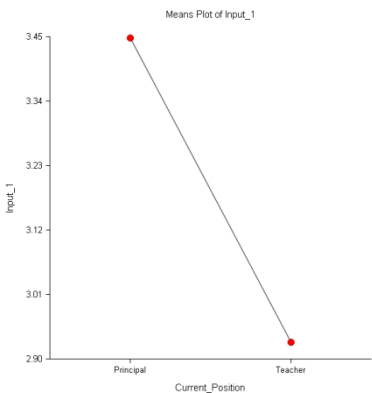
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Input_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-2.7375	0.006191	Reject
Kurtosis Normality of Residuals	-2.3793	0.017347	Reject
Omnibus Normality of Residuals	13.1547	0.001392	Reject
Modified-Levene Equal-Variance Test	1.3640	0.243626	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	355	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	10.27181	10.27181	14.96	0.000130*	0.971127
S(A)	355	243.717	0.6865267			
Total (Adjusted)	356	253.9888				
Total	357					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Input_2

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	13.30369	0.000265	Reject H0
Corrected for Ties	1	15.08535	0.000103	Reject H0

Number Sets of Ties	4
Multiplicity Factor	5373678

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	7134.00	246.00	3.6474	4
Teacher	328	56769.00	173.08	-3.6474	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	357	2.946779		3.206791
A: Current_Position				
Principal	29	3.517241	0.1538614	0.31045
Teacher	328	2.896342	0.04575007	-0.31045

Plots of Means Section

Means Plot of Input_2
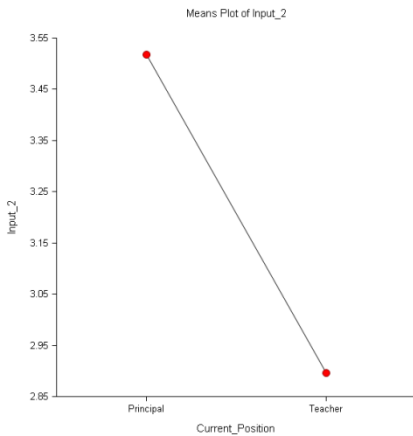
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Input_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-5.0471	0.000000	Reject
Kurtosis Normality of Residuals	0.1360	0.891791	Accept
Omnibus Normality of Residuals	25.4918	0.000003	Reject
Modified-Levene Equal-Variance Test	5.9397	0.015291	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	357	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	6.762195	6.762195	10.83	0.001100*	0.906845
S(A)	357	222.976	0.6245825			
Total (Adjusted)	358	229.7382				
Total	359					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Input_3

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	9.339624	0.002243	Reject H0
Corrected for Ties	1	10.90231	0.000960	Reject H0

Number Sets of Ties	4
Multiplicity Factor	6631812

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6857.50	236.47	3.0561	4
Teacher	330	57762.50	175.04	-3.0561	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	359	3.192201		3.403344
A: Current_Position				
Principal	29	3.655172	0.146756	0.2518286
Teacher	330	3.151515	0.04350488	-0.2518286

Plots of Means Section
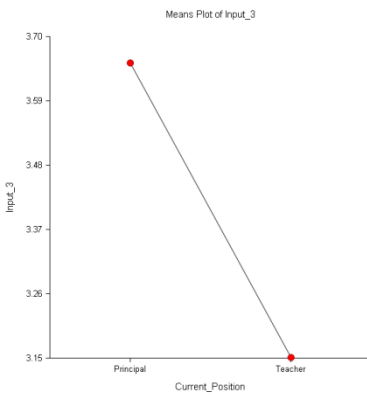
Means Plot of Input_3

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Intellectual_Stimulation_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-4.9459	0.000001	Reject
Kurtosis Normality of Residuals	0.9038	0.366103	Accept
Omnibus Normality of Residuals	25.2789	0.000003	Reject
Modified-Levene Equal-Variance Test	0.2075	0.649046	Accept

Box Plot Section
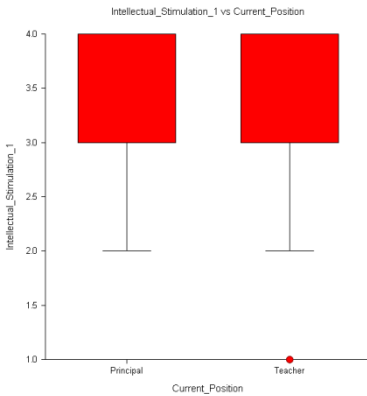
Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	350	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	0.9203502	0.9203502	2.11	0.147408	0.304658
S(A)	350	152.7956	0.4365588			
Total (Adjusted)	351	153.7159				
Total	352					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Intellectual_Stimulation_1

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	1.897067	0.168407	Accept H0
Corrected for Ties	1	2.343619	0.125797	Accept H0

Number Sets of Ties	4
Multiplicity Factor	8310168

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	5841.50	201.43	1.3773	4
Teacher	323	56286.50	174.26	-1.3773	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	352	3.346591		3.424255
A: Current_Position				
Principal	29	3.517241	0.1226937	0.09298602
Teacher	323	3.331269	0.03676377	-0.09298602

Plots of Means Section
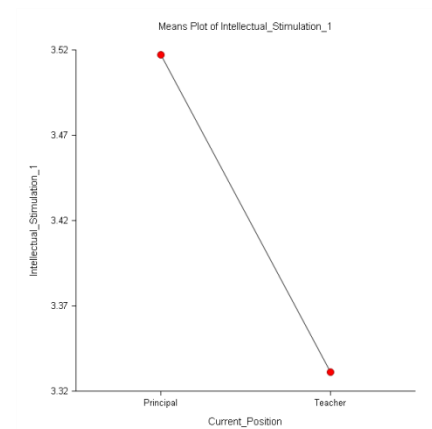
Means Plot of Intellectual_Stimulation_1

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Intellectual_Stimulation_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-2.4782	0.013203	Reject
Kurtosis Normality of Residuals	-1.6186	0.105532	Accept
Omnibus Normality of Residuals	8.7615	0.012516	Reject
Modified-Levene Equal-Variance Test	4.1597	0.042129	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	359	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	2.309138	2.309138	3.71	0.054758	0.484881
S(A)	359	223.2255	0.621798			
Total (Adjusted)	360	225.5346				
Total	361					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Intellectual_Stimulation_2

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	2.961859	0.085250	Accept H0
Corrected for Ties	1	3.454357	0.063085	Accept H0

Number Sets of Ties	4
Multiplicity Factor	6707418

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6176.50	212.98	1.7210	3
Teacher	332	59164.50	178.21	-1.7210	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	361	2.936288		3.059774
A: Current_Position				
Principal	29	3.206897	0.1464285	0.147123
Teacher	332	2.912651	0.04327685	-0.147123

Plots of Means Section
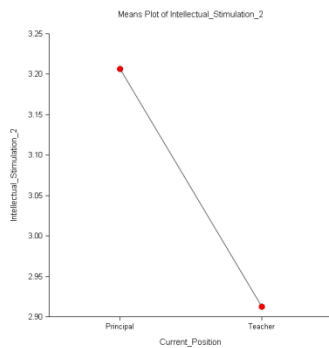
Means Plot of Intellectual_Stimulation_2

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Intellectual_Stimulation_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-2.1057	0.035232	Reject
Kurtosis Normality of Residuals	-3.0037	0.002667	Reject
Omnibus Normality of Residuals	13.4562	0.001197	Reject
Modified-Levene Equal-Variance Test	4.1559	0.042217	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	362	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	2.766873	2.766873	4.28	0.039320*	0.540992
S(A)	362	234.1342	0.6467797			
Total (Adjusted)	363	236.9011				
Total	364					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response Intellectual_Stimulation_3

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	3.527744	0.060350	Accept H0
Corrected for Ties	1	4.039286	0.044453	Reject H0

Number Sets of Ties	4
Multiplicity Factor	6107694

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6313.50	217.71	1.8782	3
Teacher	335	60116.50	179.45	-1.8782	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	364	2.945055		3.080391
A: Current_Position				
Principal	29	3.241379	0.149341	0.1609882
Teacher	335	2.919403	0.04393956	-0.1609882

Plots of Means Section
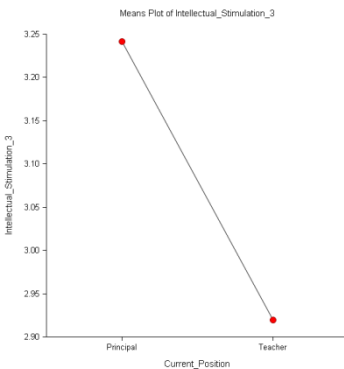
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Intellectual_Stimulation_4

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	0.0950	0.924307	Accept
Kurtosis Normality of Residuals	-4.2391	0.000022	Reject
Omnibus Normality of Residuals	17.9793	0.000125	Reject
Modified-Levene Equal-Variance Test	2.3409	0.126881	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	364	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	0.4250276	0.4250276	0.64	0.423474	0.125766
S(A)	364	240.9438	0.6619336			
Total (Adjusted)	365	241.3689				
Total	366					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Intellectual_Stimulation_4

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	0.7406389	0.389456	Accept H0
Corrected for Ties	1	0.8420151	0.358821	Accept H0

Number Sets of Ties	4
Multiplicity Factor	5902770

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	5792.00	199.72	0.8606	3
Teacher	337	61369.00	182.10	-0.8606	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	366	2.745902		2.798987
A: Current_Position				
Principal	29	2.862069	0.1510804	0.06308196
Teacher	337	2.735905	0.04431923	-0.06308196

Plots of Means Section

Means Plot of Intellectual_Stimulation_4
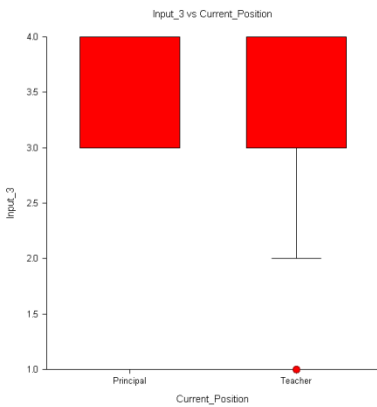
1

Analysis of Variance Report
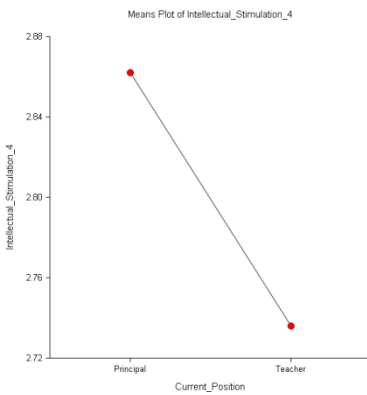
Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Involvement_in_CIA_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-4.7727	0.000002	Reject
Kurtosis Normality of Residuals	-0.2921	0.770187	Accept
Omnibus Normality of Residuals	22.8642	0.000011	Reject
Modified-Levene Equal-Variance Test	3.9240	0.048377	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	353	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	3.68973	3.68973	7.01	0.008452*	0.752124
S(A)	353	185.7018	0.5260675			
Total (Adjusted)	354	189.3916				
Total	355					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Involvement_in_CIA_1

