A DESCRIPTION OF BALDRIGE IN EDUCATION LEADERSHIP CONCEPTS WITHIN THE ALASKA QUALITY SCHOOLS MODEL OF EDUCATION

A

DISSERTATION

Presented to the Faculty

of the University of Alaska Fairbanks

in Partial Fulfillment of the Requirements

for the Degree of

DOCTOR OF PHILOSOPHY

By

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Fairbanks, Alaska

August 2008

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Abstract

This dissertation reviews the implementation of the Quality Schools Model (QSM) of educational reform in three rural Alaska school districts. This research examines the fit between the theoretical model of the Malcolm Baldrige National Quality Award (MBNQA) program and actual practice in the context of rural Alaskan school districts implementing the QSM. Specifically, I sought to determine the perceived levels of importance and practice of leadership practices to form conclusions about the role of leadership. I examined the systematic creation of conditions within the studied districts to foster the transformation from traditional hierarchical leadership to distributed leadership with ownership throughout the system.

The results of this mixed-methods study come in part from an analysis of quantitative survey data from a sampling of the three districts' certified and classified staff. Using a concurrent nested design, I triangulated these data with qualitative data gathered through semi-structured interviews of a criterion-based sample of staff and community members within the districts. I conducted this research in collaboration with three cohort members. The following are summary statements of the principal quantitative findings for the common research question:

- The QSM survey data confirmed the theory that as an independent construct, Leadership drives the remaining Baldrige constructs within the QSM. Derived from the QSM survey, it is therefore a valid Leadership Model for rural Alaskan educators.

- Through principal component analysis, confirmatory factor analysis, and structural equation modeling, we found that within the QSM school districts studied, leadership had significant direct causal effect upon two Baldrige constructs (Staff Focus and Knowledge Management) and an indirect causal effect upon the remaining four constructs (Process Management; Strategic Planning; Student, Stakeholder, and Market Focus; and Results). The fit indices from structural equation modeling show the alternative QSM Leadership Model to be a statistically acceptable alternative to the Baldrige (MBNQA) model.

This research illustrated that staff of the three districts in the study perceived the MBNQA leadership concepts within the QSM to be important. While these districts may not have fully implemented these concepts, this study indicates each district is well on its way toward putting them into practice.

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Acknowledgements

This dissertation is dedicated to my wife, Erika, and my children, Rawlee, Caid, and Luree, with whom I look forward to becoming reacquainted now that this work is complete.

My heartfelt appreciation goes to the members of the Chugach School District for their tireless pursuit of excellence in providing the best possible learning experiences for Alaskan youth. I admire how this group of individuals constantly reflects and forges ahead with a unified purpose, pushing our organization toward continuous learning and growth. From them I've learned much.

I would like to express my gratitude to the three individuals who, with myself, made up our cohort of four. Steve Atwater, Dale Cope, and Susan McCauley contributed a foundation of knowledge and support which propelled me to complete this work. As well, the cohort's ad-hoc advisor and Structural Equation Model (SEM) guru Dr. James Edwin earned our admiration and respect. It is rare to find an individual with such a high level expertise who is also able to patiently guide others to understand and apply the concepts of SEM to their research.

Finally, I extend my sincere thanks to the University of Alaska Fairbanks, and to the members of my committee for their support of our cohort approach to this research project. This approach was untried at the University and I much appreciate how the committee members allowed practical common sense to guide this pilot project.

Preface

This dissertation is one of four to study the implementation of the Quality Schools Model (QSM) in rural schools in Alaska. I was a member of a cohort of four doctoral students who shared an interest in studying the effectiveness of educational reform in Alaska. Many researchers have found that cohorts improve the retention rates of students in professional doctoral programs (Brien, 1992; Cesari, 1990; Dorn & Papalewis, 1997; Miller, 2000; Tinto, 1988; Wesson et al., 1996). A doctoral cohort may have common coursework, seminars for support during the dissertation phase, and/or a shared cohort of faculty. Our cohort shared a common core of coursework, collected a common body of research data, and shared faculty and some dissertation committee members. Additionally, our cohort shared an interest in an often-used educational reform model in Alaska—the QSM. Thus, our individual research questions had the same "stem."

Each member of the cohort studied the implementation of the QSM from a unique perspective. The four cohort members and their dissertation topics were as follows:

1. Robert Crumley—Leadership: Its relationship to the QSM in three rural Alaska school districts
2. Dale Cope—Knowledge Management: Its relationship to the QSM in three rural Alaska school districts
3. Steve Atwater—Process Management: Its relationship to the QSM in three rural Alaska school districts
4. Susan McCauley—Staff Focus: Its relationship to the QSM in three rural Alaska school districts

Creamer (2004) and Dorn and Papalewis (1997) wrote that it is helpful for cohort members in professional programs to have elements of their backgrounds and experience in common. The four members of this cohort, two men and two women, were all mid-career professionals with educational administration experience. In addition, all cohort members had personal and professional experiences in rural Alaska and were longtime residents of the state.

A cohort acts to reaffirm a belief in success, and the cohort structure helps members minimize anxiety over time constraints and the need to prioritize work, family, and the doctoral program (Miller, 2000). Cohort members, each with a unique network, contribute to a larger pool of resources for the benefit of the group. Another benefit of cohorts is the variety of social/emotional strengths that members bring; group members are able to share the roles of energizer and encourager (Miller).

Vygotsky (1988) observed that learning is a profoundly social process that is dependent on dialogue and language. The social process of learning helps individuals internalize knowledge and fit it into or expand their mental models. Effective cohorts create a culture where differences of opinion are valued, are routine, and are open to discussion (Creamer, 2004). Further, Creamer wrote, "What is instrumental to the outcomes of collaborative research, and how innovative it is, is the extent that collaborators engage in dialogue about different and sometimes contradictory explanations for the phenomenon under study" (p. 568). According to Salter and Hearn (1996), this critical discourse is at least as important as consensus in the process of knowledge creation. Critical discourse is most likely to contribute to knowledge creation

and transfer when it occurs in the context of a community such as a cohort, where there is a commitment to a common goal and members share a sense of affiliation.

A cohort approach to learning is especially appropriate in the study of educational leadership. Wesson et al. (1996) wrote,

> Since we know that educational administrators need to be critical thinkers engaged in active, reflective information processing, the more we can provide opportunities for this development in formal preparation programs, the better educational leaders will be prepared to facilitate this kind of transformation of all kinds of work groups. (p. 16)

A cohort develops a unique, collective personality (Dorn & Papalewis, 1997; Wesson et al., 1996). We became a "living laboratory" as we internalized theory into practice related to the concepts we were studying. We sought best practice in literature and research; we discussed our work as a community of practice; we shared leadership; and we developed processes related to the leadership and knowledge management of our research. The experiences of our cohort support research findings about the benefit of cohort collaboration for doctoral program completion.

CHAPTER 1: INTRODUCTION

The topic of this dissertation is the implementation of the Quality Schools Model (QSM) of educational reform in three rural Alaska school districts. I conducted a descriptive inquiry, reviewing the implementation of the QSM through the lens of the seven Malcolm Baldrige National Quality Award Criteria for Performance Excellence. Specifically, I conducted an inquiry to determine the difference in importance and practice factor scores related to leadership between and within groups, and to form conclusions about the role of leadership in the implementation of the QSM in the three studied school districts. Importance factor scores measure the extent to which participants believe specific leadership practices are important while practice factor scores measure the extent to which participants believe those same leadership practices are being practiced in their school and district. Additionally, I examined the fit between the MBNQA theoretical model and actual practice in the context of the school districts. In exploring the application of the MBNQA Leadership Criteria in the districts, I primarily examined the systematic creation of conditions to foster a transformation from traditional hierarchical leadership to distributed leadership with ownership throughout the system.

The results of this mixed-methods study come, in part, from an analysis of quantitative survey data from a sampling of the three districts' certified and classified staff members. Using a concurrent nested design, I triangulated these data with qualitative data gathered through semi structured interviews of a criterion-based sample of staff and community members of the three studied districts. I conducted this research in collaboration with three cohort members, all of whom used the same survey

instrument, interview protocol, and document reviews. Each cohort member employed the gathered data to answer his or her research questions. All four cohort members collaborated on a response to the fourth research question, which resulted in a proposed structural equation model of the relationships of the MBNQA categories in the context of this study. This chapter contains the following sections: Statement of the Problem, Background of the Study, Description of the School Districts Studied, Significance of the Study, Purpose of the Study, Research Questions, and Summary.

1.1 Statement of the Problem

Since their formation in 1976, when the state-operated school system was eliminated, Alaska's rural school districts have pursued a number of educational reform efforts that have failed to produce significant improvement in the academic standing of their students. The 45 school districts that operate in villages and communities across rural Alaska primarily serve Alaska Native students whose "educational attainment is still well below that of non-Native Alaskans" (Institute of Social and Economic Research [ISER], 2004, p. 6-16). While dropout rates in rural Alaska were not a problem as late as the 1980's, and for all regions in Alaska these rates were similar in 1992, by 2002, Alaskan regions with the highest Native enrollment had significantly higher dropout rates than other regions (ISER, p. 6-13). National Assessment of Educational Progress (NAEP) data from 1996 and 2003 show that non-Native students were about 3 times as likely as Alaska Native students to receive "proficient" scores in math and reading in the fourth and eighth grades (ISER, p. 6-16). Data from the 2006 administration of the Alaska High School Graduation Qualifying Exam, on which students must score "proficient" in order

to receive a high school diploma, show that while 74% of all 10th graders who took the reading portion passed, only 51% of Alaska Native students passed, compared to 86% of White students (ISER, 2005, p. 38).

The reform efforts that rural Alaskan districts have pursued include those encouraged at the state level in response to the national standards movements as well as those initiated at the local level by individual districts or schools. Following a path similar to that of educational reform nationwide over the past two decades, Alaskan reform efforts have sought to engage community members, business leaders, nonprofit organizations, and other stakeholders, as well as to leverage organizational quality concepts toward reform structures that are systemic and sustainable. However, some feel that many reform efforts implemented for Alaska Native students have been based exclusively on

> short-term localized considerations, or research conclusions drawn from conditions outside of Alaska. This has been a theme throughout the history of reforms in the state, and it continues today as the state looks to the "Lower 48" for quick-fix solutions to long-standing schooling challenges. (Barnhardt, 2001, p. 2)

In the case of Alaska's rural districts, reform efforts have not brought desired changes. In a statewide study of Alaska Native values and opinions regarding the role of the family and community, the McDowell Group (2001) found root causes of rural Alaska's educational problems to be leadership and trust. In order for trust to develop, the McDowell Group reported, "schools and communities need to be engaged in shared leadership, where the school shares decision making with the community" (p. 3). Authors

in the educational reform literature (Fullan, 2001b, 2003; Sallis, 1993; Schlechty, 2001) have advised that ad hoc, episodic initiatives (Duffy, 2003) are rarely successful because they are not systemic in their approach and hence have little chance of being sustained.

A factor that contributes to the development of ad hoc, episodic school reform efforts is the rate of leadership turnover, as indicated in the *Report of the Superintendent Turnover and Retention Survey for the Alaska Association of School Administrators* (Garton, 2006). "Superintendent turnover has a major impact upon the quality of education our students receive," stated an active Alaskan superintendent (as cited in Garton, p. 25). Forty-five out of 51 Alaskan superintendents responded to the survey question "What was the key factor in leaving?" Among the two-thirds of respondents who indicated that they were leaving, "Lack of Board Support" was the most common reason provided. See Figure 1.

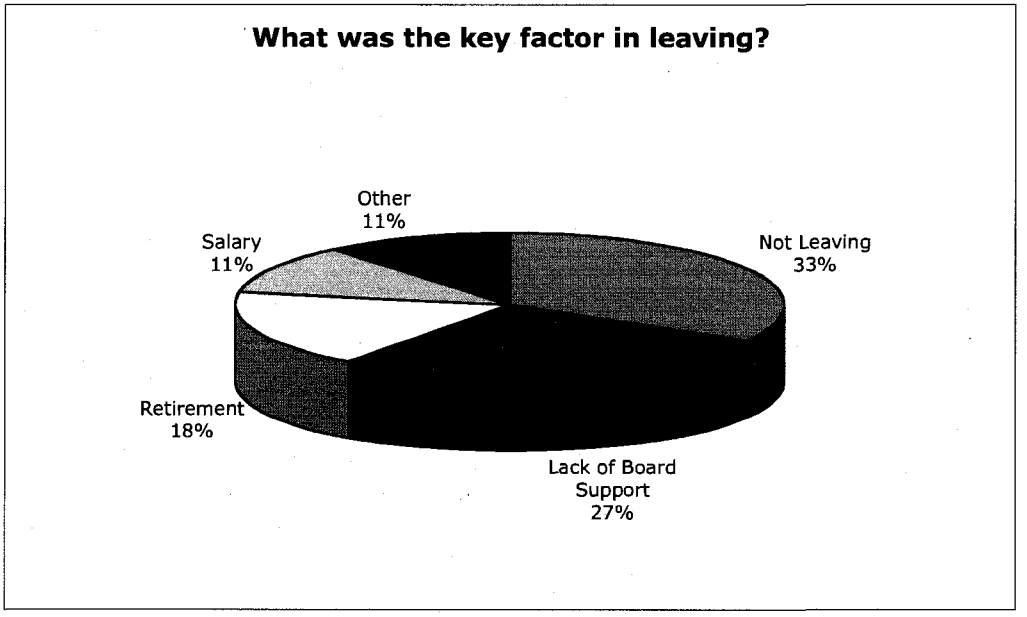

Figure 1. Alaskan Superintendents' Reasons for Leaving (Garton, 2006).

District leaders in Alaska have also cited turnover of staff as an impediment to change and comprehensive school reform. As shown in Figure 2, teacher turnover in the three school districts investigated in this study ranged between 20% and 43% from 1999 to 2007. While this pattern appears to be the norm in rural Alaska, many experts believe that QSM adoption is reducing the trend.

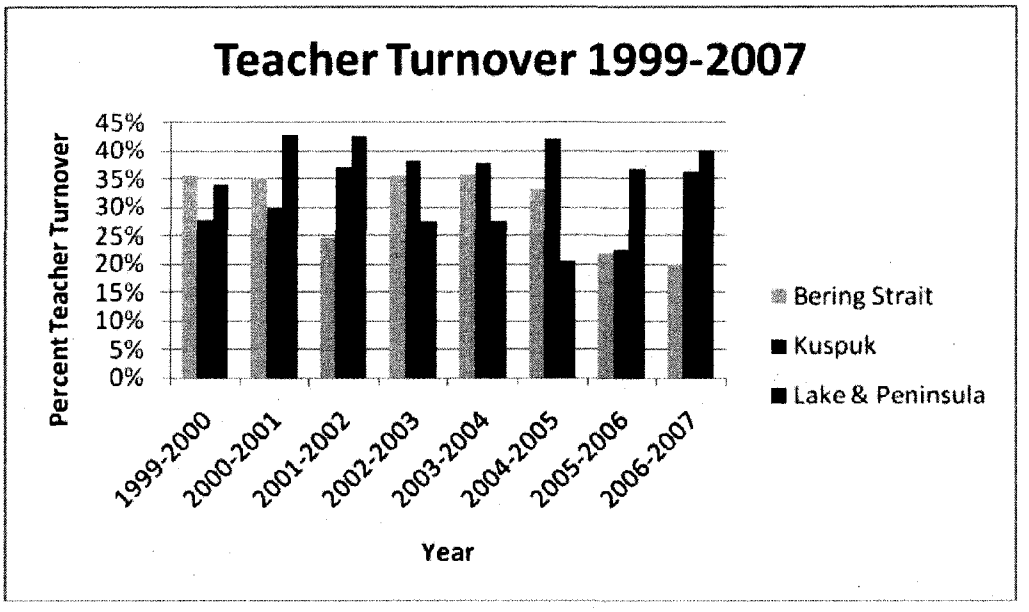

Figure 2. Teacher Turnover in Bering Strait, Kuspuk, and Lake and Peninsula School Districts, 1999–2007.

In each of the three districts in this study, there has been a change of superintendent since the introduction of the QSM. Over the past 30 years, the stability of Alaskan school district superintendents has fluctuated. Figure 3, covering the years 1977 to 2007, depicts the percentage of school districts that completed each school year with the same superintendent with whom they started the school year. I compiled the data for

Figure 3 over a two-year period of ongoing direct contact with all Alaskan school districts, Alaska's Department of Education and Early Development, the Alaska School Board Association, and the Alaska Council of School Administrators. In addition to reviewing documents provided by these organizations and interviewing their current leadership and staff, I interviewed retired leaders of these organizations.

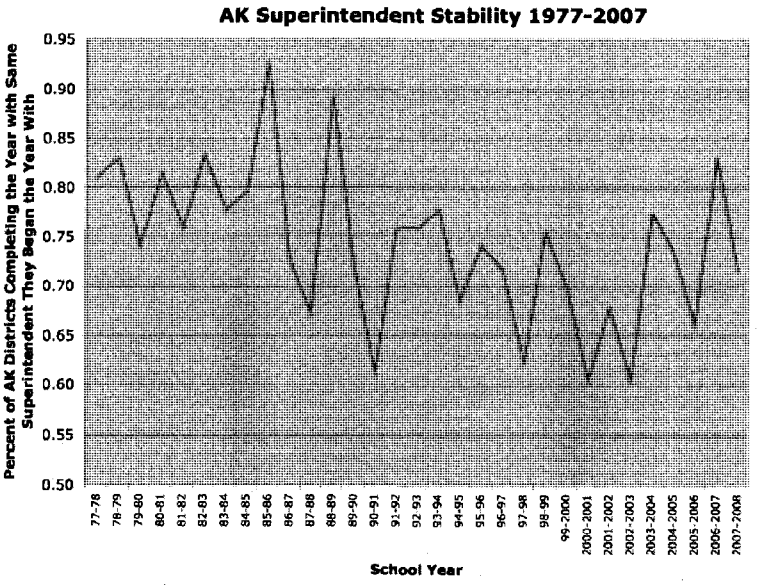

Figure 3. Alaskan Superintendent Stability. *(For Each School Year Between 1977 and 2008, The Percentage Of Alaska School Districts That Completed That School Year With The Same Superintendent With Whom They Started The School Year).*

Efforts to replicate the QSM began in earnest in the late 1990s. It is therefore necessary to take a more recent look at leadership stability in Alaskan schools. The following chart (Table 1) shows the leadership stability of school district groups in this more recent period.

Table 1

1997–2008 Alaska School District Leadership Stability Rates

District group	Stability rate—Years with same superintendent divided by total years
Statewide group, 53 districts	69%
QSM group, 12 districts	72%
Current research group, 3 districts	79%

In my work as a Chugach School District teacher, principal, assistant superintendent, and superintendent since 1995, I have been intimately involved in the ongoing development of the Quality Schools Model. During this period I became associated with the other three members of the cohort conducting this research, each of who has worked to implement the QSM in other Alaskan school districts.

In this study, I describe the implementation of the locally developed educational reform effort, the QSM, in three rural Alaskan school districts: Bering Strait School District, Lake and Peninsula School District, and Kuspuk School District. My cohort selected these districts because they had been involved in the reform effort for at least 4 years. In this dissertation, I consider the districts' implementation of the QSM through the lens of the Malcolm Baldrige Education Criteria for Performance Excellence, focusing on the criterion of Leadership.

1.2 Background of the Study

In the mid-1990s, the Chugach School District, a small district primarily serving Alaska Native students in communities on Prince William Sound, developed the QSM of educational reform. Since that time, 12 districts throughout Alaska have replicated the model, either in whole or in part. The QSM has four components aimed at comprehensive, systemic improvement of teaching and learning: Leadership, Shared Vision, Standards-Based Design, and Continuous Improvement. I discuss each of these components in detail in chapter 3.

The design of the QSM includes the "pieces" of educational reform described as necessary in educational reform literature. These include the use of quality standards in multiple content areas, well-designed assessments, accountability mechanisms, professional development, and effective instructional strategies (Chudowsky et al., 2002). Marzano (2005) concluded that "to one degree or another, the quality schools model appears to address a majority" (p. 43) of the 11 criteria of the Comprehensive School Reform Program, a federally funded initiative aimed at encouraging schools to adopt proven comprehensive reform models.

Several key elements of the QSM distinguish it from other reform models. First, it bases student progression toward graduation on demonstrated mastery of content rather than on "seat time" in a grade level. Students in QSM schools are organized for learning based on "performance levels" for each of the content areas, and progress from level to level occurs through the completion of assessments designed to demonstrate proficiency. Second, students do not earn credits toward graduation. Most of the schools and districts

adopting the QSM have applied to the Alaska Department of Education for a waiver of the Carnegie unit requirement for graduation from high school. A student in a QSM school graduates when he or she has demonstrated proficiency in the standards for each content area. A third distinction of the QSM is its requirement that students show proficiency in areas such as personal social health, service learning, and cultural awareness. In QSM schools, the required curriculum includes content areas that are often left to student choice through electives in traditional educational structures.

By recognizing the importance and interdependence of the four components of the model, the leaders of QSM organizations adopt a less hierarchical structure. This is necessary in order to authentically empower all stakeholders, allowing their input to routinely shape and guide the district. The move to a less bureaucratic organizational structure is an integral part of the QSM and is consistent with middle-up-down management for knowledge creation as described by Nonaka (1994). While few would propose that the QSM is a "silver bullet" or "magic recipe" for education, educational leaders have used the model as a guidebook to lead their districts' organizational structure away from the classic hierarchal model and toward one that is more fluid. It is this structural change in district leadership that QSM districts must undergo that forms the backdrop for this research. Landis (1999) documented positive changes in Tatitlek, one of the villages in which the Chugach School District developed the QSM:

> Perhaps the greatest benefit was that it created an environment of trust and respect between district staff, teachers, and members of the community. Once concerns

had been voiced, the superintendent and his staff set out to create an education system that would respond to those concerns. (p. 57)

Fullan (1993) argued, "that education has a moral purpose ... to make a difference in the lives of students regardless of background" (p. 16). This moral purpose has been all but eliminated in educational preparation programs, yet it remains one of the foundations of the teaching profession. Tom Vander Ark, the former Executive Director of the Bill and Melinda Gates Education Foundation, described the "deep and skillful community engagement" (as cited in Schreiber & Battino, 2002) that Chugach School District leaders exhibited as they developed the QSM. Chugach School Board members and staff found that they needed to allow time for the process of venting and healing before they could establish trust. According to Kushman and Barnhardt (1999), "What fueled successful school reform in Tatitlek was a sense of trust: Trust between a Superintendent (who was brought in to reform the Chugach School District and village schools) and the community of Tatitlek" (p. 16). Choi (2006) identified factors that lead to genuine and healthy "communities of practice," concluding that degree of trust within the community of practice is one of the most important factors for sharing knowledge.

The global quality movement often referred to as Total Quality Management (TQM) has played a significant role in the development of the QSM. The design of the QSM has been influenced by various business practices and concepts, particularly organizational quality. Defined in management literature as "a set of activities, processes, and mindsets that are linked to improved product and service excellence" (Winn, 1996, p. 1), organizational quality principles assist organizations in the continuous improvement

necessary for quality or effectiveness (Sallis, 1993, p. 3). However, the premise that a school district should operate with a business-like approach toward its management is often met with reservation.

The issue of whether business practices can be applied to education has been the subject of debate for decades. Skeptics claim that because education is not a closed system in which one can control the variables that affect learning (Thompson, 2003), the application of business theory to education is inherently flawed. Furthermore, the imprecise definition in education of the terms *product* and *customer* causes many who try to apply a business approach to the field of education to struggle (Poston, 1997). On the other hand, education critics argue that schools, unlike businesses, are "typified by an absence of measurable goals, loose coupling, little direct connection between acquired resources and products, an ability to ignore major constituencies, and ... a tradition of resistance to assessments of effectiveness" (Cameron, 1986, p. 88). The designers of the QSM attempted to address these criticisms by establishing clear learning objectives for students, systems for input from and accountability to stakeholders, and mechanisms for assessing organizational performance and needs for improvement. Rather than taking the known and easier path which relies solely upon traditional lagging indicators such as state student test results, the QSM utilizes a balanced scorecard to analyze school and district performance. Development of a balanced scorecard that includes a profile of both leading and lagging information to measure school and district performance is a major advancement of the QSM. In addition to bucking tradition and developing a balanced accountability system without the support policy makers, the QSM undertook the

challenge of quantifying numerous leading indicators or processes that had not been quantified to date. That the QSM has been successful, at least in one respect, in meeting business and industry definitions of organizational quality is evident in the fact that the QSM received the nation's premier award for performance excellence and quality achievement, the Malcolm Baldrige National Quality Award.

In 2001, the Chugach School District, the founding district of the QSM, received the Malcolm Baldrige National Quality Award, becoming one of the first two educational organizations to do so. The Malcolm Baldrige Education Criteria for Performance Excellence are the product of a public sector–private sector partnership whose mission is to improve the performance of U.S. organizations. The award, named after the 26th U.S. Secretary of Commerce, came into existence in 1987. Twelve years later, President Clinton expanded the Criteria to include health care and education. Educational organizations now use the seven education criteria (Leadership; Strategic Planning; Student, Stakeholder, and Market Focus; Measurement Analysis and Knowledge Management; Faculty and Staff Focus; Process Management; and Results) as diagnostic tools to identify strengths and opportunities for improvement (National Institute of Standards and Technology, The Malcolm Baldrige National Quality Award Program, 2006). Because the criteria focus on organizational performance, they can be used to apply a systems perspective to a school district. Other researchers have used the Baldrige in Education Criteria to examine the importance of various educational reform initiatives, as the criteria relate to observable processes and outcomes that should be evident as indicators of success within any educational reform.

Chugach School District's recognition with the MBNQA bolstered the replication of the QSM in other districts and schools in Alaska. At one point, 12 districts and four schools (in districts that had not adopted the QSM) were at some stage of QSM implementation. In the past 6 years, however, that number has decreased to six districts and two schools. With the exception of the Chugach School District, the three districts that are the focus of this study have been implementing the QSM for the longest period.

Understanding how school districts have implemented the QSM of educational reform requires one to examine perceptions about how important and in-practice specific leadership behaviors are as district leadership works to create conditions for successful QSM deployment. This dissertation uses the MBNQA Criteria for Performance Excellence in Education as a way to look at leadership and its role in the implementation of the QSM.

High rates of leadership turnover result in the regular erosion of local district knowledge, while high rates of staff and teacher turnover do the same when many individuals share leadership knowledge. This is just one factor that makes leaders reluctant to share their leadership authority. However, the benefits of overcoming such reluctance are becoming increasingly obvious in the present knowledge age. With the development of genuine distributed leadership, empowered staff members have begun to use their newfound authority to grow their own leadership capacity and to improve the organization. Shared authority leads to shared ownership, thus increasing loyalty, enhancing quality, and reducing turnover.

In the Passport to Success Series on Knowledge Management (1984), American Productivity and Quality Center (APQC) chairman Jack Grayson advised that nearly 80% of an organization's knowledge is tacit; thus, when an organization loses an employee, that employee walks out with a significant amount of the organizations intellectual property that cannot be found in the organization's documents (p. 21). While many leaders remain in the mind frame that recruitment and retention are of equal value, others are quickly learning that retention of staff, and therefore retention of knowledge, should be a much higher priority. Alaska faces an extreme retention challenge, with a statewide superintendent turnover rate fluctuating between 7% and 40% annually and a rural teacher turnover rate of 24% annually (ISER analysis of Alaska Department of Education and Early Development database, 2002). Such turnover rates and associated lose of knowledge does not bode well in situations where practicing school and district leaders face the complexities involved with implementing systems-based school reform. Concurrently, the breadth, depth, and complexity of studying a systems approach to school reform using the seven distinct yet inter-related MBNQA criteria requires a cohort of multiple researchers. While my research specifically applies the MBNQA leadership criteria to the study of the QSM, practicing leaders in the districts being studied need a working understanding of systems theory and all seven MBNQA criteria. The requirement of leadership to understand and act in accordance with systems theory and quality management is but one example of the complex integration of all the MBNQA Criteria of Excellence.

1.3 Description of the Three Districts

The Bering Strait School District is a Rural Education Attendance Area (REAA) located on the west coast of Alaska. The district, with a total enrollment of approximately 1,700 students, serves 15 widespread and diverse communities, including villages on the Seward Peninsula and Norton Sound as well as on St. Lawrence and Little Diomede Islands. Approximately 350 miles separate the most distant two schools in the district. Travel between the villages in the district occurs almost entirely by air. Many children in the communities of Gambell, Savoonga, and Diomede speak Siberian Yup'ik as their primary language. The district's largest school, Savoonga, is located on St. Lawrence Island and has 219 students and 21 certified staff members. Overall, the district has 174 classroom teachers, 15 principals, and 5 assistant principals. The district office employs seven certified support staff, four directors, five coordinators, and the superintendent. Nearly 100% of the district's students are Alaska Native, over 80% have limited English proficiency, and 86% are eligible for free or reduced lunch. An 11-member school board governs the district. The Bering Strait School District began its implementation of the QSM in 2002.

The Kuspuk School District is a REAA with 10 schools in eight villages serving approximately 414 students. The district covers over 12,000 square miles in western Alaska along the Kuskokwim River between the villages of Stony River and Kalskag. Transportation between villages occurs by air or boat. In winter, the frozen Kuskokwim River becomes an ice road for snow machine and vehicle travel. The school district offices are located in Aniak, which is about 320 air miles west of Anchorage. The

regional economy relies primarily on subsistence fishing, hunting, and gathering. Most of the district's population is Yup'ik or Athabascan. The majority of students have limited English proficiency (90%) and are low income (80%). Kuspuk School District first moved to implement the QSM in 2003.

The Lake and Peninsula Borough School District serves 380 students in 14 village K–12 schools. The district's 14 schools employ 42 classroom teachers for a pupil–teacher ratio (PTR) of 9:1. In addition, four special education teachers, three specialists, five principals, and four district-level administrators make up the certified staff. The district, located on the Alaska Peninsula, is roughly the size of West Virginia. Ninety percent of the district's students are Alaska Native (Alvtiiq, Athabascan, and Yup'ik), and about 70% of these students are eligible for free or reduced lunch. A seven-member board governs the district, with three members from the south's seven villages, three from the seven north area villages, and one member at large. Many of the communities in this district are situated along the Southwest coast of Alaska. The economy of the region is based on commercial fishing. Lake and Peninsula School District adopted the QSM in 2000.

1.4 Significance of the Study

Some contend that reform efforts fail because the problems and solutions are mismatched. For instance, Cuban (1990a) argued,

> It is important to policy makers, practitioners, administrators, and researchers to understand why reforms return but seldom substantially alter the regularities of schooling. The risks involved with a lack of understanding include pursuing

> problems with mismatched solutions, spending energies needlessly, and accumulating despair ... We can do better by gathering data on particular reforms and tracing their life history in particular classrooms, schools, districts, and regions. More can be done by studying reforms in governance, school structures, curricula, and instruction over time to determine whether patterns exist. (p. 11)

Three broad areas within educational literature and research are relevant to this study. The first area is the history of the reform movement in the United States. The second area is systemic reform in education. Various authors (e.g., Fullan, 2001b, 2003; Levine, 2005) have advanced a systemic rather than school-by-school approach to educational reform. Organizational management concepts have encouraged this systemic approach, reflecting a "systems" perspective that gained credibility first in the world of business and industry but is increasingly applied to educational reform (Lezotte, 2003). The third area is the use of effective, culturally responsive practices for education and reform initiatives in indigenous cultures. A growing body of knowledge exists to guide educators in this area. While the extensive literature in the three areas outlined above offers much guidance for those seeking to improve teaching and learning for rural Alaskan students, as well as for those assessing how the QSM might reflect effective and appropriate reform approaches for education in rural Alaska, only four studies have focused or commented specifically on the implementation of the QSM in rural Alaska. I review these studies in detail in chapter 2.

The earliest study of the QSM in rural Alaska, conducted by Jester (2002), was a case study of the development of the reform model in Chugach School District. Jester's

objective was to "understand the district's standards-based reform in sociohistorical context" (p. 1). Jester was very critical of the QSM and concluded that Chugach administrators and teachers had developed and perpetuated an "unhealthy Native construct" (p. 29) for the purpose of indoctrinating Alaska Native students in the ways of the dominant society. This conclusion raised issues about transferability of the model to other districts. Reagle (2007) sought to address the criticisms Jester leveled against the QSM, utilizing methods that included documenting the words of Alaska Natives. In contrast to Jester, Reagle found that QSM implementation in the Bering Strait School District "resulted in positive involvement of students, parents and community members" (p. 174); "new interaction patterns of involvement for Alaska Native parents and community members that have potential for sustainable results" (p. 175); and "a genuine shared vision that was fostered and supported by students, parents, community members, and educators" (p. 183). Marzano (2005), in a study that considered the QSM within the context of Comprehensive School Reform Criteria (see Table 2), found that "in general, the QSM addresses the vast majority of the 11 CSR criteria at least to some extent" (p. 46).

A fourth study, conducted by Coladarci, Smith, and Whiteley (2005), concluded that student achievement was higher in schools within districts implementing the QSM and was also higher in districts with a longer history of implementation of the model, though the authors did not make a causal correlation.

Table 2

U.S. Department of Education Criteria for a Comprehensive School Reform Program

Criterion	Description
1	Employs proven methods for student learning, teaching, and school management that are based on scientific research and practices that have been replicated successfully in schools
2	Integrates instruction, assessment, classroom management, professional development, parental involvement, and school management
3	Provides high-quality and continuous teacher and staff professional development and training
4	Includes measurable goals for student academic achievement and establishes benchmarks for meeting those goals
5	Is supported by teachers, principals, administrators, and other staff throughout the school
6	Provides support for teachers, principals, administrators, and other school staff by creating shared leadership and a broad base of responsibility for reform efforts
7	Provides for the meaningful involvement of parents and the local community in planning, implementing, and evaluating school improvement activities
8	Uses high-quality external technical support and assistance from an entity that has experience and expertise in school wide reform and improvement

Table 2 *(continued)*

Criterion	Description
9	Includes a plan for the annual evaluation of the implementation of the school reform and the student results achieved
10	Identifies the available federal, state, local, and private financial and other resources that schools can use to coordinate services that support and sustain the school reform effort
11	Meets one of the following requirements: Either the program has been found through scientifically based research to significantly improve the academic achievement of students, or strong evidence has shown that the program will significantly improve the academic achievement of students

In the study conducted for this dissertation, I sought to build upon previous QSM-focused studies in several ways. First, as recommended by Jester (2002), this study describes the perceptions of stakeholders in districts other than Chugach regarding QSM implementation. Second, it builds upon the study Reagle (2007) conducted in the Bering Strait School District, specifically addressing her recommendation to consider shared leadership, which has not previously been the focus of a QSM-related study. Finally, in addition to the variable of years of QSM involvement considered by Coladarci et al. (2005), this study explores demographic variables of participating staff members.