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	5.535435	0.018635	Reject H0
Corrected for Ties	1	6.605613	0.010166	Reject H0

Number Sets of Ties	4
Multiplicity Factor	7248108

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6408.00	220.97	2.3528	4
Teacher	326	56782.00	174.18	-2.3528	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	355	3.278873		3.434578
A: Current_Position				
Principal	29	3.62069	0.1346858	0.1861117
Teacher	326	3.248466	0.04017093	-0.1861117

Plots of Means Section
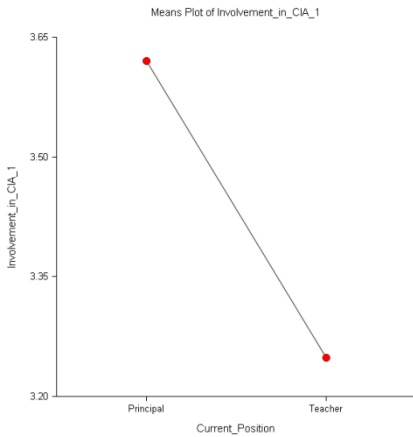
Means Plot of Involvement_in_CIA_1

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Involvement_in_CIA_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-0.8309	0.406032	Accept
Kurtosis Normality of Residuals	-3.6412	0.000271	Reject
Omnibus Normality of Residuals	13.9487	0.000936	Reject
Modified-Levene Equal-Variance Test	5.5912	0.018587	Reject

Box Plot Section

Involvement_in_CIA_2 vs Current_Position

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	356	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	7.377861	7.377861	11.04	0.000984*	0.912113
S(A)	356	237.8847	0.6682155			
Total (Adjusted)	357	245.2626				
Total	358					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Involvement_in_CIA_2

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	9.970641	0.001591	Reject H0
Corrected for Ties	1	11.28888	0.000780	Reject H0

Number Sets of Ties	4
Multiplicity Factor	5357844

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6892.50	237.67	3.1576	3
Teacher	329	57368.50	174.37	-3.1576	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	358	2.826816		3.04727
A: Current_Position				
Principal	29	3.310345	0.1517956	0.2630751
Teacher	329	2.784194	0.04506717	-0.2630751

Plots of Means Section
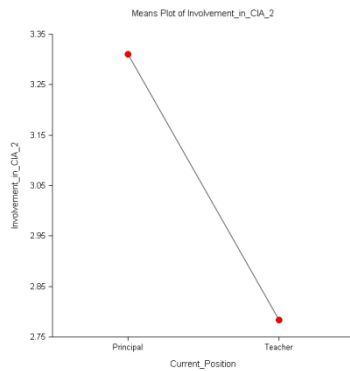
Means Plot of Involvement_in_CIA_2

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Involvement_in_CIA_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-1.1809	0.237647	Accept
Kurtosis Normality of Residuals	-4.7703	0.000002	Reject
Omnibus Normality of Residuals	24.1502	0.000006	Reject
Modified-Levene Equal-Variance Test	1.8890	0.170187	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	351	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	7.504284	7.504284	9.42	0.002318*	0.864381
S(A)	351	279.7308	0.796954			
Total (Adjusted)	352	287.2351				
Total	353					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Involvement_in_CIA_3

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	8.231452	0.004117	Reject H0
Corrected for Ties	1	9.120683	0.002527	Reject H0

Number Sets of Ties	4
Multiplicity Factor	4288524

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6643.50	229.09	2.8691	3
Teacher	324	55837.50	172.34	-2.8691	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	353	2.719547		2.941411
A: Current_Position				
Principal	29	3.206897	0.1657745	0.2654853
Teacher	324	2.675926	0.04959571	-0.2654853

Plots of Means Section
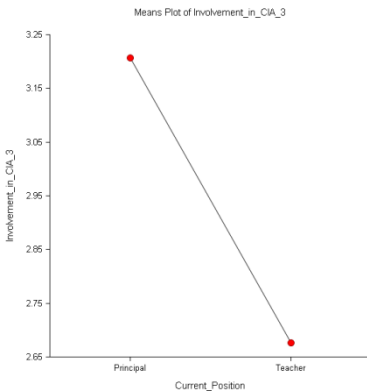
Means Plot of Involvement_in_CIA_3

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Knowledge_of_CIA_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-8.3875	0.000000	Reject
Kurtosis Normality of Residuals	3.3770	0.000733	Reject
Omnibus Normality of Residuals	81.7539	0.000000	Reject
Modified-Levene Equal-Variance Test	0.4321	0.511374	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	358	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	0.1756089	0.1756089	0.43	0.511374	0.100508
S(A)	358	145.4883	0.4063918			
Total (Adjusted)	359	145.6639				
Total	360					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Knowledge_of_CIA_1

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	0.1823952	0.669323	Accept H0
Corrected for Ties	1	0.2616033	0.609021	Accept H0

Number Sets of Ties	4
Multiplicity Factor	1.412637E+07

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	5464.00	188.41	0.4271	4
Teacher	331	59516.00	179.81	-0.4271	4

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	360	3.580555		3.614595
A: Current_Position				
Principal	29	3.655172	0.1183787	0.04057714
Teacher	331	3.574018	0.03503955	-0.04057714

Plots of Means Section
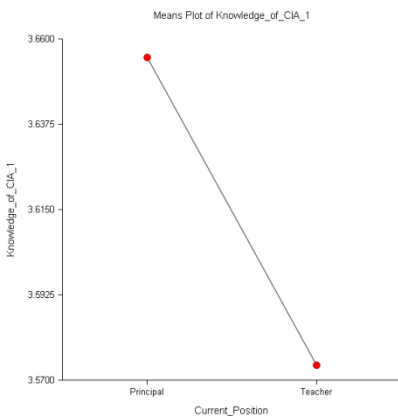
Means Plot of Knowledge_of_CIA_1

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Knowledge_of_CIA_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-3.9049	0.000094	Reject
Kurtosis Normality of Residuals	-1.1551	0.248062	Accept
Omnibus Normality of Residuals	16.5826	0.000251	Reject
Modified-Levene Equal-Variance Test	0.3230	0.570165	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	355	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	2.035359	2.035359	4.22	0.040678*	0.535403
S(A)	355	171.2139	0.4822928			
Total (Adjusted)	356	173.2493				
Total	357					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Knowledge_of_CIA_2

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	3.021679	0.082158	Accept H0
Corrected for Ties	1	3.641561	0.056354	Accept H0

Number Sets of Ties	4
Multiplicity Factor	7745016

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6117.00	210.93	1.7383	4
Teacher	328	57786.00	176.18	-1.7383	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	357	3.263305		3.379048
A: Current_Position				
Principal	29	3.517241	0.1289604	0.1381939
Teacher	328	3.240854	0.03834586	-0.1381939

Plots of Means Section
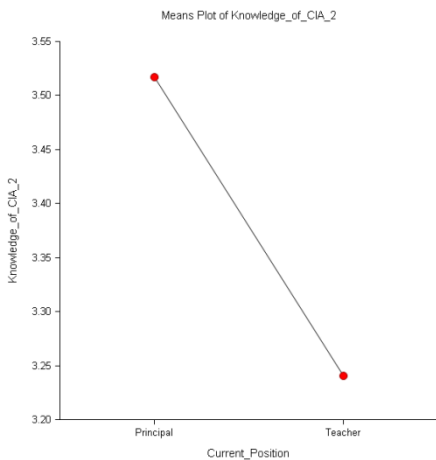
Means Plot of Knowledge_of_CIA_2

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Knowledge_of_CIA_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-4.9366	0.000001	Reject
Kurtosis Normality of Residuals	0.7469	0.455138	Accept
Omnibus Normality of Residuals	24.9282	0.000004	Reject
Modified-Levene Equal-Variance Test	2.6755	0.102781	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	358	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	1.422338	1.422338	3.65	0.056909	0.478160
S(A)	358	139.5527	0.3898119			
Total (Adjusted)	359	140.975				
Total	360					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Knowledge_of_CIA_3

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	2.636204	0.104453	Accept H0
Corrected for Ties	1	3.318223	0.068516	Accept H0

Number Sets of Ties	4
Multiplicity Factor	9589482

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6107.00	210.59	1.6236	4
Teacher	331	58873.00	177.86	-1.6236	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	360	3.408333		3.505209
A: Current_Position				
Principal	29	3.62069	0.1159387	0.1154808
Teacher	331	3.389728	0.03431733	-0.1154808

Plots of Means Section
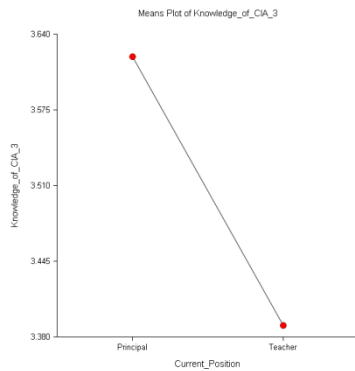
Means Plot of Knowledge_of_CIA_3

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Knowledge_of_CIA_4

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-3.1356	0.001715	Reject
Kurtosis Normality of Residuals	-0.5592	0.576015	Accept
Omnibus Normality of Residuals	10.1450	0.006267	Reject
Modified-Levene Equal-Variance Test	0.2932	0.588515	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	353	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	8.820912	8.820912	14.75	0.000146*	0.969249
S(A)	353	211.134	0.5981134			
Total (Adjusted)	354	219.9549				
Total	355					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Knowledge_of_CIA_4

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	12.70251	0.000365	Reject H0
Corrected for Ties	1	14.94823	0.000111	Reject H0

Number Sets of Ties	4
Multiplicity Factor	6721206

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	7049.50	243.09	3.5641	4
Teacher	326	56140.50	172.21	-3.5641	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	355	2.988732		3.22948
A: Current_Position				
Principal	29	3.517241	0.1436127	0.2877618
Teacher	326	2.941718	0.04283344	-0.2877618