While building upon the previous studies as outlined above, this study employs the lens of the MBNQA Education criteria, which have not been used before as a means

of studying QSM implementation. The results of the study should provide guidance for others who want to implement the QSM and use the MBNQA Education criteria to measure their progress.

1.5 Purpose of the Study

The purpose of this study is to describe the implementation of the QSM in three rural Alaskan school districts by examining the importance and existence of the MBNQA Education criteria as perceived by faculty, staff, and community members. Importance factor scores measure the extent to which participants believe specific leadership practices are important while practice factor scores measure the extent to which participants believe those same leadership practices are being practiced in their school and district. Using a concurrent mixed-methods approach, the study involved the administration of a questionnaire to school staff to measure the importance and existence of the MBNQA criterion of Leadership and to explore the relationship between respondents' demographic characteristics and the degree to which they considered leadership factors to be important and in practice. At the same time that we collected survey data, the members of my research group gathered information on the implementation of the QSM through semi structured interviews of school staff and community members and through a review of documents related to QSM implementation. Chapter 3 of this dissertation describes the methodology for this research in detail.

I conducted this research in collaboration with three other individuals, working together as a cohort. All cohort members used the same survey research instrument,

interview protocol, and document reviews, which chapter 3 describes in detail. Each cohort member used data gathered through the survey, interviews, and document review to answer his or her individual research questions.

1.6 Research Questions and Hypotheses

Four broad research questions with supporting, alternative hypotheses are the focus of this study:

Research Question 1. To what extent do administrators, teachers, classified staff, and community members perceive leadership, measured using MBNQA Education constructs, *to be important* within the Quality Schools Model of educational reform?

Hypothesis 1.1. There is a significant difference in the mean score on the perceived importance scale for leadership factors between administrators, teachers, and classified staff.

Hypothesis 1.2. There is a significant difference in the mean score on the perceived importance scale for leadership factors between teachers based on years of educational work experience.

Hypothesis 1.3. There is a significant difference in the mean score on the perceived importance scale for leadership factors between participants based on years of experience in a QSM district.

Research Question 2. To what extent do administrators, teachers, classified staff, and community members perceive leadership, measured using MBNQA Education category criteria, *to be in practice* within the Quality Schools Model of educational reform?

Hypothesis 2.1. There is a significant difference in the mean scores on the in-practice scale for leadership factors between administrators, teachers, and classified staff.

Hypothesis 2.2. There is a significant difference in the mean scores on the in-practice scale for leadership factors between groups based on years of educational work experience.

Hypothesis 2.3. There is a significant difference in the mean scores on the in-practice scale for leadership factors between participants based on years of experience in a QSM district.

Research Question 3. Are there statistically significant differences between respondents' perceptions of importance and perceptions of practice of leadership factors as part of the Quality Schools Model, and do these differences vary across groups?

Hypothesis 3.1. The differences between the extent to which respondents perceive leadership items to be important and the extent to which they perceive leadership items to be in practice vary between administrators, teachers, and classified staff.

Hypothesis 3.2. The differences between the extent to which respondents perceive leadership items to be important and the extent to which they perceive leadership items to be in practice vary between groups based on years of educational work experience.

Hypothesis 3.3. The differences between the extent to which respondents perceive leadership items to be important and the extent to which they perceive leadership

items to be in practice vary for participants based on years of experience in the QSM district.

Research Question 4. What are the relationships among the MBNQA categories that describe the Quality Schools Model?

Hypothesis 4. Leadership has either a direct or an indirect causal effect on all other MBNQA categories as shown in the Baldrige theoretical model.

1.7 Chapter Summary

Chapter 1 has introduced the problem addressed in this study, provided relevant background, outlined the study's significance and purpose, and identified this study's research questions. Chapter 2 contains a review of the literature important to the study and provides additional information regarding the QSM and the MBNQA Criteria for Performance Excellence.

CHAPTER 2: REVIEW OF THE LITERATURE[1]

Darnell and Hoem (1996), in their discussion of research to date on education in Native communities, noted several shortcomings of this literature. One problem they cited is the failure of researchers to "take into consideration the circumstances of educational systems as integral components of the society. As a means to develop a comprehensive body of knowledge concerned with education in Native communities, this is essential" (p. 258). They also found that researchers had failed to balance theory with implementation, and they suggested that research to improve education in the far North should draw from and combine findings from multiple disciplines.

The body of information drawn from in this research therefore includes not only survey data from educators and interview data from local community members, but research literature from a variety of fields. Chapter 2 is therefore divided into the following six sections to capture these unique yet interwoven fields: Educational Reform; Systems Theory and Organizational Structures; Education of Alaska Native Children and Alaska Educational Reform; The Quality Schools Model; The Quality Perspective and the Malcolm Baldrige National Quality Award; and Educational Leadership.

Key phrases used to search the theoretical and empirical literature for this review were *Baldrige in Education* (197 results), *comprehensive school reform* (820), *Total Quality Management in K–12 education* (15), *K–12 systemic educational reform* (40), *role of knowledge in education reform* (57), *knowledge management in public schools*

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[1] Authorship of Chapter 2 was shared by cohort members.

(147), *organizational learning and public school reform* (63), *organizational communication* (1,510), *data and K–12 school improvement* (56), *communities of practice* (1,513), and *learning communities* (2,265). This research was part of a larger project by a cohort of four doctoral students attempting to answer related questions about the implementation of the QSM of systemic school reform. Of the literature found by the group, 824 sources were of general interest to all four researchers, along with 311 sources of empirical evidence in the form of recent dissertations primarily related to Baldrige in Education, comprehensive school reform, and the role of professional development in reform. Given the number of potential sources, I needed a process to select the most relevant material for the scope of this research.

Glatthorn and Joyner (1998) and Gall, Borg, and Gall (1996) described fairly straightforward methods of evaluating a large number of search results. They recommended looking for key authors related to the selected topics; checking the document title and type to locate research studies and theory rather than reports of practice; looking for the most current information; and concentrating initially on scholarly or refereed journals. After our cohort applied these guidelines, we had a much smaller group of abstracts that were subsequently read to pare down the resources to those most relevant and useful.

To narrow the 311 empirical studies found in the initial search, the cohort used the processes described by Glatthorn and Joyner (1998) and Gall, Borg, and Gall (1996) again, reducing the number of possible titles to 91. We then employed some of process features described by Marzano, Waters, and McNulty (2005) to focus the recent

dissertation research to 21 sources. In their meta-analysis of leadership studies, Marzano et al. identified key conditions for inclusion in the group of studies they considered, such as span of time, location of the schools, size of the sample, and so on. Many of the empirical research studies my cohort found on the topics of Baldrige in Education and Comprehensive School Reform were case studies, sometimes based on very small samples and/or with results and conclusions not supported by other writers. I noted themes that emerged from more than one study for inclusion in this chapter, particularly when the results were consistent with the theoretical or expert literature. I found four studies of the QSM, which I discuss in detail in this chapter.

I begin this review by contextualizing the QSM within the history of educational reform in this country.

2.1 Educational Reform

The QSM is a model of educational reform that is intended to produce systemic and sustainable changes to the educational process. Its design reflects an understanding of what has as well as what has not been effective over a long history of reform efforts in the United States. This section reviews the history of educational reform in this country and the evolution of reform from a school-to-school to a systemic approach.

2.1.1 Prior to a Nation at Risk

Many authors cite *A Nation at Risk*, the report by the National Commission on Excellence in Education, chaired by David P. Gardner (1983), as the catalyst for educational reform in the United States. Its warning that a "rising tide of mediocrity that threatens our very future as a Nation" (p. 8) "motivated more significant changes in the

manner in which American K–12 public schools conduct business than virtually any event or condition preceding it" (Guthrie & Springer, 2004, p. 25). However, several events prior to the report laid the groundwork for the reform that occurred in response to its publication.

The Elementary and Secondary Education Act, signed into law by President Lyndon Johnson in 1965 as part of his "War on Poverty," increased the federal government's authority over schools by providing targeted resources to disadvantaged students. Title I of this legislation imposed fiscal accountability on states and districts by requiring them to allocate federal money only to schools with the highest concentrations of poverty; to equalize the amount spent on these schools with the amount allocated to schools not receiving federal education dollars; and to use Title I funds as a supplement to, rather than a replacement for, local spending (Wong, 2003). Johnson (1966) purported that "every one of the billion dollars that we spend on this program will come back tenfold as school dropouts change to school graduates" (para. 4). The Coleman report would soon challenge this contention.

The Coleman report, written by Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, and York (1966) and officially titled *The Equal Educational Opportunity Survey*, was a congressionally mandated study by the U.S. Office of Education investigating the effects of school resources on student achievement. Many interpreted the results as suggesting that schools have little effect on student achievement, though some have argued "this interpretation confuses the effects of measured differences with the full effects of school and has been shown to be wrong" (Hanushek, 1998, p. 19). The

findings of the Coleman report were controversial, and other researchers responded to what they considered fatalistic conclusions from the Coleman report with research of their own. In one early response to the report, Klitgaard and Hall (1974) challenged the methodology of Coleman's input/output studies. They claimed that because the Coleman study had examined the average effect of all schools in a sample on student outcomes, it measured only general effects. Furthermore, they argued, the effectiveness of individual students could have been masked, and some effective schools might have gone unnoticed. Both proponents and critics of the report leveraged it in ways that influenced the larger political platform of educational reform, as well as the specific structures of school reform models.

In 1980, Congress created the U.S. Department of Education by combining the offices of several federal agencies. The Department's original mission addressed the issue of equality of access explored in the Coleman report, which had stressed the need to "strengthen the federal commitment to assuring access to equal educational opportunity for every individual" (Coleman et al., 1966, p. 19). The Department's purpose also reflected one of the continuing debates in educational reform—centralized versus decentralized authority over schools—leaning toward the latter. In Public Law 96-88 (1980), Congress declared that the purpose of the Department of Education was to

> Protect the rights of State and local governments and public and private educational institutions in the areas of educational policies and administration of programs and to strengthen and improve the control of such governments and institutions over their own educational programs and policies. (p. 3)

The Department's purpose also reflected support for more decentralized school reform efforts. The soon-to-be released *A Nation at Risk* report would call into serious question the autonomy of local authority over education and capitalize on research regarding what constitutes effective schooling.

A report by Edmonds and Frederickson (1979) synthesized the research and experimentation of the previous decade, with the goal of identifying the common characteristics of schools that were achieving success in educating all students regardless of family background or socioeconomic status. The work Edmond and Frederickson synthesized had grown largely in response to the controversial Coleman report, which had focused on a student's family background as a primary factor in his or her success in school. The Edmonds effective schools research named seven interrelated indicators or conditions that influence student learning. Lezotte (1991) outlined these factors, called *correlates*, as follows:

1. Clear School Mission—In the effective school, there is a clearly articulated school mission that includes instructional goals, priorities, assessment procedures, and accountability. Staff accepts responsibility for students' learning the school's essential curricular goals.
2. High Expectations for Success—In the effective school, there is a climate of expectation in which the staff believe and demonstrate that all students can attain mastery of the essential content and school skills, and the staff also believe that they have the capability to help all students achieve that mastery.

3. Instructional Leadership—In the effective school, the principal acts as an instructional leader and effectively and persistently communicates a mission of instructional leadership to the staff, parents, and students.
4. Frequent Monitoring of Student Progress—In the effective school, student academic progress is measured frequently using a variety of assessment procedures. The results of the assessments are used to improve individual student performance and also to improve the instructional program.
5. Opportunity to Learn/Student Time on Task—In the effective school, teachers allocate a significant amount of classroom time to instruction in the essential content and skills. Whole class or large group, teacher-directed, planned learning activities are evident a high percentage of time.
6. Safe and Orderly Environment—In the effective school, there is an orderly, purposeful, businesslike atmosphere which is free from the threat of physical harm. The school climate is not oppressive and is conducive to teaching and learning.
7. Home–School Relations—In the effective school, parents understand and support the school's basic mission and are given the opportunity to play an important role in helping the school to achieve that mission.

These "Correlates of Effective Schools" (Edmunds, 1982) marked the beginning of what would become known as the Effective Schools Movement and provided the foundation for much post-*Nation at Risk* reform.

2.1.2 A Nation at Risk and Effective Schools

In a September 2005 interview for the Public Broadcasting System, Hedrick Smith questioned Warren Simmons, director of the Annenberg Institute for Reform, and Michael Casserly, Executive Director of the Council of the Great City Schools, about the impact of *A Nation at Risk*. In the interview, Casserly explained that *A Nation at Risk*

> was a seminal event in the sense that it called attention to the question about the quality of education in the country. Its forceful language warned that America's place in the world will be either secured or forfeited. It provided the first concrete step in the education reform that would follow: It articulated a problem and the national and international consequences for the United States. Its findings targeted the curriculum, expectations for students, time spent on learning, and the preparedness of teachers, criticizing everything from a "cafeteria-style curriculum to poor management of classroom time."

Though critics have called *A Nation at Risk* "more of a political treatise than a thoughtful statement for the reform of American schools" (Hlebowitsh, 1990, p. 88) and have criticized its authors' choice of rhetoric (Guthrie & Springer, 2004), it "accelerated a paradigm shift from measuring American education success by resources received to results achieved" (Guthrie & Springer, p. 26). How to achieve those results became a policy focus at the national level, while researchers and educators focused at the local level on experimentation and implementation of school reform models based on effective schools research.

The "effective schools movement" focused on two questions: (a) Do effective schools exist? and, if so, (b) What do they look like? Good and Brophy (1985) reasoned that if one could find some meaningful variation in performance among schools, then it followed that one could improve student performance in schools. Such research, Good and Brophy predicted, would highlight individual schools where achievement was universally high. They summarized their reasoning as follows:

> Student progress clearly varies from school to school, but the real question is whether this variation in achievement among schools is affected by *school processes* or whether this variation can be explained completely in terms of student factors such as aptitude. (Good & Brophy, p. 7)

Ultimately, a definition and description of an effective school began to evolve, which contained three common elements: a student achievement focus, an emphasis on *all* students, and mastery of basic skills. Mace-Matluck (1986) proposed a composite definition:

> An effective school is one in which the conditions are such that student achievement data show that all students evidence an acceptable minimum mastery of those essential basic skills that are prerequisite to success at the next level of schooling. (p. 5)

Many "models of school reform" based on research about effective schools began to emerge with the "notion that to reform education in this country you were going to have to do it one school at a time" (Casserly, 2005). At the same time, national-level leaders

began to explore how they could leverage federal policy toward addressing the country's education issues in a more cohesive, accountable manner.

2.1.3 National Policy Changes

The first National Education Summit took place in 1989 in Charlottesville, Virginia. The organizers of the summit invited the country's 50 governors with the intention of establishing education goals for the nation. What resulted was a policy framework organized around six national education goals (later expanded to eight) to be met by the year 2000:

1. All children will start school ready to learn.
2. The high school graduation rate will increase to at least 90%.
3. All students will become competent in challenging subject matter.
4. Teachers will have the knowledge and skills that they need.
5. U.S. students will be first in the world in mathematics and science achievement.
6. Every adult American will be literate.
7. Schools will be safe, disciplined, and free of guns, drugs, and alcohol.
8. Schools will promote parental involvement and participation.

The Summit led to the creation of A National Education Goals Panel to assess and report on state and national progress towards achieving the goals. Professional organizations such as the National Council of Teachers of Mathematics (1989, 1991, 2000) and the International Association of English Language Arts Teachers were

encouraged by to develop content and instructional standards, and A National Education Goals Panel encouraged states to use those voluntary standards.

Educational research that heavily influenced the development of the QSM included the *What Work Requires of Schools* report (1991) written by the Commission on Achieving Necessary Skills (SCANS) under the direction of the U.S. Secretary of Labor. Commonly known as the SCANS report, it restated the theme of education related to national economic interest found in *A Nation at Risk.* The SCANS report focused on how schools prepare young people for work and identified the skills, personal qualities, and competencies necessary for successful job performance. The five student competencies cited in the SCANS report are (a) identification, organization, and allocation of resources; (b) ability to work with others; (c) ability to acquire and use information; (d) understanding of complex systems; and (e) ability to work with a variety of technologies. The authors of the report suggested that students needed to develop foundational skills in reading, writing, and math as well as learning to think creatively, make decisions, solve problems, visualize, and understand how to learn and reason. In addition, the SCANS report called for schools to help students develop the personal qualities of responsibility, self-esteem, sociability, self-management, integrity, and honesty. Reflecting its genesis in the U.S. Department of Labor, the SCANS Commission consisted primarily of business leaders, and the language of the report applied business systems thinking, quality management, and high-performance rhetoric to education.

Yet another report that shaped QSM development, the federal *Prisoners of Time* report (Kane, 1994), gave further high visibility to the call for changes to instruction and learning. According to this document,

> By far the most important part of this Commission's charge relates not to time but to student learning.... As witnesses repeatedly told the Commission, there is no point to adding more time to today's schools if it is used in the same way. We must use time in new, different, and better ways. (Kane, p. 30)

The report went on to characterize American schools as "flawed by design," as they are based on the assumption that all students learn at the same pace. In order to correct this flaw, the report called for mixed-age classrooms where students learn in flexible and appropriate groups based on their achievement needs. *Prisoners of Time* echoed the calls of other authors for more inspiring curricular and instructional strategies. Content standards developed by professional organizations addressed this last point by shifting the instructional focus to deep conceptual understanding, problem solving, and the application of learning.

In 1994, the Goals 2000 Educate America Act was signed into law by President Clinton in order to

> Improve learning and teaching by providing a national framework for education reform; to promote the research, consensus building, and systemic changes needed to ensure equitable educational opportunities and high level of educational achievement for all American students; ... [and] to promote the development and

adoption of a voluntary national system of skill standards and certification. (1994, sec. 1)

The government-published guide to implementing Goals 2000 (1994) promoted school change created by teachers and administrators working with students, parents, and community members and was instrumental in initiating the school reform in the Chugach School District that led to the development of the QSM. Complementing Goals 2000 was the Improving America's Schools Act (1994), a reauthorization of the Elementary and Secondary Education Act (1965) that continued Title I funding for schools with a large percentage of low-income students. However, rather than endorsing compensatory education efforts to targeted students utilizing "pullout" programs, the Improving America's Schools Act permitted schools to develop school wide reform programs. During the period from 1994 to 1997, the federal General Accounting Office reported that 39% of Goals 2000 money went to sub grants to fund local educational reform activities (General Accounting Office, 1998). The Comprehensive School Reform Program (1997) provided structure for these reform initiatives, outlining nine specific school-reform components required in order to qualify for federal funds. On January 8, 2002, President Bush signed into law the reauthorization of the Elementary and Secondary Education Act (ESEA), The No Child Left Behind Act of 2001, moving the federal CSR program from a demonstration program to part of Title I. This also expanded the nine CSRD criteria to the 11 CSR criteria shown earlier on Table 2.

Federal-level backing of a systemic approach to reform signaled a shift in understanding. By supporting this tactic, policymakers appeared to acknowledge that

simply adopting the latest program is not enough to effect long-term change. The accountability movement ushered in by the No Child Left Behind Act of 2001 (NCLB) has challenged this understanding by introducing a desire for "quick fixes." Such measures can lead to frustration for students and school staff who recognize a lack of sustained improvements in their wake (Dale, 2003).

The current condition of education is "symbolized by measurement of outcomes and the construction of today's accountability systems. The No Child Left Behind [legislation] is the driving transitional force behind this" (Guthrie & Springer, 2004, p. 31). Proposed by President Bush shortly after his inauguration, NCLB became law in January 2002, reauthorizing the Elementary and Secondary Education Act (1965). The four stated principles or "pillars" of NCLB are stronger accountability for results, more choices for parents, greater local control and flexibility, and the use of proven education methods. Accountability measures require the establishment of state standards in reading and math, annual testing for all students in Grades 3 through 8, and annual statewide progress objectives to ensure that all groups of students reach proficiency by the year 2014. Schools that fail to make adequate yearly progress (AYP) toward statewide proficiency goals are subject to increasingly intensive corrective actions. NCLB provides increased parental choice by allowing students who attend Title I schools identified for improvement the opportunity to attend a school that has met AYP. Parents may also elect for their children to receive supplemental services at the school's expense. The Act also furnishes local control and flexibility to states, districts, and schools in determining how NCLB and AYP requirements will be met, though the degree of that flexibility depends

largely on whether or not schools and districts meet AYP. For example, the Act permits transferability of federal funds between four federal programs, provided AYP requirements are met. Further, the Act requires the use of proven educational methods by schools and districts as they comply with improvement criteria toward making AYP. Improvement efforts must utilize "scientifically based research" as the foundation for educational programs and classroom instruction.

The Title I and Title V sections of NCLB made changes to the Comprehensive School Reform Demonstration Program (1997), adding two new components: support for school staff and the use of scientifically based research.

The accountability measures of NCLB have changed the nature of local and state control over education. According to Guthrie and Springer (2004),

> For most of the [last] three and a half centuries ... U.S. public education has been dominated by a doctrine of state plenary authority mixed with the practical reality of local school district management discretion. The new reality is that the accountability measures mandated by NCLB is a new driving force in American education. In essence, the federal government is now the principal propelling policy agent behind American education. Herein may reside, for better or worse, the ultimate legacy of "A Nation at Risk." (p. 33)

The nonprofit Center on Education Policy (CEP; 2006) has studied the effect of NCLB since its passage through surveys and interviews of officials at state departments of education and through case studies of individual schools and school districts. Jennings and Renter (2006) of the CEP concluded that test-driven accountability has become the

norm for public schools. Porter (2006) called this a philosophical shift from opportunity to learn to universal competence.

Rothstein, Jacobsen, and Wilder (2006) argued that universal competence is unattainable because "proficiency for all" is an oxymoron. They wrote,

> No goal can be both challenging to and achievable by all students across the achievement distribution. . Standards can be either minimal, and present little challenge to typical students or challenging and unattainable by below-average students.... it would be impossible to craft standards that simultaneously challenge students at the top, middle, and bottom. (p. 32)

Rothstein et al. acknowledged, however, that closing achievement gaps, meaning eliminating the variation in achievement between socioeconomic groups, is "daunting, but worth striving for" (p. 32).

Lezotte (interview in Sparks, 1993) voiced a different viewpoint related to success for all students. He said it would be foolish to think we know everything we need to know to produce 100% success before beginning to make positive changes. In his opinion, it is possible to help 95% of students succeed by revising existing instructional systems. He concluded, "While our mission is successful learning for all, mission statements are not supposed to be descriptions of current reality but of a preferred future state" (p. 18).

Jennings and Rentner (2006) named four of the major effects of NCLB on public schools 4 years after enactment of the legislation. First, they acknowledged reported increases in student achievement as measured on state tests of reading and math, though

they also cautioned that there is no standard for comparison across states. Second, they noted that curriculum and instruction were more aligned with standards and assessments, and that school systems used performance data more often for instructional decisions and improvement, with a concurrent improvement in the quality and quantity of professional development for teachers. Third, they found that low-performing schools were more actively engaged in curriculum, staffing, and leadership improvements at the school level than in facing externally imposed changes. Their last finding was that the federal government had a stronger role in education than ever before and that the role of state government in education reflected an increased focus on accountability enforcement, monitoring, and assistance. In individual school districts, more duties had been created or assumed than ever before. In the CEP (2006) study, both states and individual school districts reported that they did not have enough funds to administer the requirements of NCLB.

In 2004, the U.S. Department of Education reported findings on individual school success in implementing the CSR components and their effects on student achievement. The Department collected data from a sample of 1,032 schools in 37 states between 1999 and 2001. Researchers then used surveys of principals and teachers, student assessment data, and focused interviews in a targeted sample of 18 schools. Findings indicated that although the incentive of additional federal money had encouraged more schools to adopt comprehensive school improvement, after 2 years, indications of effective implementation of school reform were mixed. The CSR program had a focus on externally developed ("scientifically based") reform models, but researchers found that

most schools had adapted a reform model they had selected to meet the needs of their local setting. Teachers' professional development was more likely to be influenced by curriculum content standards and student assessment data but was not likely to be focused on broad, comprehensive reform topics or issues. There was no correlation between the small gains in student achievement over the 2 years of the study and the implementation of CSR initiatives. Researchers cited the need for further longitudinal study of the data, as implementation of large-scale reform is a process that occurs over time. Finally, researchers found few schools that had developed strategies to gain broad, long-term parent and community involvement (U.S. Department of Education, Office of the Under Secretary, 2004).

The historical events of school reform indicate an evolution from a school-to-school to a system wide approach. School restructuring within the larger context of systemic school district reform has been the focus of many education experts, including Newmann and Clune (1992), Darling-Hammond (1996), Fuhrman (1993), Fullan (2001b), Murphy and Hallinger (1993), Newmann and Wehlage (1995), and Sizer (1992) and within the effective schools research done by Brookover, Edmonds, Frederickson, and Lezotte beginning in the late 1970s. Increasingly, education researchers are leveraging the perspectives of experts in the business field to strengthen a call for large-scale reform.

In 2007, the New Commission on the Skills of the American Workforce issued a report entitled *Tough Choices or Tough Times.* The 26 members of the Commission included two former U.S. Secretaries of Labor and two former U.S. Secretaries of

Education, as well as numerous business, labor, and university leaders. *Tough Choices or Tough Times* marked a return to the focus on American economic capacity found in *A Nation at Risk*. Over a period of 2 years, the Commission conducted four substudies investigating economics and labor markets, industry, education systems, and workforce development. These studies included field research in 14 industrialized and emerging countries. The researchers concluded that the United States is falling farther and farther behind in its ability to be competitive in a global economy. The contributing factors, according to the researchers, include a decline in the number of students earning a high school diploma, a decline in the quality of education received by American students, and an increase in the numbers of highly skilled workers in other countries who will work for lower wages than their American counterparts. The report concluded that

> The core problem is that our education and training systems were built for another era, an era in which most workers needed only a rudimentary education. It is not possible to get where we have to go by patching that system. There is not enough money available at any level of our intergovernmental system to fix this problem by spending more on the system we have. We can get where we must go only by changing the system itself … The problem is not with our educators. It is with the system in which they work. (New Commission on the Skills of the American Workforce, p. 8)

The next section of this chapter reviews the systems concepts that are relevant to educational reform and the QSM.

2.2 Systems Theory and Organizational Structures

Systems' thinking provides a helpful way to look at school reform. Those employing systems thinking do not approach a single event, problem, or action in isolation, instead viewing each phenomenon as a component of larger structures. This section reviews systems concepts that are relevant to educational reform and the QSM.

2.2.1 Implementation Structures

According to Senge et al. (2000), "a system is any perceived whole whose elements 'hang together' because they continually affect each other over time" (p. 78). In their effective schools research, Edmonds and Frederickson (1979) emphasized the individual school as the system for change. Later, researchers realized that in order to sustain school improvement, one must view the school district as the system to change. Lezotte (2003) summarized this shift in thinking as follows:

> Organizational management theories provided significant additions to effective schools research and policy. The concepts of decentralization and empowerment, the importance of organizational culture, and the principles of total quality management and continuous improvement have added important dimensions to our understanding of effective schools. (p. 31)

To make an adequate study of the implementation of a complex initiative like the QSM, in which individuals within different systems are constantly interacting, it is helpful to use Hjern and Porter's (1981) description of implementation structures and Porter's (1990) description of structural poses. Following Porter's schema, one can identify at least five different types of structures that interact in relation to the QSM: (a)

government structures, which include federal, state, and local governance and policy functions; (b) organizational structures, which include not only school districts, but also the organizations and businesses with which they interact; (c) professional structures, which include teachers, administrators, and specialists; (d) market structures, which involve the concepts of buyers, sellers, brokers, consumers, and the exchange of goods and services; and (e) implementation structures, which are like a hybrid of the first four types of structures rather than an amalgamation of them. Porter summarized the features of implementation structures as follows: "Implementation structures comprise individuals who set goals, mobilize resources, coordinate their actions, possess specialized expertise, and produce goods and services" (p. 18). Porter continued, "Dominant values that guide relationships among individuals within implementation structures are nonhierarchical, consensual, voluntary, based on shared values, professional competence, and nonterritoriality" (p. 18).

These features of implementation structures are important to consider when conducting an analysis to determine successful QSM implementation or to describe the degree of implementation of the QSM. Porter (1990) noted, "for a prescriptive theory to be effective, it must be descriptive of the reality it intends to modify" (p. 22). For implementation structures to be effective, the other overlapping systems or structures must also operate effectively—that is, government, the school district and business organizations, professional structures, and market structures. What seems to be the most important tie that binds individuals to the implementation structure is a set of shared values (called *Shared Vision* in the QSM).

2.2.2 Structural Pose

Within the implementation structure, individuals assume different roles and move from being citizens to professionals to consumers, depending on the task and numerous other conditions. Gearing (1968), in his anthropological work studying political activity within Cherokee Indian villages, coined the term *structural pose* to describe the way individuals participated in structures and adopted a code of behavior and expectations specific to each structure. He noted that individuals moved effortlessly between structures and the norms required to function in each. According to Gearing, the concept of structural pose is useful for describing the behavior of individuals within structures and helps to explain why an action might be considered good in one setting but not in another. Porter (1990) used the structural pose model to describe how individuals can concurrently assume more than one role in the various structures that interact within implementation. To understand the structural pose concept within the context of the QSM, it is helpful to imagine an Alaska Native paraprofessional in a village school who is also a parent and community member. This individual interacts with teachers as a paraprofessional, acts as a "seller" in the knowledge market when she provides culturally specific information to the teachers in her building, acts as a consumer of education services as a parent, and participates in the organization of the school district as an employee who is supervised by the teacher and building administrator. Meanwhile, within the community, she may have a role or responsibility in the tribal council, and she is impacted by the federal and state NCLB accountability requirements as both a professional and a parent.

2.2.3 Organizational Structure Theory Applied to Education

The QSM is a guide for both strategy and structure for educational reform. Chandler (1962) defined *strategy* as the long-term goals and objectives of an organization and the actions adopted and resources allocated to carry out those goals. In the case of the QSM, a locally determined shared vision drives the model and sets the course for subsequent action. Chandler defined *structure* as the design of the organization, with two notable features. Structure includes lines of authority and communication, as well as data and information that pass through these lines of authority and communication. According to Chandler, "such lines and such data are essential to assure the effective coordination, appraisal, and planning so necessary in carrying out the basic goals and policies and in knitting together the total resources of the enterprise" (p. 14). The QSM departs somewhat from Chandler's statements on the importance of authority and communication lines in organizational structure, as it relies heavily on the development of a less bureaucratic organization where leadership is shared and where there is strong support for fluid movement of knowledge assets. In this sense, the QSM is more consistent with the implementation structure Porter described.

Porter (2006) likened the NCLB accountability measures to the business structural requirements that gave rise to the multiple-division design Chandler (1964) outlined. Chandler described the problems of industrial organizations in managing and coordinating the activities of increasingly complex, geographically dispersed businesses. This situation had led large companies to adopt multidivisional structures with decentralized decision-making and control. With NCLB, federal policy and regulations

stipulate the necessary results, but decision making for achieving the results is decentralized, with authority passing from states to individual school districts and further to individual schools. Accountability for results resides with individual schools and school districts; the state and federal government have the power to impose sanctions for NCLB noncompliance.

The debate over the best organizational configuration for schools—whether they should be centralized or decentralized—exists alongside debates over curricula, teaching strategies, and standardized testing. In the debate over configuration, proponents of centralization such as Tucker and Codding (1998) have favored stricter curricular and testing standards at the national level. School-based management has been favored by proponents of decentralization such as Mohrman and Wohlstetter (1994). Advocates of even more decentralization, such as Chubb and Moe (1990), have sought government-funded school vouchers and charter schools.

Ouchi et al. (2003) cited the large body of literature that says higher student achievement is linked to decentralized organizations. In contrast, other researchers have argued that because schools are loosely coupled organizations, structure does not have a relationship to performance. As Swanson and Stevenson (as cited in Ouchi et al.) explained,

> According to this perspective, the technical work of schooling (teaching and learning) is only loosely tied to the administrative structure of the school. The work of instruction is performed within individual classrooms that are

substantially isolated from the teaching practices in other classrooms, even within the same school. (p. 7)

Many school systems are a hybrid type of decentralized organization (called by Williamson [1991] an *M-Form organization*) that centralizes some activities to achieve economy of scale but decentralizes decisions to subunits and provides policy guidance and broad accountability from the central office. In an M-Form school system, most of the major functions of the central office are delegated to individual schools, which are fairly autonomous. For example, schools make decisions about which teachers and support staff to hire, the proportion of teachers to classroom aides, how to use other full or part-time staff, which supplies to purchase, how much to spend on computers, and who goes to which training. Williamson suggested that M-Form organizations outperform other types of organizations.

When subunits of an organization are geographically dispersed, as is the case in rural Alaska school districts, the M-Form is more likely to appear. Williamson (in Ouchi et al., 2003) said that decentralization of decision-making is especially important when each operating unit faces unique conditions. He also stated that performance is easier to monitor in M-Form organizations because the subunit has control of most important decisions. The central organization or district office can fairly measure subunits in terms of outputs such as attendance rates and student achievement on standards-based assessments. The success of educational reform efforts in these geographically dispersed subunits (schools) depends on a well-functioning system of shared leadership.

Ouchi et al. (2003) sought to test Williamson's theory that M-Form school organizations outperform more centralized organizational types. For their study, they selected nine school systems, including the three largest systems in the United States (New York City, Los Angeles, and Chicago) as well as Catholic school systems. Using a number of quantitative measures, they concluded that M-Form systems were the most effective, both financially and educationally. In this study, vertical central control was still present in the M-design districts in the form of reported performance measures from schools.

2.2.4 Universal Competence and the Core Technology of Education

With the passage of NCLB, federal policy makers finally abandoned the conclusions of the Coleman report in favor of the philosophy that all students can experience high achievement and that schools can make a difference in students' achievement regardless of their family background. Porter (2006) called this change a philosophical shift from "opportunity to learn" to "universal competence." In the opportunity-to-learn environments of the past, responsibility for ensuring that learning occurred ended when all of the conditions for learning had been provided: facility, instructor, curriculum, and so on. The students' job was to take advantage of what was provided, and if they couldn't or wouldn't, it was their fault that learning did not occur, not the fault of the system. While NCLB requirements have brought fresh legal challenges related to the opportunity to learn in many states, Alaska included (*Moore vs. State of Alaska*), this legislation has broadened the focus of educational policy to include the expectation of higher attainment by all students.

"Universal competence" is the philosophy embodied in the effective schools movement and now adopted in the accountability measures of NCLB. It is the philosophy that all students must achieve certain levels of learning, and that the system has some responsibility for ensuring that they do. The question is whether the core technology exists within educational systems to deliver on the goal of universal competence.