Plots of Means Section

Means Plot of Knowledge_of_CIA_4
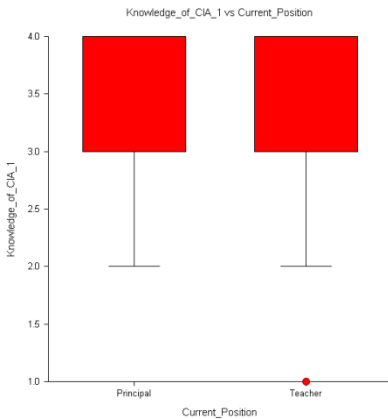
Analysis of Variance Report
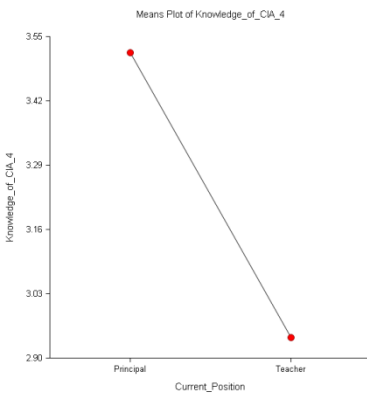
Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Monitor_Evaluate_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-4.4757	0.000008	Reject
Kurtosis Normality of Residuals	0.0915	0.927131	Accept
Omnibus Normality of Residuals	20.0404	0.000044	Reject
Modified-Levene Equal-Variance Test	1.9437	0.164149	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	353	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	5.203563	5.203563	9.13	0.002703*	0.853802
S(A)	353	201.2584	0.5701371			
Total (Adjusted)	354	206.462				
Total	355					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Monitor_Evaluate_1

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	7.574131	0.005921	Reject H0
Corrected for Ties	1	8.940248	0.002790	Reject H0

Number Sets of Ties	4
Multiplicity Factor	6836286

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6619.50	228.26	2.7521	4
Teacher	326	56570.50	173.53	-2.7521	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	355	3.180282		3.365189
A: Current_Position				
Principal	29	3.586207	0.1402138	0.2210176
Teacher	326	3.144172	0.0418197	-0.2210176

Plots of Means Section
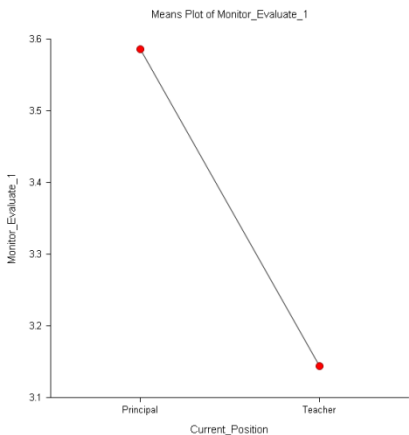
Means Plot of Monitor_Evaluate_1

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Monitor_Evaluate_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-5.2857	0.000000	Reject
Kurtosis Normality of Residuals	1.5343	0.124955	Accept
Omnibus Normality of Residuals	30.2928	0.000000	Reject
Modified-Levene Equal-Variance Test	3.6488	0.056919	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	354	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	4.033267	4.033267	8.28	0.004248*	0.818585
S(A)	354	172.4049	0.4870196			
Total (Adjusted)	355	176.4382				
Total	356					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Monitor_Evaluate_2

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	6.82391	0.008995	Reject H0
Corrected for Ties	1	8.306543	0.003950	Reject H0

Number Sets of Ties   4
Multiplicity Factor   8053044

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6564.00	226.34	2.6123	4
Teacher	327	56982.00	174.26	-2.6123	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	356	3.297753		3.460614
A: Current_Position				
Principal	29	3.655172	0.1295908	0.1945587
Teacher	327	3.266055	0.03859218	-0.1945587

Plots of Means Section
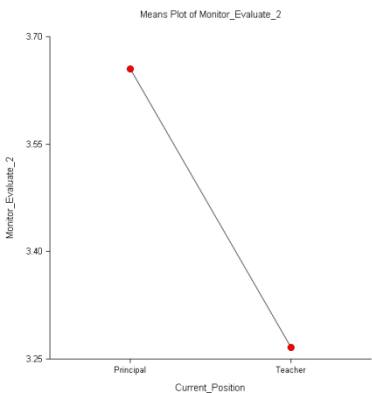
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Monitor_Evaluate_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-3.7976	0.000146	Reject
Kurtosis Normality of Residuals	0.1768	0.859697	Accept
Omnibus Normality of Residuals	14.4531	0.000727	Reject
Modified-Levene Equal-Variance Test	0.0662	0.797135	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	357	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	2.131323	2.131323	4.58	0.032977*	0.569461
S(A)	357	166.0414	0.4651019			
Total (Adjusted)	358	168.1727				
Total	359					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Monitor_Evaluate_3

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.

Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	3.652302	0.055992	Accept H0
Corrected for Ties	1	4.479853	0.034297	Reject H0

Number Sets of Ties	4
Multiplicity Factor	8546940

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6244.00	215.31	1.9111	4
Teacher	330	58376.00	176.90	-1.9111	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	359	3.222841		3.341379
A: Current_Position				
Principal	29	3.482759	0.1266412	0.1413793
Teacher	330	3.2	0.03754197	-0.1413793

Plots of Means Section
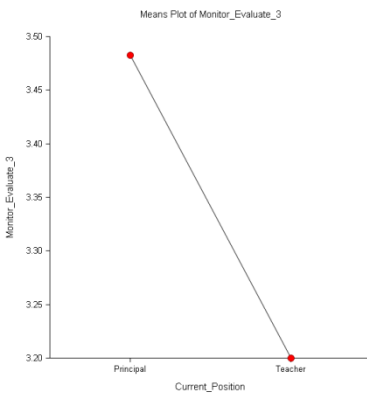
Means Plot of Monitor_Evaluate_3

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Monitor_Evaluate_4

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-2.7166	0.006596	Reject
Kurtosis Normality of Residuals	0.1263	0.899496	Accept
Omnibus Normality of Residuals	7.3959	0.024775	Reject
Modified-Levene Equal-Variance Test	0.5844	0.445116	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	349	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	1.859864	1.859864	4.12	0.043157*	0.525564
S(A)	349	157.576	0.4515073			
Total (Adjusted)	350	159.4359				
Total	351					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Monitor_Evaluate_4

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	2.930898	0.086899	Accept H0
Corrected for Ties	1	3.684176	0.054931	Accept H0

Number Sets of Ties	4
Multiplicity Factor	8841636

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6000.00	206.90	1.7120	3
Teacher	322	55776.00	173.22	-1.7120	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	351	3.136752		3.247109
A: Current_Position				
Principal	29	3.37931	0.1247767	0.1322018
Teacher	322	3.114907	0.03744591	-0.1322018

Plots of Means Section
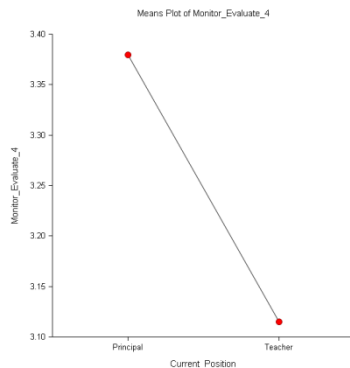
Means Plot of Monitor_Evaluate_4

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Optimizer_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-2.7641	0.005709	Reject
Kurtosis Normality of Residuals	-1.2219	0.221730	Accept
Omnibus Normality of Residuals	9.1332	0.010393	Reject
Modified-Levene Equal-Variance Test	0.8515	0.356757	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	361	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	7.560922	7.560922	14.51	0.000164*	0.967083
S(A)	361	188.0644	0.5209541			
Total (Adjusted)	362	195.6254				
Total	363					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Optimizer_1

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	12.23523	0.000469	Reject H0
Corrected for Ties	1	14.5676	0.000135	Reject H0

Number Sets of Ties	4		
Multiplicity Factor	7658196		

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	7174.00	247.38	3.4979	4
Teacher	334	58892.00	176.32	-3.4979	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	363	3.096419		3.32005
A: Current_Position				
Principal	29	3.586207	0.1340296	0.2661573
Teacher	334	3.053892	0.03949358	-0.2661573

Plots of Means Section
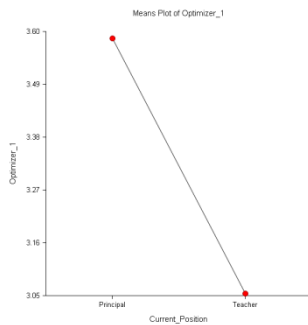
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Optimizer_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-6.9617	0.000000	Reject
Kurtosis Normality of Residuals	3.1361	0.001712	Reject
Omnibus Normality of Residuals	58.3006	0.000000	Reject
Modified-Levene Equal-Variance Test	9.6671	0.002025	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	362	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	3.972418	3.972418	9.67	0.002025*	0.873061
S(A)	362	148.7529	0.4109195			
Total (Adjusted)	363	152.7253				
Total	364					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Optimizer_2

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	8.025776	0.004612	Reject H0
Corrected for Ties	1	10.32796	0.001310	Reject H0

Number Sets of Ties	4
Multiplicity Factor	1.075045E+07

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6832.50	235.60	2.8330	4
Teacher	335	59597.50	177.90	-2.8330	4

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	364	3.472528		3.634689
A: Current_Position				
Principal	29	3.827586	0.1190363	0.1928976
Teacher	335	3.441791	0.03502321	-0.1928976

Plots of Means Section
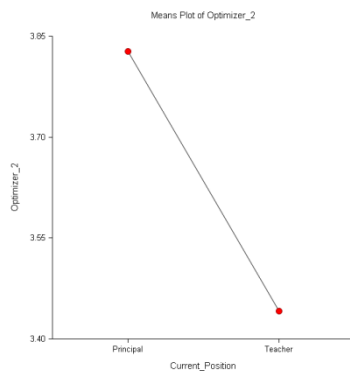
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Optimizer_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-3.4543	0.000552	Reject
Kurtosis Normality of Residuals	-0.6651	0.506011	Accept
Omnibus Normality of Residuals	12.3744	0.002056	Reject
Modified-Levene Equal-Variance Test	0.4102	0.522307	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	354	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	3.370054	3.370054	6.06	0.014320*	0.689581
S(A)	354	196.9305	0.5563009			
Total (Adjusted)	355	200.3006				
Total	356					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response Optimizer_3

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	5.284436	0.021517	Reject H0
Corrected for Ties	1	6.267828	0.012295	Reject H0

Number Sets of Ties	4
Multiplicity Factor	7078746

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6397.50	220.60	2.2988	4
Teacher	327	57148.50	174.77	-2.2988	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	356	3.087079		3.235949
A: Current_Position				
Principal	29	3.413793	0.1385019	0.1778446
Teacher	327	3.058104	0.04124592	-0.1778446

Plots of Means Section
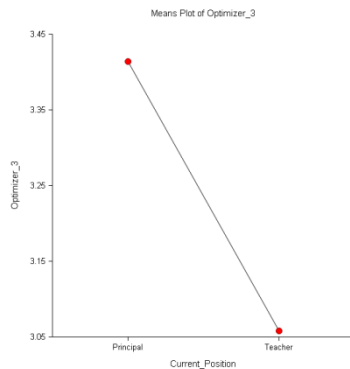
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Optimizer_4

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-6.7112	0.000000	Reject
Kurtosis Normality of Residuals	1.7839	0.074439	Accept
Omnibus Normality of Residuals	48.2222	0.000000	Reject
Modified-Levene Equal-Variance Test	6.7045	0.010005	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	362	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	2.248816	2.248816	6.70	0.010005*	0.733186
S(A)	362	121.4215	0.3354186			
Total (Adjusted)	363	123.6703				
Total	364					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Optimizer_4

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.

Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	4.999833	0.025350	Reject H0
Corrected for Ties	1	6.805681	0.009087	Reject H0

Number Sets of Ties	3
Multiplicity Factor	1.279707E+07

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6508.00	224.41	2.2360	4
Teacher	335	59922.00	178.87	-2.2360	4

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	364	3.56044		3.68245
A: Current_Position				
Principal	29	3.827586	0.1075461	0.1451364
Teacher	335	3.537313	0.03164253	-0.1451364

Plots of Means Section

Means Plot of Optimizer_4
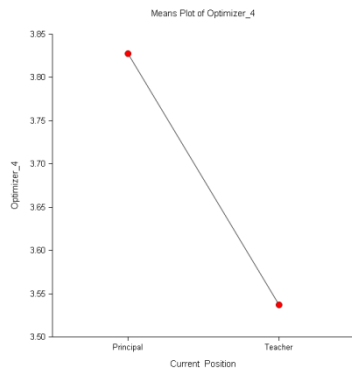
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS

Response   Order_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-0.7963	0.425854	Accept
Kurtosis Normality of Residuals	-7.4716	0.000000	Reject
Omnibus Normality of Residuals	56.4592	0.000000	Reject
Modified-Levene Equal-Variance Test	3.9376	0.047988	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	355	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	2.040007	2.040007	2.20	0.138823	0.315743
S(A)	355	329.058	0.926924			
Total (Adjusted)	356	331.0981				
Total	357					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Order_1

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	1.726722	0.188830	Accept H0
Corrected for Ties	1	1.882794	0.170017	Accept H0

Number Sets of Ties	4
Multiplicity Factor	3771588

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	5891.00	203.14	1.3140	3
Teacher	328	58012.00	176.87	-1.3140	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	357	2.607843		2.723717
A: Current_Position				
Principal	29	2.862069	0.1787817	0.1383516
Teacher	328	2.585366	0.05316002	-0.1383516

Plots of Means Section

Means Plot of Order_1
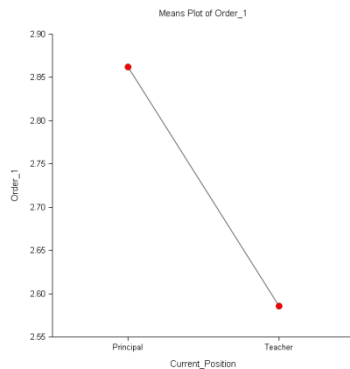
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Order_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-2.8614	0.004218	Reject
Kurtosis Normality of Residuals	-1.6912	0.090793	Accept
Omnibus Normality of Residuals	11.0479	0.003990	Reject
Modified-Levene Equal-Variance Test	1.1245	0.289674	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	351	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	8.102374	8.102374	13.60	0.000263*	0.957031
S(A)	351	209.1724	0.5959328			
Total (Adjusted)	352	217.2748				
Total	353					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Order_2

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.

Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	11.67609	0.000633	Reject H0
Corrected for Ties	1	13.54733	0.000233	Reject H0

Number Sets of Ties	4
Multiplicity Factor	6075726

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6932.00	239.03	3.4170	4
Teacher	324	55549.00	171.45	-3.4170	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	353	3.045326		3.275862
A: Current_Position				
Principal	29	3.551724	0.1433506	0.2758621
Teacher	324	3	0.04288705	-0.2758621

Plots of Means Section

Means Plot of Order_2
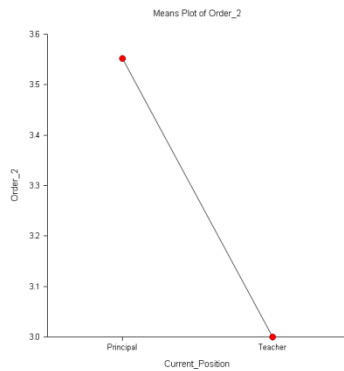
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS	
Response	Order_3	

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-4.6419	0.000003	Reject
Kurtosis Normality of Residuals	-1.5786	0.114420	Accept
Omnibus Normality of Residuals	24.0393	0.000006	Reject
Modified-Levene Equal-Variance Test	7.7895	0.005532	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	364	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	4.768602	4.768602	9.22	0.002560*	0.857507
S(A)	364	188.1713	0.5169541			
Total (Adjusted)	365	192.9399				
Total	366					

* Term significant at alpha = 0.05

Analysis of Variance Report

| Dataset | C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS |
| Response | Order_3 |

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	8.136883	0.004337	Reject H0
Corrected for Ties	1	9.70396	0.001839	Reject H0

Number Sets of Ties	4
Multiplicity Factor	7917384

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6881.00	237.28	2.8525	4
Teacher	337	60280.00	178.87	-2.8525	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	366	3.300546		3.478359
A: Current_Position				
Principal	29	3.689655	0.1335141	0.2112964
Teacher	337	3.267062	0.03916616	-0.2112964

Plots of Means Section
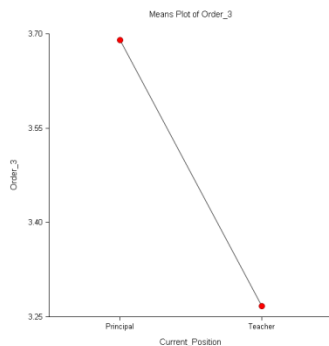
Means Plot of Order_3

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Outreach_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-9.4932	0.000000	Reject
Kurtosis Normality of Residuals	5.5431	0.000000	Reject
Omnibus Normality of Residuals	120.8467	0.000000	Reject
Modified-Levene Equal-Variance Test	6.6185	0.010505	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	349	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	1.977679	1.977679	6.62	0.010505*	0.727613
S(A)	349	104.2844	0.2988093			
Total (Adjusted)	350	106.2621				
Total	351					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Outreach_1

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.

Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	4.381365	0.036334	Reject H0
Corrected for Ties	1	7.133891	0.007564	Reject H0

Number Sets of Ties	4
Multiplicity Factor	1.668487E+07

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6199.50	213.78	2.0932	4
Teacher	322	55576.50	172.60	-2.0932	4

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	351	3.680912		3.79471
A: Current_Position				
Principal	29	3.931035	0.1015075	0.1363247
Teacher	322	3.658385	0.03046275	-0.1363247

Plots of Means Section
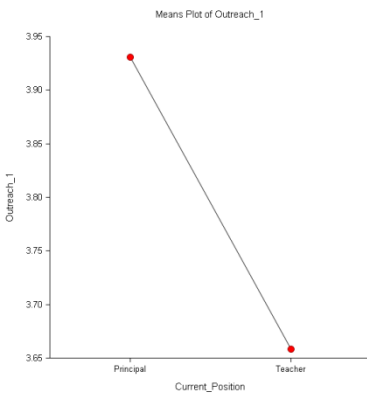
Means Plot of Outreach_1

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Outreach_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-6.4917	0.000000	Reject
Kurtosis Normality of Residuals	1.1322	0.257557	Accept
Omnibus Normality of Residuals	43.4242	0.000000	Reject
Modified-Levene Equal-Variance Test	4.2573	0.039803	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	358	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	2.027586	2.027586	4.26	0.039803*	0.538989
S(A)	358	170.503	0.4762653			
Total (Adjusted)	359	172.5305				
Total	360					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Outreach_2

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.

Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	3.473361	0.062364	Accept H0
Corrected for Ties	1	4.380569	0.036351	Reject H0

Number Sets of Ties	4
Multiplicity Factor	9662292

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6236.00	215.03	1.8637	4
Teacher	331	58744.00	177.47	-1.8637	4

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	360	3.436111		3.551776
A: Current_Position				
Principal	29	3.689655	0.128152	0.1378789
Teacher	331	3.413897	0.03793241	-0.1378789

Plots of Means Section
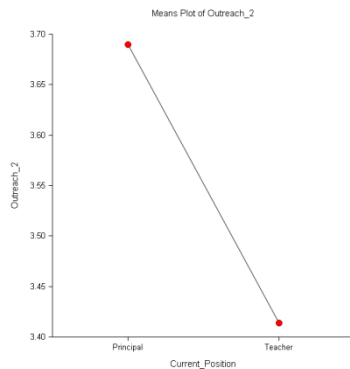
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Outreach_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-6.2339	0.000000	Reject
Kurtosis Normality of Residuals	-0.4174	0.676391	Accept
Omnibus Normality of Residuals	39.0360	0.000000	Reject
Modified-Levene Equal-Variance Test	5.1419	0.023950	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	358	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	1.738434	1.738434	5.14	0.023950*	0.618506
S(A)	358	121.0366	0.338091			
Total (Adjusted)	359	122.775				
Total	360					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Outreach_3

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	3.673859	0.055272	Accept H0
Corrected for Ties	1	4.991776	0.025468	Reject H0

Number Sets of Ties	3
Multiplicity Factor	1.231791E+07

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6264.50	216.02	1.9167	4
Teacher	331	58715.50	177.39	-1.9167	4

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	360	3.558333		3.665434
A: Current_Position				
Principal	29	3.793103	0.1079737	0.1276695
Teacher	331	3.537764	0.03195971	-0.1276695

Plots of Means Section
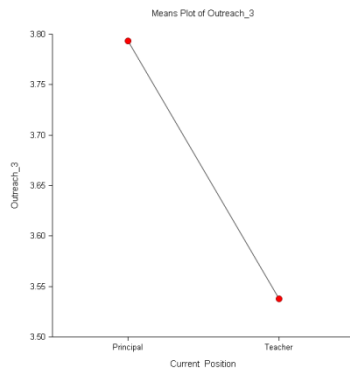
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Outreach_4

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-5.8121	0.000000	Reject
Kurtosis Normality of Residuals	1.4296	0.152832	Accept
Omnibus Normality of Residuals	35.8247	0.000000	Reject
Modified-Levene Equal-Variance Test	0.6541	0.419267	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	318	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	1.542571	1.542571	2.22	0.137549	0.317421
S(A)	318	221.3293	0.6960041			
Total (Adjusted)	319	222.8719				
Total	320					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Outreach_4

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	1.33029	0.248754	Accept H0
Corrected for Ties	1	1.568161	0.210474	Accept H0