The technology of education rests on abstract systems of belief about relationships among teachers, curricula, and students. Problems begin to arise when these beliefs are operationalized. Education is an example of intensive technology, where both parties (educator and student) are reciprocally interdependent in the production of services (results). It is called a *custom technology* because all of the right ingredients (capacities) have to be available, accessed, and used in amounts and ways specific to the individual situation (Thompson, 2003). Consider the following example: A classroom teacher calls in a special education teacher to administer a diagnostic test, and they determine the best curriculum and teaching strategies for a particular student together. The education of this student may depend on the teacher consulting with other individuals and accessing other resources as well. Each specific case (i.e., the education of a single student) defines which component activities are necessary and in what combination from the whole group of possibilities within the organization.

The core technology of teaching and learning demonstrates the concept of reciprocal interdependence, as the actions of the teacher must be adjusted to the actions the student, and vice versa (Thompson, 2003). The actions of teacher and student are synched through coordination by mutual adjustment, which requires a high level of

communication and decision-making. Reciprocal interdependence is the reason that tutoring and small classes are more effective than large lectures and distance education. Individualized learning is the most costly way for organizations to achieve results, but it is the norm for education.

The core technology of education—the teaching and learning interchange—is coproduced. If learning is the outcome of the delivery of teaching services, the student must be involved ("engaged") for the exchange to occur successfully. The teacher supplies instruction, guidance, and encouragement tailored to the needs of the student, but the teacher and student must work together to increase the student's knowledge.

Broad-scale citizen participation is found during educational policy development, when groups of individuals may band together to influence policy content. A different kind of group involvement comes during policy implementation, when citizens may participate passively by simply paying their taxes (to support a federal program for the general good). Another example of coproduction of policy on a large scale is not so passive—the implementation of NCLB rules and requirements. It might be argued that the coproduction of NCLB outcomes is happening through numerous mutual adjustment activities.

Whitaker (1980) distinguished between individual and group participation in coproduction and defined three types of coproduction involving individuals. One can see all of Whitaker's three types of coproduction in education, but it is the third type that occurs within teaching and learning:

1. *Citizen requests for assistance.* This type of coproduction takes place only when individuals or groups ask for services. Examples in education include a parent's application for the free and reduced lunch program and a parent's request that his or her child be tested for the gifted education program. This type of coproduction is usually marked by a high degree of rules used to determine the "fit" between the requests and certain predetermined conditions. Citizen requests for assistance may have an influence on the distribution of services and resources to a community.
2. *Citizen provision of assistance.* This type of coproduction relies on citizens cooperating with service providers and helping in the design and/or delivery of services to achieve a common goal. In traditional Alaska Native villages, this type of coproduction existed when successful hunters or fishermen shared their bounty with the elderly and other community members who were unable to hunt and fish. Within the context of the QSM, this form of coproduction exists when there is broad community participation in development of the Shared Vision, when an individual volunteers as a mentor to help a student meet Individual Learning Plan goals, and when local community elders teach cultural skills in the classroom. Whitaker (1980) noted the power of a constituency in this type of coproduction by saying, "One way for citizens to indicate lack of agreement that a policy [or school reform] is good is to fail to cooperate. If enough citizens withhold their assistance, a project based on cooperation cannot succeed" (p. 244).

3. *Citizen/agent mutual adjustment*. This type of coproduction is important when the goal is to modify the recipient's behavior (or knowledge). It involves joint consideration of a problem or situation and development of a common understanding of what to do about it. Along the way, the parties modify their expectations and actions, engaging in a high degree of communication. Feedback is internal to this process. In this case, Whitaker said that both student and teacher "share responsibility for deciding what action to take. Moreover, each accords legitimacy to the responsibility of the other" (p. 244).

Whitaker (1980) pointed out that coproduction via mutual adjustment does not necessarily mean the interaction of equals in terms of knowledge or other resources. In the teacher-and-student example, the teacher clearly has greater skill and knowledge than the student and even has the authority to be proscriptive. Despite these disparities, in mutual adjustment, authority is shared—a teacher does not relinquish professional authority but agrees to share it with the student, who has free will and choice over whether to participate in the transaction. Research showing the positive relationship between teacher expectations of students and student achievement and other research showing a correlation between students' perception of teachers as capable and students' willingness to commit to rigorous learning offer examples of the importance of coproduction by mutual adjustment.

Alford (2002) distinguished between citizens, volunteers, and clients in a manner similar to Whitaker and then elaborated on the motivators that elicit coproduction. These motivators, according to Alford, are intrinsic satisfaction, desire for group affiliation and

belonging (solidarity), and collective values "for the good of the group." In addition to motivation, Alford claimed, clients need to have the *ability* to coproduce; organizations aid in this process through the simplification of complex work and by providing training, advice, or help to clients. Sanctions are another motivator for coproduction (or at least compliance), albeit not a satisfactory one, as the motivation in this case is the avoidance of punishment. Alford described sanctions as deficient motivators of positive behavior because they send signals to the client that he or she cannot be trusted to coproduce without some sort of enforcement. Alford found that "sanctions are destructive of clients' voluntary impulse to contribute … The end result is that clients experience the organization's enforcement as arbitrary or as bound up in complex rules" (p. 43).

Within education, the accountability requirements of NCLB act as sanctions to create a group of contingently compliant clients. Contingently compliant clients coproduce, either willingly or reluctantly, because of sanctions that lurk in the background. As sanctions occupy the background space, however, clients have the opportunity to participate willingly. Sanctions are only invoked or applied as necessary. In this case, sanctions have the function of reassuring clients who willingly contribute time and effort that the process is inherently fair. In other words, these clients receive the message that they are not "suckers" who are coproducing more than others (Alford, 2002).

Coproduction of education can be particularly challenging in cross-cultural settings. Rural Alaska, one such setting, has a "long tradition of the delivery of educational services from an external benefactor to an indigenous, and presumed

indigent, beneficiary, the Alaskan native" (Barnhardt, 1977, p. 1). In the next section of this chapter, I review the literature related to the education of Alaska Native children.

2.3 Education of Alaska Native Children and Alaska Educational Reform

The QSM embodies many of the seven principles of the Standards for Effective Pedagogy (Tharp, 2006) that were advanced as effective cross-cultural education practices for underachieving, placed-at-risk groups such as Alaska Native students. Therefore, this dissertation, which describes a study of the QSM and its implementation in three rural Alaska school districts composed primarily of Alaska Native students, includes a review of the following: (a) the history of educating Alaska's Native children, (b) educational reform efforts that have affected Alaska's rural school districts, and (c) research on Native learning styles.

2.3.1 History of Educating Alaska's Native Children

Historically, in Native communities, individuals passed on knowledge informally, but always in a manner that was connected to and grounded by the local cultural and physical environment. Traditional Native "ways of knowing" were largely tacit, transmitted through observation and guided practice. In 1884, soon after Alaska became a territory of the United States, the education of Alaska's Native children began to shift from traditional Native approaches to teaching and learning to a Western style of schooling (Barnhardt, 2001). In the ensuing 125 years, the education of the state's Native students has followed a meandering path that has included statewide initiatives as well as innovative local reform efforts. The history of efforts to educate Alaska's Native youth

has featured numerous judicial and legislative actions and policies related to the philosophy, purpose, and process of this education.

The first White settlers in Alaska were Russian fur traders who opened religious catechism schools for some of the Native laborers and their children. After the transfer of Alaska to the United States in 1867, schools for rural Native Alaskans continued to be run by missionaries and by the newly established Bureau of Education, a unit within the Department of the Interior (Darnell, 1979). In the early 1900s, new federal legislation allowed communities to incorporate and establish schools (Barnhardt, 2001). Soon thereafter, the Nelson Act established schools for White and mixed-race children in areas that were unincorporated, while Native students were still educated by the federal Bureau of Education. This dual system of education was not abolished until 1967.

The dual educational system meant that in communities with both Native and non-Native populations, two government schools were maintained. Darnell and Hoem (1996) wrote of this arrangement, "[paradoxically], students in one segment of the population received an education based on the culture of the home; in the other, students received an education alien to the culture of the home" (p. 66). Though educational opportunity and choices have since changed, in testimony before the U.S. Commission on Civil Rights, the president of the Association of Village Council Presidents stated that "[the] children of Native Alaskan villages in effect go to school in a foreign country every day—a foreign country because they don't speak the language and they don't learn about their culture and traditions" (Alaska State Advisory Committee, 2002).

This segregated school system persisted until the 1960s. At the end of World War II, Alaska's Territorial Commissioner of Education proposed a single school system and a common curriculum for Natives and non-Natives, but the federal government rejected the proposal. Thus, control of Native schools remained with the Bureau of Indian Affairs. Until the 1970s, Alaska's rural Native students had to either travel to Sitka to attend Mount Edgecumbe or leave the state in order to attend high school. As Ray (1958, as cited in Cotton, 1984) explained, "The federal policy was to acculturate Alaska Natives by sending the most intellectually advanced youths to boarding schools for a vocational education, then returning them to their village" (p. 31).

As an alternative means of high school education for rural students, in the 1970s the government created a Boarding Home Program and regional schools, both of which required students to leave their home village to pursue an education. Many of the grandparents and parents of the Native students who were part of the current study attended school under these circumstances and conditions. During this time, the educational philosophy of the federal government regarding Native students included an expectation that Natives would become assimilated into non-Native culture, and that the high school curriculum for Natives should be strictly vocational (Barnhardt, 2005; Cotton, 1984; Darnell & Hoem, 1996).

Congress defined the educational rights of all students in the Civil Rights Act of 1964. In the Elementary and Secondary Education Act in 1965, Congress designated federal funds for disadvantaged students. However, one of the most significant changes in education in Alaska occurred in 1976 as a result of *Tobeluk v. Lind*, commonly known as

the "Molly Hootch case." The lawsuit was based on the argument that rural village high school students did not have an equal opportunity to learn because there was no high school in their community (Cotton, 1984). The settlement of the case spelled out the criteria for the opportunity to learn: a high school in every village that wanted one, along with provisions for the size of the facility. Equally significant, the settlement stated that the decision-making power over schools had to be turned over to local communities. This resulted in the dismantling of the previous federal and state system of oversight and administration for Alaska's rural schools and the creation of 20 (now 23) new regional school districts, called Regional Educational Attendance Areas (REAAs). Of significance is that the REAA had responsibility for school curricula, staffing, and budgets.

Most recently, a case concerning funding for the education of students in rural communities came before the Alaska Supreme Court. Two of the school districts in this study, Bering Strait and Kuspuk, were plaintiffs in the *Moore v. State of Alaska* (2005) class action suit, which alleged that the State of Alaska was not adequately funding education in rural Alaska. The Alaska Supreme Court ruled in 2007 that while there was not a preponderance of evidence that the state was not adequately funding rural education, the state was not adequately monitoring district use of resources to meet the educational needs of students. A final decision in the case is expected in 2009 or 2010; until then, the court is allowing the State time to provide assistance to low-performing districts. It is within this local and state setting that recent educational reform in Alaska has occurred.

2.3.2 Educational Reform in Alaska

Most state-level reform efforts in Alaska schools have been based on "national models related to issues of accountability, standards, and standardized testing of students and teachers" (Barnhardt, 2001, p. 26). These efforts have followed a timeline and a process similar to those in other states and have included many of the state policy changes seen elsewhere, with resultant standards around which school districts have been encouraged to organize curricula and instruction. In the 1990s, Alaska responded early to federal education policy changes and the call for states to develop academic standards. Work to create voluntary content standards began in 1991; this effort was named the Alaska Quality Schools Initiative (QSI) in 1996. Districts could receive QSI grants if they adopted standards, provided additional services to students who were not meeting the standards, and trained staff to monitor student learning toward meeting the standards. By 1998, the Alaskan legislature had passed laws mandating (a) competency testing before students could receive a high school diploma (initially, this provision was effective in 2002; later, the date was changed to 2004); (b) the development of student performance standards in reading, writing, and math; and (c) annual reports by districts to the state and local communities with specific information about student and district performance. For the past 5 years, NCLB-compliant reform efforts in Alaska have mirrored those in other states.

Several reform efforts in Alaska, including the QSM, have been attempts to bridge the gap between state- and federal-level accountability and local control. One initiative unique to Alaska was the Rural Systemic Initiative (RSI). In 1998, the RSI,

supported by the National Science Foundation, the Alaska Federation of Natives, the Annenberg Rural Challenge, and local Native corporations, worked to establish cultural standards for Alaska students. These standards contained broad statements of what students should know and be able to do as a result of their experience in a school that was culturally aware. The student standards were later included in a more comprehensive set of standards called the Alaska Standards for Culturally Responsive Schools (1998). A panel of Alaska Native educators developed the Culturally Responsive Schools document as a way for schools to measure their effectiveness in meeting students' cultural needs. The document included student standards as well as standards for educators, the curriculum, the school, and the community. The QSM reflects the Alaska Standards for Culturally Responsive Schools. Overall, however, the implementation of these standards has not been uniform among the state's rural Native schools. Another reform initiative, Alaska Onward to Excellence (AOTE), focused on systematic communication between schools and local villages, gathering input regarding local values and beliefs. AOTE initiated the later development of the QSM. The QSM, a third reform effort, represents an attempt to combine the successful components of the first two efforts with successful national reform initiatives in a local manner that emphasizes contextual teaching and increased local governance. (Section 3 of this chapter describes the QSM in detail.) Despite these reform efforts, barriers to learning have persisted in Alaska.

Beaulieu (2000) and the McDowell Group (2001) cited factors that can be barriers to success and must be mitigated in order to accomplish educational reform in schools and districts serving Native students in order to help these students have a positive

academic experience. In addition to the high dropout rates cited in the 2003 Civil Rights report, they pointed to high professional staff turnover and limited knowledge of the school staff about effective processes for school improvement in predominantly Native populations. The needs of a higher proportion of English Language Learners must be considered in some cases, as must issues of substance abuse, violence, and crime that can touch the life of every member of a very small community. Further, any educational reform initiative within a Native community must honor community educational objectives for the retention of language and culture.

Eisner (2004) claimed that overarching educational policies that have focused on homogenized results have been inhibitors of educational reform and success for students with diverse intellectual strengths. He wrote, "Good schools increase individual differences, not reduce them. Effective schools increase variance or individual differences among students" (p. 36). Benham Tye (2000) identified the "deep structure of schools," meaning the embedded assumptions about how schools should operate, as the cause of low performance by many students. She was referring to practices such as the age/grade structure that treat time as a constant, giving students 10 months to master specific curriculum concepts identified for a grade level.

2.3.3 Western-Style Schooling and Alaska Native Students

Many have argued that the development of Alaska's rural schools was based on the erroneous assumption that a Western style of schooling would be successful with Native students (Barnhardt, 2001; Darnell, 1979). Kawagley (1995) pointed out that a style of schooling based on Western beliefs and practices has not always meshed well

with the Native worldview. Demmert et al. (2006) echoed this sentiment by stating that the Western approach to education does not foster or include the Native style of passing on traditional knowledge. After reviewing the literature on this subject, one could easily conclude that the struggle between traditional Native methods of learning and the Western approach to schooling—a struggle first identified in 1928 in the Merriman report—is still active today.

More than 20 years ago, researchers showed that differences between a student's home culture and the mainstream behaviors promoted by the school can contribute to academic and social failure for the student (Heath, 1983; Ogbu, 1987). Continued disparities between the academic performance of Alaska Native students and their White counterparts suggest that both cultural differences between the home and the school and the gap between the pedagogical style of the traditional Western school and the learning styles of Native students are reasons for Native students' lower performance.

Native learning styles have been a topic of intense review and debate. Several authors (Bland, 1975; Kleinfeld & Nelson, 1991; Stellern et al., 1986) have reported that their research was inconclusive in terms of revealing a dominant learning style for American Indian/Alaska Native students. MacIvor (1999) asserted that there is no absolute or generic "Indian learning style." From this research, one may surmise that learning style is not genetic, but is rather, as Vygotsky (1988) stated, a result of socialization processes. While it may be wrong to claim that the learning style of each group or tribe is unique, there is research to support the contention that learning is best

facilitated when the cultural personality of the student is in sync with the school's style of pedagogy (Greymorning, 2000).

Research on the learning styles of Native children (Pewewardy, 2002) has found that four learning traits are common among the members of this group: (a) a field-dependent or global-processing learning style (Kogan, 1971, Tharp & Yamauchi, 2004), (b) a visual style (Lipiniski, 1989, 1990), (c) a reflective style (Hall, 1991; McShane & Plas, 1994), and (d) the classroom management positive effecting learning style (Lipka et al., 2005; Scollon & Scollon, 1981; Tharp, 1989). It is noteworthy that the four styles do not include an auditory approach. This is significant, as the traditional Western approach to education stresses auditory learning. With the assumption that learning style is not random, one can fairly state that if the schooling process is to be effective, then the approach toward learning must include contextual material that makes a connection to the student's culture. Lipka et al. (2005) conducted research on teaching math to Alaska Native students through a curriculum that included contextual models (e.g., a fish rack). Results of this research indicated that the culturally relevant approach led to an increase in students' learning when compared to a more traditional, Western style of math instruction with this same group of students. Barta et al. (2001) suggested that a contextual approach to learning—one that includes culturally relevant curricula—is a necessary bridge between home and school.

Sternberg (2006), reporting on studies conducted with students in both Alaska and Kenya, found that capitalizing on students' cultural strengths improved their achievement. In Sternberg's work, researchers assessed students' creative and analytic

abilities with questions related to practical, culturally relevant knowledge. The researchers presented these questions on tests that mimicked the hallmark features of standardized tests (i.e., tests that included written, objective, and multiple-choice items). Under these conditions, researchers found that students had a depth of adaptive knowledge and skills that were not apparent on standardized tests. Sternberg concluded, "Which students do well depends on what we test" (p. 31). Contrasting performance-based demonstrations of knowledge with standardized tests, Barnhardt and Kawagley (2005) said,

> In Western terms, competency is often assessed based on predetermined ideas of what a person should know, which is then measured indirectly through various forms of "objective" tests. In the traditional Native sense, competency has an unequivocal relationship to survival or extinction—if one fails as a caribou hunter, the entire family is in jeopardy. One either has or does not have requisite knowledge, and it is tested in a real-world context. (p. 11)

Reporting on a 3-year study of rural school reform conducted by the Northwest Regional Educational Lab and University of Alaska Fairbanks researchers, Kushman and Barnhardt (1999) recommended the following strategies as means for increasing educational achievement for Alaska Native students, all of which are present in the components of the QSM:

1. Provide role models and support for creating a positive self-image to which students can aspire.

2. Parent involvement needs to be treated as a partnership with more shared decision-making.
3. Strengthen curriculum support for culturally responsive, place-based approaches that integrate local and global academic and practical learning.
4. Encourage the development of multiple paths for students to meet the state standards.
5. Sustainable reform needs to be a bottom up rather than a top down process and has to have a purpose beyond reform for reform's sake.

Although research on the education of American Indians and Alaska Natives was still ongoing, the U.S. Commission on Civil Rights issued a comprehensive report in 2003 entitled *A Quiet Crisis: Federal Funding and Unmet Needs in Indian Country*, in which the authors drew the following conclusion with regard to the education of Native American students:

> As a group, Native American students are not afforded educational opportunities equal to other American students. They routinely face deteriorating school facilities, underpaid teachers, weak curricula, discriminatory treatment, and outdated learning tools. In addition, the cultural histories and practices of Native students are rarely incorporated in the learning environment. As a result, achievement gaps persist with Native American students scoring lower than any other racial/ethnic group in basic levels of reading, math, and history. Native American students are also less likely to graduate from high school and more likely to drop out in earlier grades. (U.S. Commission on Civil Rights, 2003, p. xi)

The U.S. Commission on Civil Rights report stated that opportunity to learn and cultural factors related to learning, including learning styles associated with Native education, must be addressed in any successful attempt at educational reform. This seems especially important in Alaska, where nearly a quarter of the school-age students are Native. In an educational culture that emphasizes accountability through measurement of student achievement on standardized tests, students have the best chance of success when they understand the "cultural capital" that is being tested (English & Steffy, 2001). Eisner (2004) summarized this concept by paraphrasing Plato: "what is honored in a culture will be promoted there. The kind of intelligence a culture prizes influences its development" (p. 32).

The QSM inclusion of a contextual approach to instruction may be one of the reasons that Alaska Native students working within the model are achieving increased performance on multiple measures. This Balanced Instructional Model (BIM) trains teachers to balance four instructional delivery methods; Direct Instruction, Practical Application, Interactive Simulation, Real Life Application. In the next section, I explain the structure of the QSM and examine related literature.

2.4 The Quality Schools Model

The three school districts that are the focus of this study have relied heavily on the work of the Chugach School District, which developed the QSM. This section of the review provides a history of the model's development and a review of the literature on the model's four components.

2.4.1 Overview of Four Studies

This section provides an overview of four studies that focus specifically on the QSM. These studies' findings and recommendations for future study are reflected in this dissertation's design.

In his study, conducted in the Chugach School District, Jester (2002) aimed to "understand the district's standards-based reform in sociohistorical context" (p. 1). Jester conducted interviews, made observations, and analyzed documents in order to examine the QSM; he then considered these data within the context of a "civilization-savagism paradigm" (p. 7) that seeks to "erase Indian identity by eliminating external symbols of tribal attachment and replace their tribal identity with the values and behaviors of civilized society" (p. 4). Jester concluded that policies and practices present in Chugach's implementation of the QSM reflected the three strategies used historically to implement the civilization-savagism paradigm. Jester determined that students' short-term attendance at the district's residential Anchorage House "remove[d] Alaska Native children from the perceived unhealthy/inferior homes and communities and immerse[d] them in the healthy/superior environment of the dominant society where they could learn to live healthy/superior lives" (p. 28). Jester considered the inclusion of career, personal, and social development in the Chugach curriculum to be an intentional attempt to focus on nonacademics. This focus, Jester contended, reflected the civilization-savagism strategy of preparing Indian/Alaska Native students for "underclass positions in the U.S. society" (p. 28). Finally, Jester concluded that Chugach administrators and teachers developed and perpetuated an "unhealthy Native construct" (p. 29) for the purpose of

indoctrinating Alaska Native students in the ways of the dominant society. Jester based his findings largely on interviews with Chugach administrators and teachers, and he used their comments as evidence of civilization-savagism strategies at work. Although interviews were conducted with school board members, no interviews were conducted with parents, students, or other community members—key stakeholders in the Shared Vision component of the QSM. Jester perceived these groups as the victims of civilization-savagism strategies. Jester's recommendations for future study include considering how stakeholders in QSM districts perceive the shared-vision concept and how Alaska Natives perceive and respond to standards-based reform.

Reagle (2007) sought to address Jester's (2002) criticisms of the QSM and to discover "how the voices of Alaskan Native people in one school district were and are being impacted by the QSM—the voices of students, parents, community members, and educators" (p. 6). Focusing her mixed-methods research on the Bering Strait School district, Reagle considered quantitative student performance data publicly available through the Alaska Department of Education; she also analyzed qualitative data gathered through written surveys for educators and through interviews with parents, community members, educators, students, and QSM developers. Reagle found that implementation of the QSM in the Bering Strait School District "resulted in positive involvement of students, parents and community members" (p. 174), "new interaction patterns of involvement for Alaska Native parents and community members that have potential for sustainable results" (p. 175), and "a genuine Shared Vision that was fostered and supported by students, parents, community members, and educators" (p. 183).

Challenging Jester's (2002) claim that the QSM marginalized Alaska Natives for the district's benefit, Reagle found that "responses from students, parents, and community members *when asked how the district was different from three years ago* included comments of understanding, satisfaction, and ownership of the new system" (p. 212). Reagle recommended that future QSM research in the Bering Strait School District consider whether new interaction patterns among the schools and communities have been established and how the district supports and staff perceive professional development.

Marzano (2005), in studying the QSM to determine whether it was consistent with Comprehensive School Reform criteria, found that "in general, the QSM addresses the vast majority of the 11 CSR criteria at least to some extent" (p. 46). Table 3 provides an overview of Marzano's findings.

Marzano (2005) found that the QSM adequately met 7 of the 11 CSR criteria. Regarding Criterion 2, Marzano found that "the QSM explicitly or implicitly addresses all aspects of this criterion" (p. 43). Additionally, Marzano stated that goals and benchmarks for student academic achievement (Criterion 4) were "addressed in great detail within the implementation of the QSM" (p. 44). Furthermore, the Continuous Improvement and Leadership components of the QSM address building support for QSM reform efforts and facilitating shared leadership (Criteria 4 and 5; p. 45). Marzano found that the QSM's Continuous Improvement component also addressed parental and community involvement (Criterion 7). The Bill and Melinda Gates Foundation's involvement provided evidence of Criterion 10, which requires obtaining resources to support the reform effort.

Table 3

Summary of 11 Comprehensive School Reform Criteria as Applied to the Quality Schools Model (Marzano, 2005)

CSR Criterion	Findings
1	The Balanced Instruction Model (BIM) presents a list of instructional practices; however, no empirical evidence is presented as to these practices' effectiveness.
2	The QSM & BIM, explicitly or implicitly address instruction, assessment, professional development, and school management. Classroom management is not directly addressed. Treatment of QSM elements is not uniform.
3	The QSM addresses as criteria teacher and staff professional development and training; however, the QSM provides little explicit guidance in terms of how high quality is to be achieved.
4	The discussion of the Design and Application of Standards within the QSM addresses measurable goals with benchmarks in depth.
5	The Continuous Improvement component of the QSM addresses support by teachers, principals, administrators, and other stakeholders.
6	The Leadership component of the QSM addresses how shared leadership offers support for teachers, principals, administrators, and other staff.

Table 3 *(continued)*

CSR Criterion	Findings
7	The Stakeholders component of the QSM addresses the involvement of parents and local community, but the emphasis is on intergroup communication and program planning rather than on program evaluation.
8	There is no explicit discussion of the use of external institutions for technical support.
9	An annual review appears implicit in the QSM; however, the QSM offers little explicit guidance.
10	There is no explicit attention to the procurement of external resources; however, such involvement can be inferred.
11	Data are presented regarding the improvement of student achievement, but no strong argument or presentation of data is provided.

Marzano (2005) identified four CSR criteria that needed improvement in the QSM. Regarding Criterion 1, he advised that the "QSM's instructional model be simplified and that research and theory supporting the model be detailed in a rigorous and comprehensive" report (p. 47). He suggested the QSM could strengthen Criterion 3, which focuses on staff professional development, by providing districts with specific recommendations for effective practice (p. 48). Criterion 9—which requires the annual evaluation of the school reform model—and Criterion 11—which requires strong

evidence of improving students' academic achievement—could be addressed through "an annual review and synthesis of the documented impact of the model on student achievement" (p. 48). Marzano cited the planned study by Coladarci et al. (2005) as a good place to start.

Coladarci et al.'s (2005) study is the fourth that focuses on the QSM. The researchers invited employees in 16 school districts involved in QSM implementation to participate in an online survey. The Re-Inventing Schools Implementation Monitoring (RIM) Survey contained 32 items that assessed respondents' perceptions of the four QSM components using a six-point scale ranging from *aware of need* to *I teach how*. A total of 642 respondents completed the survey, over half of whom had been in a QSM district for 3 years or more. For each individual, a composite score across all 32 items served as an overall indicator of QSM implementation. The researchers also used mean composite scores to obtain a mean implementation score for each district. Additionally, the researchers used respondents' demographic information to differentiate between perceptions of those who had been in a QSM district for 1 to 2 years and those who had been in a QSM district for more than 2 years. They found that respondents who had a longer history with the QSM "appear to be higher in QSM implementation as measured by the RIM survey" (p. 11). Coladarci et al. also analyzed the results of state-mandated exams in Grades 3, 6, 8, and 10 over a 4-year period (from 2000 to 2004); these data were aggregated across grades to obtain a "proficiency percentage for each content area for each year" (p. 12). Seven of the 15 districts had the highest percentage of reading-proficient students for the 2001-2002 school year; the researchers also found a pattern of

increasing writing proficiency across all 4 years. There was no consistent pattern across districts in the area of mathematics. Using the RIM results and the proficiency scores for 2003-2004, the researchers considered whether "districts involved with QSM longer have a higher percentage of proficient students when compared to districts having less experience with QSM" (p. 29). They found that

> in general RIM-related perceptions are positively and significantly correlated with district achievement in 2003-2004: Higher achievement generally is found in districts where employees report higher levels of QSM implementation and lower achievement is found where lower levels of QSM implementation are reported. (p. 34)

The researchers cautioned readers against inferring a causal relationship between RIM scores and proficiency scores, calling the findings "encouraging associations" (p. 34).

I will now consider the findings from these four studies, as well as related research, to describe the QSM's four components.

2.4.2 Four Components

The QSM provides for systemic educational reform through four interrelated structural components: Leadership, Shared Vision, Standards-Based Design, and Continuous Improvement. The adoption of the model, then, is a necessarily systemic endeavor. It is apparent, however, that many school districts are adopting the model without making the prescribed improvements in all four areas. For instance, some are adopting standards, creating assessments, and improving associated pedagogy without giving adequate attention to the other three components. A partial or staged

implementation of the QSM has not yet been studied for its effectiveness. The QSM advocates that a district thoroughly review and, if necessary, improve the model's four components. I will discuss in more detail below how theory and research are related to each of the four elements.

2.4.3 Leadership

Frances Hesselbein, president and CEO of the Peter F. Drucker Foundation, has said that today's leaders must recognize and demonstrate that people are an organization's greatest asset. In systemic educational reform, the best leadership is not a singular effort. Leaders share or distribute responsibility to create ownership. Accordingly, shared leadership is a well-defined feature of the QSM. Leithwood, Seashore-Louis, Anderson, and Wahlstrom (2004) outlined the following three sets of core leadership practices, all of which are included in the QSM:

1. Developing people—Enabling teachers and other staff to do their jobs effectively, offering intellectual support and stimulation to improve the work, and providing models of practice and support.
2. Setting directions for the organization—Developing shared goals, monitoring organizational performance, and promoting effective communication.
3. Redesigning the organization—Creating a productive school culture, modifying organizational structures that undermine the work, and building collaborative processes.

James O'Toole of the Aspen Institute advised that it takes more than technical knowledge to be a leader. The best leaders make the best decisions by including the

broadest set of perspectives, taking the longest term view, including the most issues, and looking at all of the consequences for all stakeholder groups. Drucker summarized school leadership by noting that "successful school leaders … are those who understand learning needs, develop plans to address those needs, establish priorities, implement the plans, monitor how the needs are being met and are accountable for their actions" (as cited in Sundre & Raisch, 2002).

Marzano et al. (2005) conducted a meta-analysis of 69 research studies to determine the role of leadership, using student achievement scores on large-scale tests as a measure of school effectiveness. The researchers found a correlation of .25 between a principal's leadership behavior and the average academic achievement of students in that principal's school. They then used these findings to develop a set of 21 school leadership principles. These principles were similar to those developed by Cotton (2003), who used a traditional narrative review. The meta-analysis, however, allowed Marzano et al. to form additional hypotheses and conclusions.

The correlations in the Marzano (2005) study ranged from .33 for situational awareness to .18 for relationships. Marzano et al. cautioned that ranking the 21 responsibilities based on correlation would lead to erroneous conclusions, and they instead called attention to how tightly clustered most of the correlations were. The researchers used a factor analysis to measure principals' self-reported responses to questions that measured beliefs and practice related to the 21 principles.

In their study, Marzano et al. (2005) found some behaviors to be more important for different degrees of change, which they termed *first-order* and *second-order change*.

First-order change affects the daily operation of a school and is neither large nor dramatic. Second-order change, by contrast, involves deep change to the system in fundamental ways, much like the change that Alaska's QSM was designed to provide. Second-order change is not incremental and is dramatic. Marzano et al. concluded that all 21 of the principles they identified were important to first-order change, at least to some degree. Not all the principles had equal importance, however; Monitoring/Evaluation had the greatest importance, whereas Change Agent was the least significant to first-order change.

By contrast, the researchers identified seven principles important to second-order change, three of which also ranked high for first-order change (Monitoring/Evaluation, Ideals/Beliefs, and Knowledge of Curriculum). These three responsibilities were deemed important to any type of change. Three other responsibilities important for second-order change were ranked low for first-order change (Change Agent, Optimizer, and Flexibility). Marzano et al. also concluded that second-order change negatively affects some principles (Culture, Communication, Order, and Input). This is an important conclusion, as it acknowledges that school leaders may pay a price for implementing second-order change. Specifically, team spirit and communication may deteriorate, order and routine may be disrupted, and staff input and enthusiasm may suffer.

The QSM is an example of a school reform model that strives for second-order change. Leadership responsibilities for second-order change are as follows (Marzano et al., 2005, pp. 70-72):

1. Knowledge of curriculum, instruction, and assessment: specifically, recognizing how the change initiative will affect those functions and having the ability to provide guidance in these critical areas.
2. Optimizer: becoming the driving force behind the change or innovation and championing that belief to others.
3. Intellectual stimulation: becoming knowledgeable about the theory and research behind an innovation and helping others learn more about it.
4. Change agent: being willing to take a risk when the success of a proposed change is not guaranteed and being willing to challenge the status quo.
5. Monitoring/evaluation: using qualitative and quantitative data and evidence to monitor the progress and impact of a change.
6. Flexibility: using situational awareness to determine a balance between being directive and being nondirective relative to the change.
7. Ideals/beliefs: always operating in a consistent manner grounded in personal ideals and beliefs.

In discussing the necessities and challenges of school leadership today, Peter Drucker said,

> Leaders in effective schools emphasize core values and devote time and effort into measuring how those core values are being translated into effective learning. Focusing on outcomes and how to achieve them rather than concentrating only on responsibilities and how to discharge them is among the most difficult challenges facing today's educators (as cited in Sundre & Raisch, 2002).