Number Sets of Ties   4
Multiplicity Factor   4970460

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	5202.50	179.40	1.1534	3
Teacher	291	46157.50	158.62	-1.1534	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	320	3.159375		3.258384
A: Current_Position				
Principal	29	3.37931	0.1549198	0.1209266
Teacher	291	3.137457	0.04890569	-0.1209266

Plots of Means Section
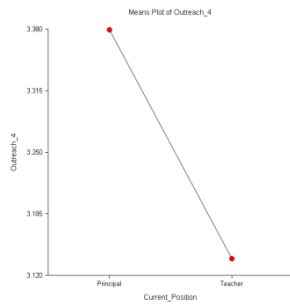
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Relationships_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-1.8857	0.059332	Accept
Kurtosis Normality of Residuals	-2.3257	0.020037	Reject
Omnibus Normality of Residuals	8.9647	0.011307	Reject
Modified-Levene Equal-Variance Test	0.4071	0.523848	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	354	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	7.880739	7.880739	13.67	0.000252*	0.957992
S(A)	354	204.0181	0.5763224			
Total (Adjusted)	355	211.8989				
Total	356					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Relationships_1

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	11.63172	0.000648	Reject H0
Corrected for Ties	1	13.54832	0.000232	Reject H0

Number Sets of Ties	4
Multiplicity Factor	6382536

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6988.00	240.97	3.4105	3
Teacher	327	56558.00	172.96	-3.4105	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	356	2.983146		3.210798
A: Current_Position				
Principal	29	3.482759	0.1409723	0.2719603
Teacher	327	2.938838	0.04198159	-0.2719603

Plots of Means Section
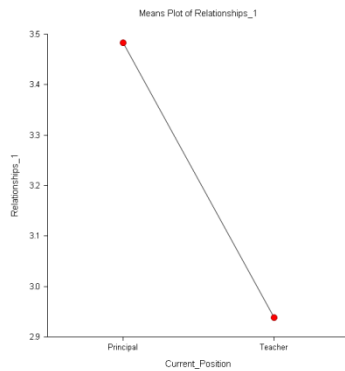
Means Plot of Relationships_1

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Relationships_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-5.3016	0.000000	Reject
Kurtosis Normality of Residuals	-0.6756	0.499301	Accept
Omnibus Normality of Residuals	28.5630	0.000001	Reject
Modified-Levene Equal-Variance Test	2.4245	0.120322	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	362	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	1.186813	1.186813	1.63	0.202519	0.246770
S(A)	362	263.5714	0.7280979			
Total (Adjusted)	363	264.7582				
Total	364					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Relationships_2

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	0.8459044	0.357714	Accept H0
Corrected for Ties	1	0.9730285	0.323926	Accept H0

Number Sets of Ties	4
Multiplicity Factor	6300912

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	28	5602.00	200.07	0.9197	3
Teacher	336	60828.00	181.04	-0.9197	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	364	3.159341		3.25
A: Current_Position				
Principal	28	3.357143	0.161256	0.1071429
Teacher	336	3.142857	0.04655059	-0.1071429

Plots of Means Section
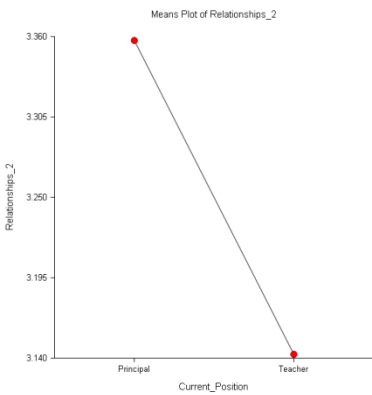
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Relationships_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-3.8098	0.000139	Reject
Kurtosis Normality of Residuals	-0.9916	0.321395	Accept
Omnibus Normality of Residuals	15.4976	0.000431	Reject
Modified-Levene Equal-Variance Test	1.7864	0.182224	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	352	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	5.541819	5.541819	7.81	0.005493*	0.795685
S(A)	352	249.9045	0.709956			
Total (Adjusted)	353	255.4463				
Total	354					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Relationships_3

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	6.468798	0.010978	Reject H0
Corrected for Ties	1	7.460717	0.006306	Reject H0

Number Sets of Ties	4
Multiplicity Factor	5897964

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6490.50	223.81	2.5434	3
Teacher	325	56344.50	173.37	-2.5434	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	354	2.960452		3.151194
A: Current_Position				
Principal	29	3.37931	0.1564648	0.2281167
Teacher	325	2.923077	0.04673842	-0.2281167

Plots of Means Section
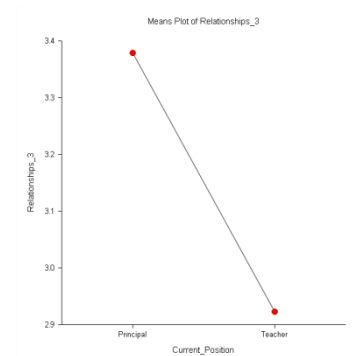
Means Plot of Relationships_3

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Relationships_4

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-3.4974	0.000470	Reject
Kurtosis Normality of Residuals	-1.0857	0.277622	Accept
Omnibus Normality of Residuals	13.4105	0.001224	Reject
Modified-Levene Equal-Variance Test	0.0104	0.918899	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	361	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	4.568823	4.568823	7.33	0.007106*	0.770380
S(A)	361	225.0345	0.6233642			
Total (Adjusted)	362	229.6033				
Total	363					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Relationships_4

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	6.253663	0.012394	Reject H0
Corrected for Ties	1	7.27109	0.007007	Reject H0

Number Sets of Ties	4
Multiplicity Factor	6692994

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6633.50	228.74	2.5007	3
Teacher	334	59432.50	177.94	-2.5007	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	363	3.033058		3.206897
A: Current_Position				
Principal	29	3.413793	0.1466128	0.2068966
Teacher	334	3	0.04320139	-0.2068966

Plots of Means Section
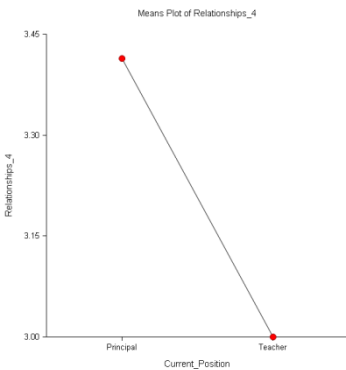
Means Plot of Relationships_4

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Resources_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-3.6981	0.000217	Reject
Kurtosis Normality of Residuals	-0.8263	0.408632	Accept
Omnibus Normality of Residuals	14.3589	0.000762	Reject
Modified-Levene Equal-Variance Test	9.1123	0.002727	Reject

Box Plot Section
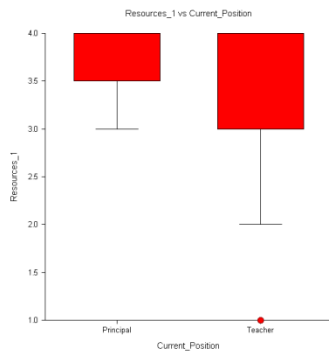
Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	347	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	11.20832	11.20832	20.21	0.000009*	0.994177
S(A)	347	192.4822	0.5547038			
Total (Adjusted)	348	203.6906				
Total	349					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Resources_1

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	17.99575	0.000022	Reject H0
Corrected for Ties	1	21.04103	0.000004	Reject H0

Number Sets of Ties	4
Multiplicity Factor	6152232

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	7282.00	251.10	4.2421	4
Teacher	320	53793.00	168.10	-4.2421	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	349	3.163324		3.433998
A: Current_Position				
Principal	29	3.758621	0.138303	0.3246228
Teacher	320	3.109375	0.04163471	-0.3246228

Plots of Means Section
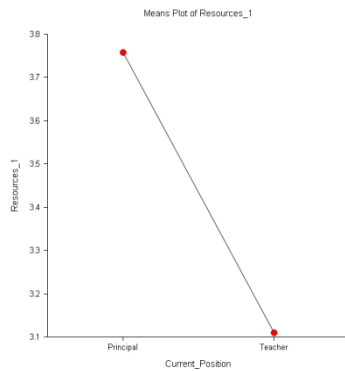
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Resources_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-5.1234	0.000000	Reject
Kurtosis Normality of Residuals	0.0019	0.998453	Accept
Omnibus Normality of Residuals	26.2493	0.000002	Reject
Modified-Levene Equal-Variance Test	0.6874	0.407606	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	364	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	2.289973	2.289973	3.77	0.052944	0.490723
S(A)	364	221.0871	0.6073821			
Total (Adjusted)	365	223.377				
Total	366					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Resources_2

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	2.758411	0.096744	Accept H0
Corrected for Ties	1	3.236144	0.072030	Accept H0

Number Sets of Ties	4
Multiplicity Factor	7237650

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6229.50	214.81	1.6608	4
Teacher	337	60931.50	180.81	-1.6608	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	366	3.213115		3.336335
A: Current_Position				
Principal	29	3.482759	0.1447212	0.1464238
Teacher	337	3.189911	0.04245375	-0.1464238

Plots of Means Section
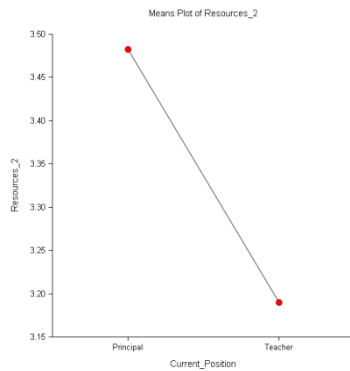
Means Plot of Resources_2

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Resources_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-2.3944	0.016646	Reject
Kurtosis Normality of Residuals	-1.4573	0.145044	Accept
Omnibus Normality of Residuals	7.8569	0.019674	Reject
Modified-Levene Equal-Variance Test	0.2605	0.610057	Accept

Box Plot Section
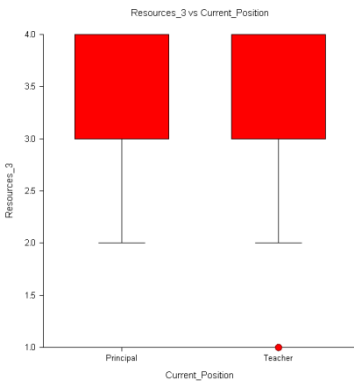
Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	360	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	7.857376	7.857376	15.03	0.000125*	0.971746
S(A)	360	188.1454	0.5226261			
Total (Adjusted)	361	196.0028				
Total	362					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Resources_3

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	12.79075	0.000348	Reject H0
Corrected for Ties	1	15.21084	0.000096	Reject H0

Number Sets of Ties	4
Multiplicity Factor	7547460

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	7196.50	248.16	3.5764	4
Teacher	333	58506.50	175.70	-3.5764	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	362	3.052486		3.280367
A: Current_Position				
Principal	29	3.551724	0.1342445	0.2713576
Teacher	333	3.009009	0.03961626	-0.2713576

Plots of Means Section
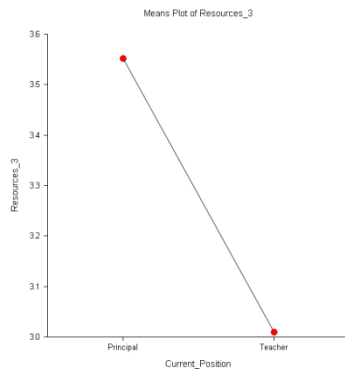
Means Plot of Resources_3

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Situational_Awareness_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-4.0809	0.000045	Reject
Kurtosis Normality of Residuals	-1.1220	0.261880	Accept
Omnibus Normality of Residuals	17.9129	0.000129	Reject
Modified-Levene Equal-Variance Test	5.5136	0.019428	Reject

Box Plot Section
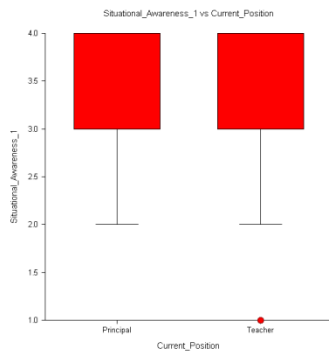
Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	348	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	8.76848	8.76848	13.84	0.000232*	0.959962
S(A)	348	220.4458	0.6334649			
Total (Adjusted)	349	229.2143				
Total	350					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Situational_Awareness_1

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	12.6102	0.000384	Reject H0
Corrected for Ties	1	14.51553	0.000139	Reject H0

Number Sets of Ties	4
Multiplicity Factor	5627790

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6942.50	239.40	3.5511	4
Teacher	321	54482.50	169.73	-3.5511	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	350	3.128572		3.368085
A: Current_Position				
Principal	29	3.655172	0.1477959	0.2870878
Teacher	321	3.080997	0.04442309	-0.2870878

Plots of Means Section
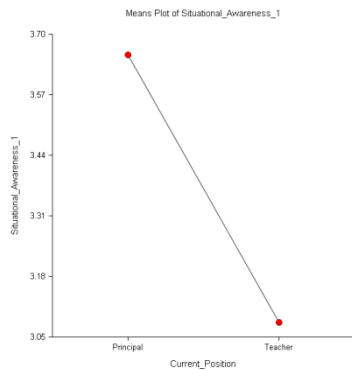
Means Plot of Situational_Awareness_1
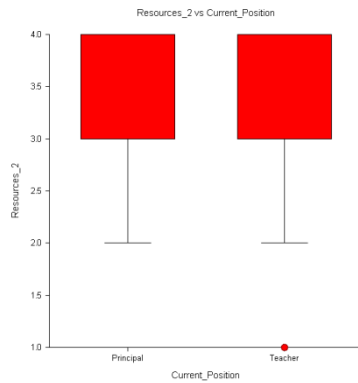
Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Situational_Awareness_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-2.3564	0.018455	Reject
Kurtosis Normality of Residuals	-1.2018	0.229457	Accept
Omnibus Normality of Residuals	6.9967	0.030248	Reject
Modified-Levene Equal-Variance Test	0.4672	0.494760	Accept

Box Plot Section
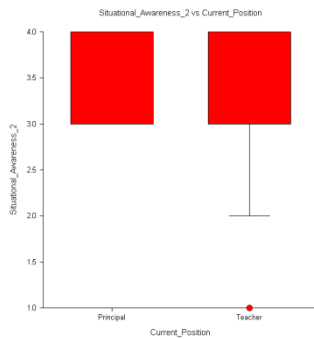
Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	342	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	5.79943	5.79943	10.60	0.001242*	0.900975
S(A)	342	187.0581	0.5469536			
Total (Adjusted)	343	192.8576				
Total	344					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Situational_Awareness_2

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	8.77399	0.003056	Reject H0
Corrected for Ties	1	10.43107	0.001239	Reject H0

Number Sets of Ties	4
Multiplicity Factor	6466740

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6520.50	224.84	2.9621	3
Teacher	315	52819.50	167.68	-2.9621	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	344	3.020349		3.214614
A: Current_Position				
Principal	29	3.448276	0.1373334	0.2336617
Teacher	315	2.980952	0.04166966	-0.2336617

Plots of Means Section
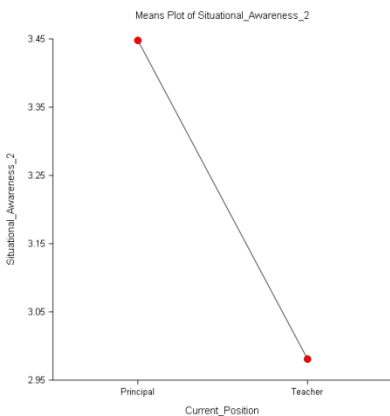
Means Plot of Situational_Awareness_2

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Situational_Awareness_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-2.6094	0.009069	Reject
Kurtosis Normality of Residuals	-0.4677	0.639986	Accept
Omnibus Normality of Residuals	7.0279	0.029779	Reject
Modified-Levene Equal-Variance Test	0.6873	0.407720	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	318	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	2.761865	2.761865	4.54	0.033894*	0.565214
S(A)	318	193.485	0.6084434			
Total (Adjusted)	319	196.2469				
Total	320					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Situational_Awareness_3

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	4.250051	0.039249	Reject H0
Corrected for Ties	1	5.03772	0.024801	Reject H0

Number Sets of Ties	4
Multiplicity Factor	5123370

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	5634.00	194.28	2.0616	3
Teacher	291	45726.00	157.13	-2.0616	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	320	2.878125		3.010606
A: Current_Position				
Principal	29	3.172414	0.1448475	0.1618083
Teacher	291	2.848797	0.04572604	-0.1618083

Plots of Means Section
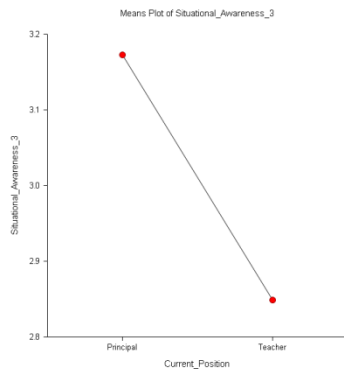
Means Plot of Situational_Awareness_3

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Situational_Awareness_4

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-4.1396	0.000035	Reject
Kurtosis Normality of Residuals	1.2644	0.206085	Accept
Omnibus Normality of Residuals	18.7350	0.000085	Reject
Modified-Levene Equal-Variance Test	0.9202	0.338075	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	351	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	5.561714	5.561714	11.82	0.000656*	0.929034
S(A)	351	165.1578	0.4705351			
Total (Adjusted)	352	170.7195				
Total	353					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Situational_Awareness_4

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	9.887656	0.001664	Reject H0
Corrected for Ties	1	12.19071	0.000480	Reject H0

Number Sets of Ties	4
Multiplicity Factor	8309886

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6788.50	234.09	3.1445	4
Teacher	324	55692.50	171.89	-3.1445	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	353	3.201133		3.392135
A: Current_Position				
Principal	29	3.62069	0.1273788	0.2285547
Teacher	324	3.16358	0.03810865	-0.2285547

Plots of Means Section
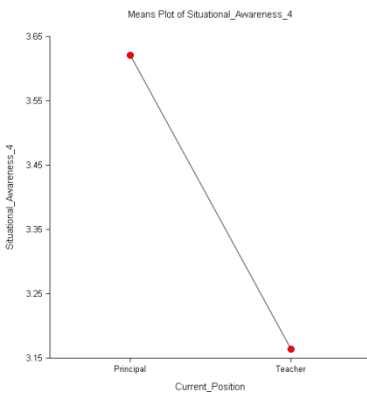
Means Plot of Situational_Awareness_4

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Situational_Awareness_5

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-4.5043	0.000007	Reject
Kurtosis Normality of Residuals	0.7756	0.438007	Accept
Omnibus Normality of Residuals	20.8898	0.000029	Reject
Modified-Levene Equal-Variance Test	14.9514	0.000131	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	354	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

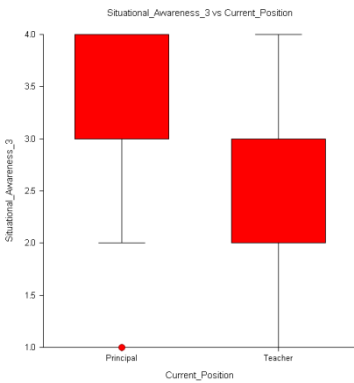| Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	11.18531	11.18531	23.23	0.000002*	0.997790
S(A)	354	170.4636	0.4815355			
Total (Adjusted)	355	181.6489				
Total	356					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Situational_Awareness_5

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	20.84447	0.000005	Reject H0
Corrected for Ties	1	25.06146	0.000001	Reject H0

Number Sets of Ties	4
Multiplicity Factor	7591770

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	7601.50	262.12	4.5656	4
Teacher	327	55944.50	171.08	-4.5656	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	356	3.266854		3.538068
A: Current_Position				
Principal	29	3.862069	0.1288591	0.3240008
Teacher	327	3.214067	0.03837428	-0.3240008

Plots of Means Section
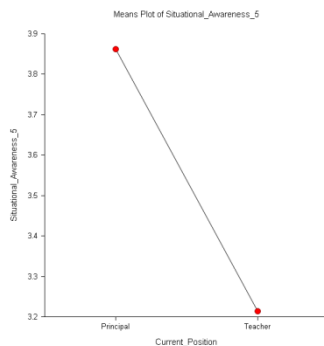
Means Plot of Situational_Awareness_5

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Visibility_1

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-1.2014	0.229614	Accept
Kurtosis Normality of Residuals	-6.9151	0.000000	Reject
Omnibus Normality of Residuals	49.2616	0.000000	Reject
Modified-Levene Equal-Variance Test	3.6272	0.057664	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	349	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	11.44967	11.44967	13.40	0.000290*	0.954576
S(A)	349	298.1401	0.8542696			
Total (Adjusted)	350	309.5898				
Total	351					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Visibility_1

Kruskal-Wallis One-Way ANOVA on Ranks

Hypotheses

H0: All medians are equal.

Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	12.07289	0.000512	Reject H0
Corrected for Ties	1	13.22939	0.000276	Reject H0

Number Sets of Ties	4
Multiplicity Factor	3780276

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6922.50	238.71	3.4746	3
Teacher	322	54853.50	170.35	-3.4746	3

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	351	2.811966		3.085778
A: Current_Position				
Principal	29	3.413793	0.1716321	0.3280146
Teacher	322	2.757764	0.05150739	-0.3280146

Plots of Means Section
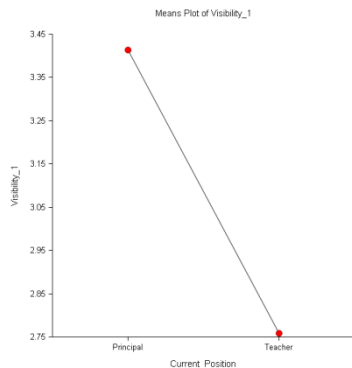
Means Plot of Visibility_1

Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Visibility_2

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-8.5302	0.000000	Reject
Kurtosis Normality of Residuals	3.0659	0.002170	Reject
Omnibus Normality of Residuals	82.1643	0.000000	Reject
Modified-Levene Equal-Variance Test	0.8053	0.370118	Accept

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	362	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	0.4092485	0.4092485	0.81	0.370118	0.145596
S(A)	362	183.9726	0.5082117			
Total (Adjusted)	363	184.3819				
Total	364					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Visibility_2

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	0.2568555	0.612289	Accept H0
Corrected for Ties	1	0.3670695	0.544606	Accept H0

Number Sets of Ties	4
Multiplicity Factor	1.44807E+07

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	5568.00	192.00	0.5068	4
Teacher	335	60862.00	181.68	-0.5068	4

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	364	3.541209		3.593258
A: Current_Position				
Principal	29	3.655172	0.1323803	0.06191457
Teacher	335	3.531343	0.03894932	-0.06191457

Plots of Means Section
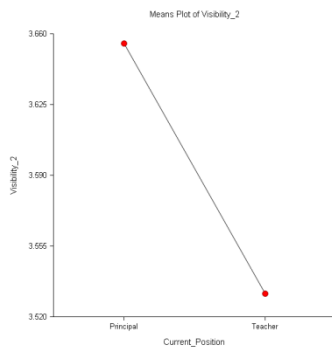
Analysis of Variance Report

Dataset	C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response	Visibility_3

Tests of Assumptions Section

Assumption	Test Value	Prob Level	Decision (0.05)
Skewness Normality of Residuals	-5.9172	0.000000	Reject
Kurtosis Normality of Residuals	-1.3997	0.161615	Accept
Omnibus Normality of Residuals	36.9718	0.000000	Reject
Modified-Levene Equal-Variance Test	6.6568	0.010268	Reject

Box Plot Section

Expected Mean Squares Section

Source Term	DF	Term Fixed?	Denominator Term	Expected Mean Square
A: Current_Position	1	Yes	S(A)	S+sA
S(A)	365	No		S(A)

Note: Expected Mean Squares are for the balanced cell-frequency case.

Analysis of Variance Table

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: Current_Position	1	4.588945	4.588945	6.66	0.010268*	0.730169
S(A)	365	251.6181	0.6893648			
Total (Adjusted)	366	256.2071				
Total	367					

* Term significant at alpha = 0.05

Analysis of Variance Report

Dataset   C:\...\NCSS 8\Data\21 Leadership Roles Data v2.NCSS
Response   Visibility_3

Kruskal-Wallis One-Way ANOVA on Ranks
Hypotheses
H0: All medians are equal.
Ha: At least two medians are different.

Test Results

Method	DF	Chi-Square (H)	Prob Level	Decision(0.05)
Not Corrected for Ties	1	5.25223	0.021919	Reject H0
Corrected for Ties	1	6.34613	0.011764	Reject H0

Number Sets of Ties	4
Multiplicity Factor	8520474

Group Detail

Group	Count	Sum of Ranks	Mean Rank	Z-Value	Median
Principal	29	6592.50	227.33	2.2918	4
Teacher	338	60935.50	180.28	-2.2918	4

Means and Effects Section

Term	Count	Mean	Standard Error	Effect
All	367	3.307902		3.482402
A: Current_Position				
Principal	29	3.689655	0.1541791	0.2072536
Teacher	338	3.275148	0.04516127	-0.2072536

Plots of Means Section
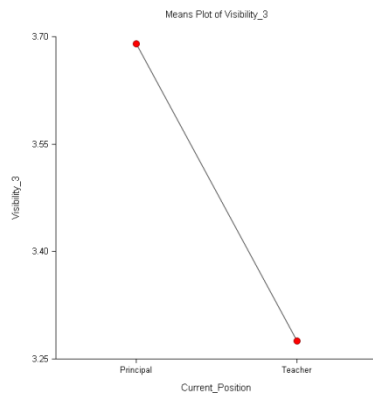
APPENDIX AA
ANOVA Probability Level

Factor	ANOVA Prob Level	Significant Alpha ≦0.05?
Affirmation 1	0.015904	Yes
Affirmation 2	0.609160	
Affirmation 3	0.155369	
Change Agent 1	0.001159	Yes
Change Agent 2	0.025839	Yes
Change Agent 3	0.179032	
Change Agent 4	0.081018	
Communication 1	0.007940	Yes
Communication 2	0.007982	Yes
Communication 3	0.013401	Yes
Contingent Rewards 1	0.003478	Yes
Contingent Rewards 2	0.061311	
Contingent Rewards 3	0.000055	Yes
Contingent Rewards 4	0.000111	Yes
Culture 1	0.324396	
Culture 2	0.013634	Yes

Factor	ANOVA Prob Level	Significant Alpha $\leqq 0.05$?
Culture 3	0.001073	Yes
Culture 4	0.013866	Yes
Culture 5	0.002421	Yes
Culture 6	0.002662	Yes
Discipline 1	0.000042	Yes
Discipline 2	0.000332	
Discipline 3	0.074143	Yes
Discipline 4	0.122461	
Flexibility 1	0.003052	Yes
Flexibility 2	0.000109	Yes
Flexibility 3	0.000137	Yes
Flexibility 4	0.000449	Yes
Focus 1	0.819511	
Focus 2	0.336929	
Focus 3	0.003047	Yes
Focus 4	0.357282	
Focus 5	0.005159	Yes

Factor	ANOVA Prob Level	Significant Alpha $\leqq 0.05$?
Focus 6	0.052634	
Ideals/Beliefs 1	0.037435	Yes
Ideals/Beliefs 2	0.001848	Yes
Ideals/Beliefs 3	0.000812	Yes
Ideas/Beliefs 4	0.001678	Yes
Input 1	0.000513	Yes
Input 2	0.000130	Yes
Input 3	0.001100	Yes
Intellectual Stimulation 1	0.147408	
Intellectual Stimulation 2	0.054758	
Intellectual Stimulation 3	0.039320	Yes
Intellectual Stimulation 4	0.423474	
Involvement in CIA 1	0.008452	Yes
Involvement in CIA 2	0.000984	Yes
Involvement in CIA 3	0.002318	Yes
Knowledge of CIA 1	0.511374	
Knowledge of CIA 2	0.040678	Yes

Factor	ANOVA Prob Level	Significant Alpha $\leqq 0.05$?
Knowledge of CIA 3	0.056909	
Knowledge of CIA 4	0.000146	Yes
Monitor/Evaluate 1	0.002703	Yes
Monitor/Evaluate 2	0.004248	Yes
Monitor/Evaluate 3	0.032977	Yes
Monitor/Evaluate 4	0.043157	Yes
Optimizer 1	0.000164	Yes
Optimizer 2	0.002025	Yes
Optimizer 3	0.014320	Yes
Optimizer 4	0.010005	Yes
Order 1	0.138823	
Order 2	0.000263	Yes
Order 3	0.002560	Yes
Outreach 1	0.010505	Yes
Outreach 2	0.039803	Yes
Outreach 3	0.023950	Yes
Outreach 4	0.137549	

Factor	ANOVA Prob Level	Significant Alpha $\leqq 0.05$?
Relationships 1	0.000252	Yes
Relationships 2	0.202519	
Relationships 3	0.005493	Yes
Relationships 4	0.007106	Yes
Resources 1	0.000009	Yes
Resources 2	0.052944	
Resources 3	0.000125	Yes
Situational Awareness 1	0.000232	Yes
Situational Awareness 2	0.001242	Yes
Situational Awareness 3	0.033894	Yes
Situational Awareness 4	0.000656	Yes
Situational Awareness 5	0.000002	Yes
Visibility 1	0.000290	Yes
Visibility 2	0.370118	
Visibility 3	0.010268	Yes
Total Number with Significant Alpha $\leqq 0.05$		60 or 73%

APPENDIX BB
Code Co-Occurrence, 21 Leadership Responsibilities

	Affirmation	Change Agent	Communication	Contingent Rewards	Culture	Discipline	Flexibility	Focus	Ideals/Beliefs	Input	Intellectual Stimulation	Involvement with CIA	Knowledge of CIA	Monitor/ Evaluating	Optimizer	Order	Outreach	Relationship	Resources	Situational Awareness	Visibility	Totals
Affirmation		2	8	8	8		6	7	3	2	6	1		2	2		3	3	3	1		65
Change Agent			9	2	10		5	10	2	5	14	5	1	5	3	2	1		8	3		87
Communication				1	19	1	4	24	7	6	9	2		10	3	7	23	11	8	10	2	164
Contingent Rewards					4		2	3	1	1	2	2		3	1		1	1				32
Culture						1	3	26	13	9	11	5	3	5	5	9	2	5	8	3		149
Discipline								3	1		1	1			2	1						11
Flexibility								2	2	8	5	4	1	3	2	2	1	4	1	2		57
Focus									9	10	21	13	1	24	1	15	5		12		1	187
Ideals/ Beliefs										4	4	1		3	3	5	2	1	1	1	2	65
Input											13	1		6	3	5	2	2	3	1		81
Intellectual Stimulation												12	4	12	5	4		1	19	2		144
Involvement with CIA													9	10		2	1	1	12			81
Knowledge of CIA														2	1	2	1		5			31
Monitor/ Evaluating															1	5	6	2	8		3	111
Optimizer																3			8	2		43
Order																	2	1	9	1		76
Outreach																		1		2	1	55
Relationship																			11			44
Resources																				4		109
Situational Awareness																					2	45
Visibility																						11
Totals																						1648

APPENDIX CC
Factor Mean, 21 Leadership Responsibilities

Factor	All Mean	Principal Mean	Teacher Mean
Affirmation 1	3.106849	3.448276	3.077381
Affirmation 2	3.456284	3.517241	3.451039
Affirmation 3	3.152778	3.344828	3.135952
Change Agent 1	3.014006	3.448276	2.97561
Change Agent 2	3.307902	3.586207	3.284024
Change Agent 3	2.935484	3.142857	2.916933
Change Agent 4	3.137255	3.37931	3.115854
Communication 1	3.438016	3.758621	3.41018
Communication 2	3.238356	3.586207	3.208333
Communication 3	3.147541	3.517241	3.115727
Contingent rewards 1	3.066482	3.5	3.03003
Contingent rewards 2	3.202899	3.482759	3.177215
Contingent rewards 3	3.127536	3.75	3.072555
Contingent rewards 4	2.966574	3.535714	2.918429
Culture 1	3.476839	3.586207	3.467456