2.4.4 Shared Vision

The QSM is designed to be driven by the vision of a school district's stakeholders. This shared vision of the district's future is used for all goal setting. When leadership is shared, as it is in the QSM, a strong shared vision must also exist to guide decision-making; such a shared vision is critical to the QSM's success (Reagle, 2007). Without a process for building a shared vision, there is no way for schools to articulate their sense of purpose (Senge et al., 2000). One of Peter Drucker's premier ideas was management by objectives, or achieving a set of results by aligning the work of people within an organization to a shared set of objectives (the Shared Vision). He said, "To achieve long-term success, an organization must have a purpose that elicits the dedication of its people" (as cited in Watson, 2002, p. 56). Drucker said that managing by objectives changes the supervisor's responsibilities so that he or she elicits agreement on and support for these objectives. Employees then define the means for achieving the organization's shared vision. Ted Sizer also supported the need for a shared vision when he stated the following:

> You're not going to get significant, long-term reform unless you have subtle but powerful support and collaboration among teachers, students, and the families of those students in a particular community. Without that, you can get short-term changes in instruction, but you won't get at the heart of reform. (as cited in O'Neil, 1995, p. 4)

The processes of building and spreading a shared vision are more dependent on informal knowledge networks than they are on written and technology-aided

communication. In describing the formation of shared vision, Senge et al. (2000) noted the following:

> Catalyzing people's aspirations doesn't happen by accident; it requires time, care, and strategy. To support this creative process, people need to know they have real freedom to say what they want about purpose, meaning, and vision with no limits, encumbrances, or reprisals. (p. 72)

Senge et al. (2000) also noted that the shared vision of a school district brings together all the disparate aspirations of individuals for a common purpose. Developing a shared vision is the important first step in implementing the QSM. In her study of the Bering Strait School District (where 98% of the student population is Alaska Native), Reagle (2007) concluded that the shared-vision process was important for creating focused conversation, developing mutual respect, linking Alaska Native culture to the curriculum, and creating a "bridge" to address past injustices and inequity (p. 182). As part of the QSM, development of the shared vision is not an event but is instead a process that must be revisited. In her study, Reagle found that the shared-vision process and conversations helped the district remain aware of the distinctions between villages spread over a large geographic area. Developing a shared vision over such a large area was challenging and took time, as Reagle acknowledged:

> The time to travel and meet with parents, community members, students, and educators in all of the 15 BSSD sites was not a rushed process. Each visit allowed for conversations to take place amongst communities, as well as time for the information to be shared and discussed locally. Patience and time [are not] virtues

> typically followed by Western culture; however, [they] are highly valued by indigenous cultures. BSSD has many Native and long-term non-Native educators who understood this important detail. (p. 183)

2.4.5 Standards-Based Design

Fullan (2001b) determined that restructuring initiatives that were limited to procedural changes—such as scheduling in blocks and lengthening school days or calendars—were insufficient for changing educators' understanding of teaching and learning's basic nature and purpose. He did, however, consider the restructuring of curriculum design and delivery for high student achievement to be effective for encouraging deep and fundamental cultural change in education. Research by Kannapel and Clements (2005) and Levine (2005) found that students are successful when schools provide a caring, nurturing environment and high expectations for all students and staff; share leadership roles among all the stakeholders; utilize a curriculum and instructional program that focuses on best practices and research; and have a system in place for continuous improvement (Kannapel & Clements; Levine).

Eight to 10 content areas comprise the core of the Alaska QSM, including the usual academic subjects and innovative areas such as technology, service learning, and personal development. Students attain competency in each content area by showing proficiency in the content level's standards. Researchers, including Levine and Lezotte (1990), have emphasized mastery of academic content and more authentic measurements of curriculum mastery using portfolios, projects, and actual performances (Lezotte, interviewed in Sparks, 1993). Graduation from QSM-aligned schools is competency-

based and a result of clearly defined expectations, defined routes for achievement, and self-directed responsibility for learning.

Marzano (2005) looked at how standards, as well as an instructional model and tools, were used in the QSM. He examined report cards, content and performance standards, and assessment rubrics for the Chugach, Lower Kuskokwim, and Bering Strait School Districts. Using the standards and current assessments, Marzano calculated the number of decision points encountered by teachers at each grade level during an academic year. Because the instructional model was based on the Chugach School District's practices, results in the other two districts were close but not identical to those found in Chugach.

Next, Marzano (2005) looked at the instructional delivery model and tools. The delivery model was composed of direct instruction, performance tasks, thematic units, and individualized learning plans. Additionally, a School-to-Life component occurred in four distinct phases for secondary-school students.

Marzano (2005) concluded that the individualized nature of instruction was one of the QSM's greatest strengths. He acknowledged that the Balanced Instruction Model provides structure and guidance that inexperienced or floundering teachers might find useful. Additionally, teachers and administrators use a common language to talk about the model. Marzano raised concerns, however, about the sheer volume of standards and assessments. There are more student assessment data points within a given level than teachers can be expected to manage, especially as these data points must also be

recorded. He recommended either devising measurement categories or organizing standards into topics to scale back on the number of required student assessments.

In his evaluation of the Balanced Instruction Model, Marzano recommended a reconceptualization without sacrificing the model's most effective elements. He called for the model to be simplified by enfolding some elements into larger pieces. This simplification would also eliminate some of the specific terminology that teachers encounter and that causes confusion. Marzano cautioned that when teachers become confused, they regress to what they are comfortable with; as a result, they abandon the changes inherent in the Standards-Based Design component.

2.4.6 Continuous Improvement

The Japanese concept of *kaizen*—which roughly means "step-by-step improvement"—is at the heart of continuous improvement, which implies solid and lasting change based on a long series of small and achievable projects (Sallis, 1993). Systems continually send signals to themselves through circular loops of cause-and-effect relationships (Senge et al., 2000). These signals, in turn, drive improvement efforts. The QSM explicitly uses two formal continuous improvement processes; one for students and one for schools, programs and staff. All students have at least one active Individual Learning Plan (ILP). The ILP is a goal setting process where students, teachers, and families collaboratively write goals based upon the student's needs, interests, and various performance data. Task analysis is used to develop the Steps to Success and a variety of assessment formats are identified to determine achievement of proficiency. When an ILP is complete, a new ILP is developed. Concurrently, all staff uses a variety of data to

develop their individual professional goals in the PIER (Plan, Implement, Evaluate, Refine) process. Schools and major programs of QSM districts develop a PIER as well. Monitoring and measuring success rates for the ILP and PIER processes provides ongoing opportunities for continuous improvement in all aspects of the system. In addition, a growing library of ILP and PIER plans is maintained and used by anyone who may benefit from reviewing successful plans in an effort to make further improvements.

Practicing continuous improvement means being willing to think outside of current paradigms and problem-solving methods. Those engaging in continuous improvement need to be rewarded for their risk taking and willingness to propose and try new ideas. Individual involvement has to be substantive rather than pro forma. When individuals believe their ideas count and are respected, the foundation for continuous improvement is in place (Gemberling et al., 2004).

By design, the system level QSM Continuous Improvement component calls for decision making based on a thorough review and evaluation of a wide range of performance-based and stakeholder satisfaction-related data sources. The concepts of continuous improvement and systems thinking are undermined by the idea that decision-making in organizations should be based on facts and focus, rather than on perceptions and politics. Because the process is continuous, success can always be increased. When discussing the "problem" of success, Peter Drucker noted, "Success always makes obsolete the very behavior that achieved it. It always creates new realities. It always creates, above all, its own and different problems" (as cited in Sundre & Raisch, 2002).

Sallis (1993) noted several barriers to continuous improvement in school systems, including organizational culture and the tendency of organizations to seek equilibrium (i.e., the tendency to adopt a philosophy of "if it's not broke, don't tinker with it"), lack of time, external pressures, and poor or ineffective communication and knowledge management. Sallis said, "The importance of a clear and positive communication strategy cannot be overstated.... Without clear thinking and thoughtful communication, energy can be misdirected and wasted" (p. 127).

Obviously, higher student achievement is the desired QSM implementation outcome. Based on 2003 data, one could conclude achievement for Alaska Native students has not risen over time to the degree it has for other groups of students (McDowell Group, 2004). In an analysis of QSM implementation relative to student performance, Coladarci et al. (2005) concluded that Native student achievement as measured by state benchmark examinations had improved more in schools and districts using the QSM than it had in comparable schools not using the QSM. The researchers also found generally higher student achievement in districts where employees reported higher levels of QSM implementation (as measured by the survey) and lower achievement where lower levels of QSM implementation were reported. They concluded that student achievement in reading and mathematics was positively and significantly correlated to the Shared Vision and Continuous Improvement elements of the QSM.

Research to date suggests that systemic educational reform must be tailored to the local setting and conditions and that a staged implementation may be successful. Jester (2005) questioned how other school districts seeking to implement the model might

recontextualize it, and he concluded that because each Alaska community has unique characteristics, the possibility of implementing the QSM in other Alaska school districts needs further research. Sizer (in O'Neil, 1995) said, "Lasting reform requires creating a climate for local educators and community members to craft their own improvement strategies" (p. 4).

One of the QSM's foundations is that it does not allow social promotion. This approach toward student accountability is also promoted at the district level. As such, continuous improvement efforts should include a holistic examination of the district. Although several models holistically measure a district's performance, the QSM districts consider (because of the Chugach School District's award) the MBNQA Education criteria appropriate for this assessment. The next section of this review examines research on the MBNQA Education criteria.

2.5 The Quality Perspective and the Malcolm Baldrige National Quality Award

In 2001, the Chugach School District became one of the first two educational organizations to be recognized with the Malcolm Baldrige National Quality Award. This section reviews the literature regarding quality, its relevance to effective schools, and its measurement through the Baldrige National Quality Award.

2.5.1 The Quality Perspective

Both Total Quality Management (TQM) and the MBNQA Education criteria focus on the implementation and measurement of quality. Experts' various definitions of quality can be broadly summarized as either measured by an objective, fixed set of quantifiable expectations, or measured through customer satisfaction, which is

qualitative. Sallis (1996) wrote that the quality of something is part of its nature. The word *quality* comes from the Latin root *qualis*, which means "what kind of." *Quality* is a relative term when applied to TQM, where quality is measured against some standard. Quality is also dynamic, with both emotional and moral layers, and this has led to numerous differing definitions.

Sallis (1996) provided definitions for two types of quality: procedural and transformational. Procedural quality involves proving that things have happened in accordance with predetermined specifications. Standards-based achievement test scores measured against performance indicators are an example of a procedural quality measure. The key steps for attaining procedural quality are proving, approving, reporting, and building accountability. Transformational quality is based on the need to refocus the organization on the customer rather than on products or outcomes. It embraces the concepts of customer care, customer service, and social responsibility. Organizations achieve transformational quality by determining customer requirements and then building organizational structures and a culture that empowers employees to meet customer requirements.

Peters's (1987) findings on quality, based on years of research, were as follows: (a) stakeholders will pay a lot for better quality and even more for the best quality; (b) school systems that provide the best quality will thrive; (c) workers in all parts of the system will become energized by the opportunity to provide top quality; and (d) no school system has a safe quality lead, as the quality possibilities are dynamic (and increasing) for stakeholders.

Drucker maintained there were three consistent themes related to quality: managing for results, doing things right while doing the right things, and remembering the customer's importance (as cited in Watson, 2002). Drucker also maintained that many nonprofits (including education systems) do not measure their quality performance because they believe good intentions are enough, and he suggested several ways to present quality quantitatively. The first is measuring the cost of poor quality. (In education, this could relate to low student achievement.) The second is the converse, or measuring high quality that results in high student achievement. The third is customer loyalty, or stakeholder satisfaction.

Quality experts have put forth the following definitions of quality (Hoyer & Hoyer, 2001):

1. Philip Crosby: The word *quality* is relative and therefore needs to be measured as conformance to requirements. Quality can then be managed by taking continual measurements to determine conformance. It is essential to first define quality, and then to translate the requirements into measurable characteristics.
2. W. Edwards Deming (2000): Quality must be defined in terms of customer satisfaction. The degree of quality is directly related to the extent an organization satisfies customer needs and expectations. Quality is multidimensional and cannot be measured by a single characteristic.

3. Armand Feigenbaum: Quality must be defined in terms of customer satisfaction. The customer's definition of quality is dynamic, so management's role is to recognize the evolution of that definition.
4. Kaoru Ishikawa: Quality is equal to customer satisfaction, and as consumers' needs and requirements change, so does the definition of quality. Before one can say that a product or service is of high quality, every aspect of the organization that provided the product or service must be of high quality.
5. Joseph Juran: A practical definition of quality is not possible. The best way to define quality is *fitness for use*, where *use* is associated with customer requirements and *fitness* means conformance to measurable product characteristics. Juran's Pareto Principle states that as many as 80% of process problems result from 20% of causes.

Applying quality principles specifically to schools and school systems, Deming (2000) advised that educational leaders' focus should be on transforming school systems rather than on achieving numerical goals. Educators turned to Deming's TQM as a methodology for applying quality principles to education.

2.5.2 Total Quality Management

During World War II, Deming's (2000) ideas were used to increase American industrial efficiency. Although engineers and scientists received it well, business leaders and managers were not receptive to TQM. After the war, Deming was invited to address top business leaders in Japan who were focused on rebuilding the country's economy. By 1980, Japan dominated world markets through successfully exporting consumer products.

U.S. manufacturers finally accepted that the 19th-century assembly-line factory model was outdated, and these manufacturers embraced TQM principles.

TQM theory stresses that continuous improvement of key work processes is essential to improving quality and that workers inherently want to do their best work. All focus should be on improving processes to get better results and correct errors, with managers working alongside employees to gather information and implement process improvements. In Deming's (2000) view, no one individual is to blame for errors or performance shortcomings; processes are what cause errors and need fixing. Top business leaders working to rebuild Japan's economy after World War II first embraced Deming's 14 "quality points." By 1980, Japan dominated world markets, causing U.S. manufacturers to accept that the 19th-century assembly-line factory model was outdated. These manufacturers subsequently promoted TQM principles in the United States through the MBNQA and in Europe though the European Quality Award.

Table 4 offers a summary of the strong correlations educators have found between Deming's quality principles and effective schools research.

Many educators have criticized the application of quality principles to education as inappropriate. Deming's TQM focuses on satisfying customers. Within education, a case can be made that the student is the customer; however, others liken students to workers. Here, student knowledge is the product, and teaching and learning is the core operating process (Walpole & Noeth, 2002).

Table 4

Deming's Quality Points Correlated to Effective Schools Research

Deming's quality points	Effective schools research
1. Maintain a purpose toward long-range improvement.	Long-range, goal-focused activity. Clear goals and high expectations commonly shared.
2. Reject commonly accepted delays and mistakes.	High and positive achievement expectations. Strategies to avoid nonpromotion of students. School wide emphasis on basic and higher order skills. Effective use of instructional time.
3. Improve input and statistical evidence of quality.	Frequent monitoring of student progress using a variety of measures.
4. Seek long-term overall (rather than piecemeal) efficiency.	System wide development and improvement.
5. Look for problems in the system.	Continuous diagnosis, evaluation, and feedback.
6. Institute on-the-job training.	Job-embedded professional development, coaching, and mentoring.

Table 4 *(continued)*

Deming's quality points	Effective schools research
7. Use modern methods of supervision, including shared learning (managers learning from employees).	Positive school and district climate. Shared consensus on values and goals. Parental involvement and support.
8. Drive out fear.	Stability and continuity of key staff. Development of a sense of community.
9. Break down barriers between departments.	Total staff involvement in school improvement. Collaborative planning and collegial relationships.
10. Eliminate slogans and provide effective methods.	Appropriate level of difficulty for learning tasks. Visible rewards for academic excellence and growth. Well-structured classroom activities. Instruction guided by content. Orderly and disciplined school and classroom environments. Teacher empathy and rapport with students. Curriculum articulation and organization. Emphasis on differentiated instruction and the development of problem-solving skills.

Table 4 *(continued)*

Deming's quality points	Effective schools research
11. Eliminate work standards.	Autonomy and flexibility to implement adaptive practices.
12. Enable pride of workmanship.	Teacher-directed classroom management and decision-making. District support for school improvement. Recognition and celebration of academic success.
13. Institute vigorous program of education and retraining.	Differentiated instruction. Professional development for teachers.
14. Create management structure for constant improvement of knowledge and effectiveness.	Positive accountability and acceptance of responsibility for learning outcomes. Autonomous school-site management.

Note. Adapted from Teigland (1993).

Because implementing a focus on quality requires data and data-driven decisions, some critics fear implementation will result in education focusing only on visible and easily measurable outcomes such as achievement test scores, attendance, dropout rates, and so on. Critics believe that the focus on performance measures will inhibit creativity and that other intangible and less measurable education outcomes—such as a love of learning and a sense of curiosity—will suffer (Holt, 1993).

As educational reform has evolved from a school-by-school to a district wide endeavor, educators have looked to the business world for tools to guide reform efforts. The MBNQA Criteria for Performance Excellence offer one method for implementing TQM concepts.

2.5.3 The Malcolm Baldrige National Quality Award

The MBNQA Education criteria feature a strong emphasis on leadership, systems thinking, changes in school culture, and data-driven knowledge management. According to Sarason (1990), these elements were missing in previous educational reform initiatives.

Named for the late Secretary of Commerce under President Reagan, the Malcolm Baldrige National Quality Award was established in 1987 and was originally awarded for three business categories: manufacturing, small business, and service. The MBNQA Education Criteria for Performance Excellence were piloted in 1995, and education was officially adopted in 1998 as the fourth MBNQA category. (Healthcare criteria were adopted at the same time and now comprise the fifth MBNQA category.) The Education awards' purposes are to improve school organizational performance practices, capabilities, and results; to facilitate communication and the sharing of best practices within and outside education; and to serve as a tool for understanding and managing performance as well as guiding strategic planning and learning opportunities (National Institute of Standards and Technology [NIST], 2006).

The Baldrige Education Criteria for Performance Excellence embody 11 core values (NIST, 2006, pp. 1-5): visionary leadership; learning-centered education;

organizational and personal learning; the valuing of faculty, staff, and partners; agility; focus on the future; management for innovation; management by fact; social responsibility; focus on results and creating value; and a systems perspective. The Education criteria's seven categories are Leadership; Strategic Planning; Student, Stakeholder, and Market Focus; Measurement, Analysis, and Knowledge Management; Faculty and Staff Focus; Process Management; and Results. These seven criteria focus on organizational performance measured by student learning outcomes, student- and stakeholder-focused outcomes (including satisfaction, financial, budget, and market outcomes), and faculty and staff outcomes, internal operational performance measures of organizational effectiveness, and leadership and social responsibility outcomes. A broad number of areas are measured to represent the needs and satisfaction of all stakeholders, as well as both long- and short-term goals. The MBNQA Education criteria do not specify a particular organizational structure or type of management, and they focus on results rather than on procedures to allow for flexibility, innovation, and responsiveness to local conditions and needs. The MBNQA criteria encompass Deming's 14 quality points.