Factor	All Mean	Principal Mean	Teacher Mean
Culture 2	3.172702	3.517241	3.142424
Culture 3	3.002747	3.482759	2.961194
Culture 4	3.32133	3.62069	3.295181
Culture 5	3.302452	3.689655	3.269231
Culture 6	3.240896	3.642857	3.206687
Discipline 1	3.367123	3.862069	3.324405
Discipline 2	3.233516	3.75	3.190476
Discipline 3	2.954129	3.222222	2.93
Discipline 4	3.057637	3.310345	3.034591
Flexibility 1	3.182584	3.62069	3.143731
Flexibility 2	3.064067	3.62069	3.015152
Flexibility 3	3.222222	3.689655	3.178914
Flexibility 4	3.180791	3.655172	3.138462
Focus 1	3.315934	3.344828	3.313433
Focus 2	3.402204	3.517241	3.392215
Focus 3	3.506887	3.827586	3.479042
Focus 4	3.417827	3.517241	3.409091

Factor	All Mean	Principal Mean	Teacher Mean
Focus 5	3.31694	3.655172	3.287834
Focus 6	3.164384	3.413793	3.142857
Ideals/Beliefs 1	3.552778	3.758621	3.534743
Ideals/Beliefs 2	3.355372	3.758621	3.320359
Ideals/Beliefs 3	3.459834	3.862069	3.424699
Ideas/Beliefs 4	3.354748	3.758621	3.319149
Input 1	2.969945	3.448276	2.928783
Input 2	2.946779	3.517241	2.896342
Input 3	3.192201	3.655172	3.151515
Intellectual Stimulation 1	3.346591	3.517241	3.331269
Intellectual Stimulation 2	2.936288	3.206897	2.912651
Intellectual Stimulation 3	2.945055	3.241379	2.919403
Intellectual Stimulation 4	2.745902	2.862069	2.735905
Involvement in CIA 1	3.278873	3.62069	3.248466
Involvement in CIA 2	2.826816	3.310345	2.784194
Involvement in CIA 3	2.719547	3.206897	2.675926

Factor	All Mean	Principal Mean	Teacher Mean
Knowledge of CIA 1	3.580555	3.655172	3.574018
Knowledge of CIA 2	3.263305	3.517241	3.240854
Knowledge of CIA 3	3.408333	3.62069	3.389728
Knowledge of CIA 4	2.988732	3.517241	2.941718
Monitor/Evaluate 1	3.180282	3.586207	3.144172
Monitor/Evaluate 2	3.297753	3.655172	3.266055
Monitor/Evaluate 3	3.222841	3.482759	3.2
Monitor/Evaluate 4	3.136752	3.37931	3.114907
Optimizer 1	3.096419	3.586207	3.053892
Optimizer 2	3.472528	3.827586	3.441791
Optimizer 3	3.087079	3.413793	3.058104
Optimizer 4	3.56044	3.827586	3.537313
Order 1	2.607843	2.862069	2.585366
Order 2	3.045326	3.551724	3
Order 3	3.300546	3.689655	3.267062
Outreach 1	3.680912	3.931035	3.658385

Factor	All Mean	Principal Mean	Teacher Mean
Outreach 2	3.436111	3.689655	3.413897
Outreach 3	3.558333	3.793103	3.537764
Outreach 4	3.159375	3.37931	3.137457
Relationships 1	2.983146	3.482759	2.938838
Relationships 2	3.159341	3.357143	3.142857
Relationships 3	2.960452	3.37931	2.923077
Relationships 4	3.033058	3.413793	3
Resources 1	3.163324	3.758621	3.109375
Resources 2	3.213115	3.482759	3.189911
Resources 3	3.052486	3.551724	3.009009
Situational Awareness 1	3.128572	3.655172	3.080997
Situational Awareness 2	3.020349	3.448276	2.980952
Situational Awareness 3	2.878125	3.172414	2.848797
Situational Awareness 4	3.201133	3.62069	3.16358
Situational Awareness 5	3.266854	3.862069	3.214067
Visibility 1	2.811966	3.413793	2.757764

Factor	All Mean	Principal Mean	Teacher Mean
Visibility 2	3.541209	3.655172	3.531343
Visibility 3	3.307902	3.689655	3.275148
Average of 82 Factor Means	3.190687793	3.538739683	3.160039512
Range of Factors	2.7 to 3.7	2.86 to 3.93	2.6 to 3.7

APPENDIX DD
Cross-Match Expressed Processes

Baldrige Criteria	Expressed Processes	21 Leadership Responsibilities
Leadership	Collaboration	Affirmation
	Consensus	Change Agent
	Shared decision making	Communication
	Data-driven decision making	Contingent Rewards
	Development of vision, mission and goal setting	Culture
		Discipline
	Organizational focus	Ideals/Beliefs
	Academic teams	Input
	School improvement teams	Intellectual Stimulation
	Fishbone analysis	Flexibility
	Root cause analysis	Focus
	Affinity diagrams	Knowledge of Curriculum,
	Values	Instruction, and
	Communication	Assessment
	Implementation and sustainment of best practices	Order
		Optimizer
	Evaluate programs and processes	Outreach
	Resources	Relationships
	Sustainability	Resources
	Identify opportunities	Situational Awareness
		Visibility

	Recognize and reward contributions from staff	
	Innovation	
	Develop leadership capacity of others	
	Balancing stakeholders	
	Innovation	
	Smart risk taking	
	Continuous improvement	
Strategic Planning	Collaboration	Change Agent
	Shared decision making	Communication
	Development of vision, mission and goal setting	Culture
	Student-centered	Flexibility
	Facilitating a theme for the year to focus on elements of strategic plan	Focus
	Planning: long and short term	Intellectual Stimulation
	Alignment of systems	Input
	Performance of systems	Knowledge of Curriculum, Instruction, and Assessment
	Learning: organizational and personal	Monitoring/Evaluating
	Fishbone analysis	Optimizer
	Root cause analysis	Order
	Affinity diagrams	
	Review	

	Data digs	
	Reflection	
	Action plans	
	Optimize resources	
	Partnerships	
	Performance measures	
	Benchmarking	
	Monitor and report progress	
	Alignment with district goals	
	PLC	
Customer Focus	Communication strategies	Affirmation
	Input strategies	Communication
	Feedback	Contingent Rewards
	Engaged in strategic planning	Culture
	Conferences	Discipline
	Focus groups	Ideals/Beliefs
	Student engagement	Input
	Community engagement	Flexibility
	Engagement	Focus
	PDSA in addressing needs	Knowledge of Curriculum, Instruction, and Assessment
	Programs to assist students	
	Programs to support student talents	Optimizer
	Student data	Outreach

	Balancing the needs of different customers (students, parents, staff, community)	Relationships Resources Situational Awareness Visibility
Analysis, Measurement, and Knowledge management	School improvement teams Data Data selection and application Trends and relationships in data Alignment of goals, data and systems PDSA PLC Goal setting Benchmarking on local, state, national levels Monitor and report data Performance review and use of data Strategic plan Budget allocation and maintenance Hiring staff Improvement of teacher practice Improvement of student performance Alignment with district goals Rubrics	Change Agent Communication Culture Flexibility Focus Input Knowledge of Curriculum, Instruction, and Assessment Monitoring/Evaluating Optimizer

	Use of social media	
	Impact of strategies	
	Influence reflection and planning	
	Monitor levels of implementation	
	Continuous improvement	
	Technology	
	Innovations	
	Clean data	
	Communication	
Workforce Focus	PLC	Affirmation
	PDSA (Plan-Do-Study-Act)	Change Agent
	Data	Communication
	Communication	Contingent Rewards
	Collaboration	Culture
	Engagement	Discipline
	Building capacity	Ideals/Beliefs
	Adaptation to change	Input
	Academic rounds/ walkthroughs learning walks	Intellectual Stimulation
	Master teachers	Involvement in Curriculum, Instruction,
	Coaching	and Assessment
	Teacher induction	Flexibility
	Pedagogical best practices	Focus
	Feedback	

Active, adult learning

Teacher evaluation process

Growth models

Walkthroughs

Recognition of master teachers

Celebrating meeting goals

Celebrate exceptional contributions to organization

Teachers who attend workshops share information with peers during PLC or faculty meeting times

Teacher leaders on projects

Differentiation for staff PD

Recognition of exemplary work in alignment with organizational values

Celebrate gains and contributions

Positive work climate

Principal keeps staff "in the loop"

Hiring

Assistance from central office

Allocation of resources

Curriculum guides

Lesson plan banks

Legal issues

Updating regarding legal issues

Knowledge of Curriculum, Instruction, and Assessment

Monitoring/Evaluating

Order

Optimizer

Outreach

Relationships

Resources

Situational Awareness

Visibility

Process Management	Design of work systems	Change Agent
	PLCs	Culture
	PDSA	Discipline
	Building level plans	Input
	Data	Intellectual Stimulation
	Teacher support	Involvement in Curriculum, Instruction,
	Teacher retention	and Assessment
	Structural elements (bell schedule)	Focus
	Safe environment	Flexibility
	Policies (attendance, discipline, grading)	Knowledge of Curriculum, Instruction, and
	Protocols	Assessment
	Protecting teaching time	Monitoring/Evaluating
	Protecting PLC time	Order
	Programming	Optimizer
	Systemic interventions and supports	Outreach
	Alignment of personnel assignments	Resources
	Addressing performance gaps	Situational Awareness
	Monitor goals	
	Sustainability	
	Allocation of resources	
	Report progress towards goals	
Results	Data	Communication
	School improvement	Culture

School improvement team	Ideals/Beliefs
Leadership team	Involvement in Curriculum, Instruction, and Assessment
Progress in meeting goals in:	
Academic growth	
Customer expectations	Flexibility
Workforce conditions	Focus
Leadership	Knowledge of Curriculum, Instruction, and Assessment
Governance	
Non-academic areas	
Staff retention	
Climate	Communication
Budget	Input
Engagement	Monitoring/Evaluating
Satisfaction of service	
Curriculum implementation	Order
Technology use	Optimizer
Achievement gap	
Response time	
Timing to review data:	
Weekly, monthly, quarterly, annually	
Monitor and adjust goals	
Collaboration	
Benchmark comparisons	
Monitor special programs or initiatives	
How information is communicated	

Feedback

Reflection

Communication with constituents

Multiple types of communication
and feedback