The MBNQA Education criteria primarily focus on teaching and learning, as this is education's core process. According to the Education criteria, students are the key customers of educational organizations, and other groups—such as parents, employers, and communities—are stakeholders. Within the Education criteria, excellence has three qualities: a well-designed and well-executed assessment strategy; year-to-year improvement in the key measures and indicators of performance, especially student

learning; and demonstrated leadership in performance and performance improvement relative to comparable organizations and appropriate benchmarks (NIST, 2006, p. 7). The diagram in Figure 4 shows the systems perspective of the seven MBNQA Education criteria and illustrates key linkages among the categories. Knowledge Management is shown as foundational to all of the other criteria.

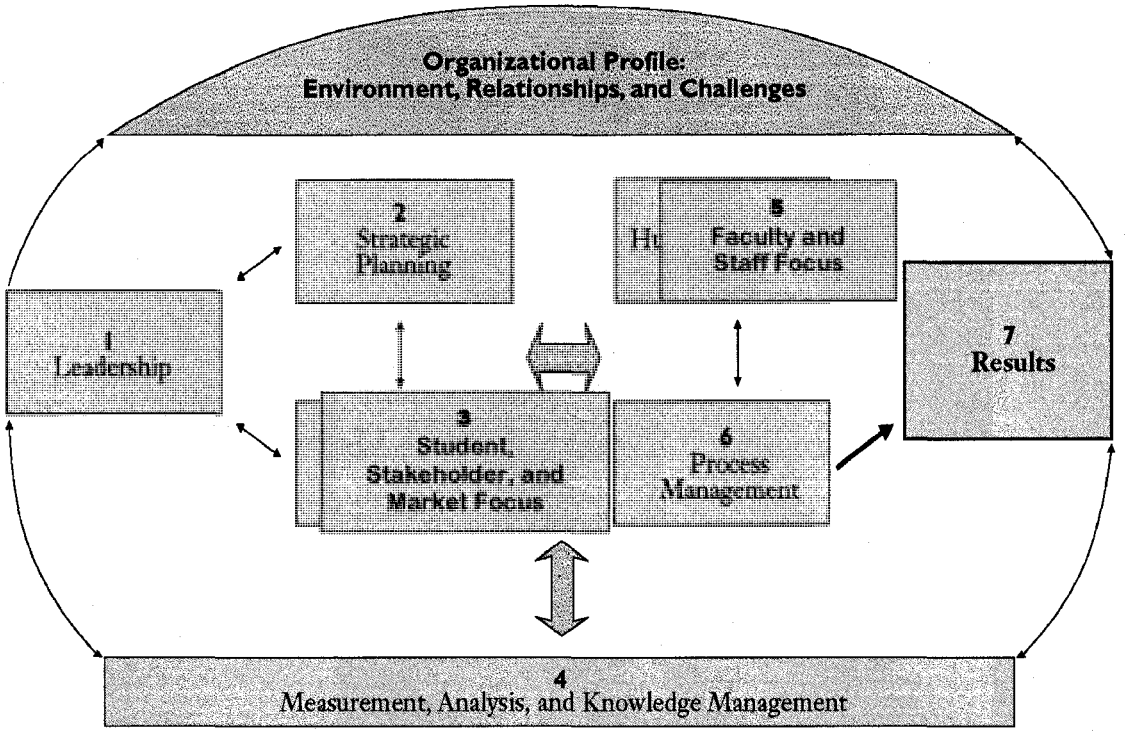

Figure 4. Malcolm Baldrige National Quality Award Criteria for Performance Excellence Framework: A Systems Perspective.

2.5.3.1. Relationships of MBNQA categories. In practice, others have found relationships among MBNQA Education categories that are different from those depicted in Figure 4. Winn and Cameron (1998) administered a survey to 4,800 respondents at a

large Midwestern university to determine the strength of correlations between the Baldrige in Education categories. The researchers concluded that the assumed relationships in Figure 4 were different from those in actual practice, and they proposed the view shown in Figure 5.

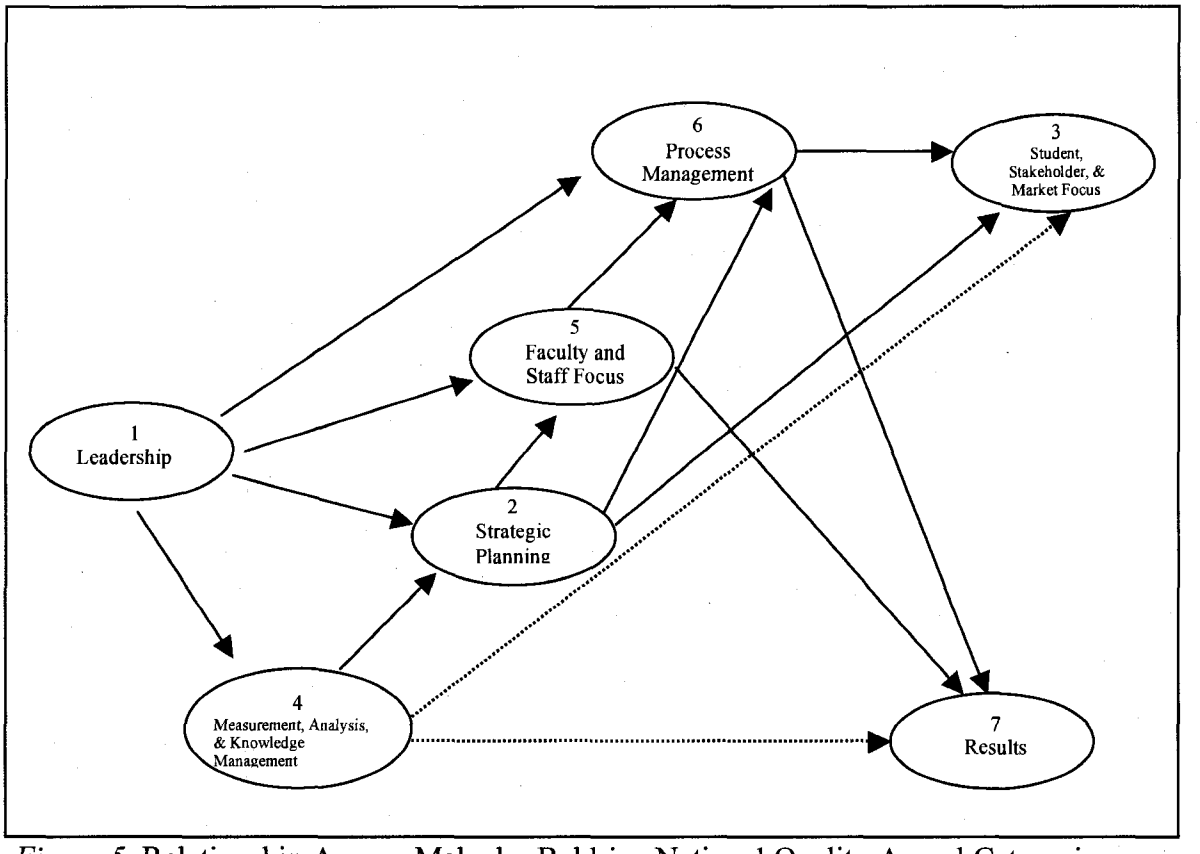

Figure 5. Relationship Among Malcolm Baldrige National Quality Award Categories According to Winn (1996, p.110).

Winn and Cameron (1998) concluded that leadership mainly affects the systems dimensions of Process Management, Faculty and Staff Focus, Strategic Planning, and

Knowledge Management, rather than the more outcome-related dimensions of Student, Stakeholder, and Market Focus and Results. The researchers concluded that leaders' major influence was on designing effective systems and processes for achieving results, rather than on results directly. Process Management was the one dimension with a significant and strong direct effect on Student, Stakeholder, and Market Focus and Results; this finding suggests process improvement's importance to achieving quality and supports Deming's argument that the majority of quality problems are due to the structure of processes rather than employee motivation or ability. Further, Winn and Cameron's results showed Process Management to be the one dimension having a significant and meaningful relationship with the two outcomes (Student, Stakeholder, and Market Focus and Results) and Leadership.

Winn and Cameron (1998) found a significant relationship between Process Management, Faculty and Staff Focus, Strategic Planning, and Knowledge Management, but there was an order to the relationships, as shown by the direction of the arrows in the diagram. Student, Stakeholder, and Market Focus was significantly affected by Strategic Planning and Process Management and, to a lesser degree, by Knowledge Management. A weaker but still significant relationship existed between Knowledge Management and both of the outcome dimensions, as shown by the dotted line. Knowledge Management was most significantly correlated to Leadership and Strategic Planning (Winn & Cameron).

In another study within business, Samson and Terziovski (1999) examined the relationship between the MBNQA categories for business and performance outcomes. In

their study, Leadership, People Management (called Faculty and Staff Focus in the education criteria), and Customer Focus (called Student, Stakeholder, and Market Focus in the education criteria) were the strongest predictors of performance.

Evans and Jack (2003) studied 20 possible correlations and linkages among the MBNQA categories. They concluded that employee satisfaction correlated significantly with process performance and product quality; in other words, increased employee satisfaction leads to higher performance. Evans and Jack also found that process performance correlated significantly with market quality. Customer satisfaction correlated with and was dependent on product quality, service quality, and work system improvement. Work system improvement, unsurprisingly, also correlated significantly with financial performance.

Walpole and Noeth (2002) conducted a meta-analysis of the literature and empirical research of schools and school districts using the MBNQA Education criteria as part of their reform strategy. They concluded that it is not easy to implement the criteria successfully and that doing so involves a long-term perspective and a focus on changing core processes, especially teaching and learning. According to researchers, elements of the MBNQA Education criteria should be included in teacher performance expectations to have the greatest impact on teaching and learning. Hackman and Wageman (1995) found that in schools where process quality improvements affected teaching and learning, the building principal led the improvements, and process quality improvement was included in teacher evaluations.

Walpole and Noeth (2002) noted that information about the effects of MBNQA implementation was limited; at that time, there were limited empirical data that gave details about how, why, or in which contexts MBNQA implementation can succeed. The researchers noted that detailed information and comprehensive data are essential for successful implementation of a Baldrige-based reform initiative and that many reform efforts fail when schools do not use data in decision making and do not change core teaching and learning processes.

Detert, Kopel, Mauriel, and Jenni (2000) studied 10 high schools over a 4-year period to follow their implementation of total quality principles. They found that teachers most often separated process quality improvement from teaching. When teachers did seek improvement in the classroom, they focused on discipline and classroom management processes rather than on teaching and learning. Detert et al. collected substantial data on core processes in the respective districts, but data were not available to classroom teachers for decision-making. The researchers also found that there was no professional development to accompany the desired process changes. Most districts did not have resources to provide training that was not voluntary and/or scheduled outside the school day, which reduced participation.

Corace (2000) used a self-reported 62-item questionnaire correlated to student outcomes to examine implementation of Baldrige-based school reform. The questionnaire broke responses down by teaching level, years of teaching experience, and years of experience within a reform initiative that had been in place for 8 years. Corace found that teachers who had more than 2 years of involvement in their district's school reform

initiative reported higher levels of importance and application of MBNQA Education criteria; additionally, elementary school teachers attached higher levels of importance to implementing and applying the criteria than secondary school teachers did. Results also included positive correlations between years of involvement in quality school reform and student attendance, and between years of teaching and all student outcomes at the secondary level.

2.5.4 Relationship of Baldrige in Education Criteria to the QSM

Whereas the QSM is a strategy and structure for systemic educational reform, the MBNQA Education criteria are tools for measuring alignment with quality principles. The MBNQA Education criteria for measuring performance excellence represent a comprehensive and holistic set of measures that can be used to examine individual school and school system reform efforts from a quality perspective regardless of reform structure differences from one initiative to another. The four components of the QSM encompass the core values of MBNQA that I discussed in detail earlier in this chapter, as shown in Table 5.

2.6 Contrasting Traditional Educational Leadership With Distributed Leadership

One of the largest barriers to systems-based school improvement educational leaders face is the need for schools to dig themselves out of traditional ruts. Traditional staff development and in-service programs are ill-equipped to undo what teachers have learned over the course of a lifetime of experiencing traditional education as students and as teachers.

Table 5

Correlation of Baldrige Core Values with Quality Schools Model Components

QSM component	MBNQA core values
Leadership	• Visionary leadership • The valuing of faculty, staff, and partners • Management by fact • Systems perspective • Focus on results and creating value
Shared Vision	• The valuing of faculty, staff, and partners • Focus on the future • Focus on results and creating value • Learning-centered education • Social responsibility
Balanced Instruction Model	• Learning-centered education • Social responsibility • Focus on results and creating value

Table 5 *(continued)*

Quality Schools Component	MBNQA Core Values
Continuous Improvement	• Organizational and personal learning • The valuing of faculty, staff, and partners • Agility • Focus on the future • Management for innovation • Management by fact • Social responsibility • Focus on results and creating value • Systems perspective

Senge et al. (2000) claimed that, because of their industrial-age background, schools are the one place where knowledge is fragmented and separated into isolated categories. This is antithetical to a systems view, where reality is composed of relationships and not of isolated bits of data and information fragments. Traditionally, teachers were taught to work alone, and it certainly does not facilitate collaboration when the norm is for little sharing across grade levels or subject areas. Fullan (2001a) characterized the current state of collaboration within education by saying, "It is ironic that school systems are late to the game of knowledge building.... for their teachers. Most schools are not good at knowledge sharing within their own walls, let alone across

schools in the same district" (p. 104). Senge et al. elaborated on the importance of collaboration by stating, "Knowledge and learning—the processes by which people create knowledge—are living systems made up of often invisible networks and interrelationships" (p. 21). Further, the researchers stated that when improving school systems, it is more important to look at the way people think and interact because schools, like all organizations, are deeply influenced by the kinds of relationships that exist at large in the system.

Today, successful school improvement requires a leader who is able to facilitate what Choi (2006) called a *community of practice*—a "group of people who have a common theme or purpose and spontaneously gather together to create a trust-based community that creates and shares practice" (p. 144). Additionally Dalkir stated, "the critical components of a community of practice are sharing of common work problems between members, membership that sees clear benefits in sharing knowledge among themselves and that has developed norms of trust, reciprocity, and cooperation" (Dalkir, 2005, p. 123). Communities of practice are efficient tools for school improvement in large part because of the amount of intangible, tacit knowledge held by employees. Tacit knowledge is embedded in the stories people tell. Ardichvili, Page, and Wentling (2002) stated that one of the best ways to help people share tacit knowledge is through sharing their experiences while working on specific problems within the community of practice.

Today's educational leaders have to do more than continuously improve and make minor enhancements to school systems. To meet the demands of universal competence, which differ vastly from the past requirement of providing an opportunity

for each student to learn, educational leaders must facilitate the unlearning of counterproductive practices while simultaneously setting the more productive collaborative learning processes into motion. These leaders must be able to teach students, staff, families, communities, businesses, and government agencies. Teaching all stakeholders about healthy change processes is instrumental in designing schools that meet the needs of all students, today and in the future. In their meta-analysis, Waters, Marzano, and McNulty (2003) outlined the differences between first- and second-order changes:

> Changes that are consistent with existing values and norms create advantages for individuals or stakeholder groups with similar interests, can be implemented with existing knowledge and resources, and where agreement exists on what changes are needed and how the changes should be implemented can be considered first order. A change becomes second order when it is not obvious how it will make things better, it requires individuals or groups to learn new approaches, or it conflicts with prevailing values or norms. (p. 7)

First-order changes may appear to be second-order changes to some. To break with the past, educators are finding that school improvement requires second-order change; therefore, the educational leadership must understand that this magnitude of change is essential for school improvement. Although necessary, second-order change comes with a price. In second-order change, one can expect things to appear worse, relationships to be strained, anxiety to rise, communication to falter, and people to resist.

For a summary of the differences between first- and second-order changes as described by Marzano et al. (2005), see Table 6.

Table 6

Comparing First- and Second-Order Change (Marzano et al., 2005)

First-order change perceived as …	Second-order change perceived as …
An extension of the past	Breaking with the past
Fitting within existing paradigms	Outside of the existing paradigms
Consistent with prevailing norms and values	Conflicting with prevailing values and norr
Able to be implemented with current knowledg and skills	Requiring the acquisition of new knowledg and skills
Requiring resources for those responsible for implementing innovations	Requiring resources that are currently not available to those responsible for implementing innovations
Promoting a common agreement that the innovation is necessary	Necessary only to those who have a broad perspective on the district

The Balanced Leadership framework (Waters et al., 2003), shown in Table 8, identifies 21 principal leadership responsibilities that measurably transfer to improved student performance. Additionally, this framework identifies which of these 21 responsibilities are necessary for second-order change.

Table 7

Balanced Leadership Framework (Marzano et al., 2005)

				Responsibility	The extent to which the leader…
1	S			Affirmation	Recognizes and celebrates accomplishments and failures
2		2		Change Agent	Is willing to actively challenge the status quo
3				Contingent Rewards	Recognizes and rewards individual accomplishments
4	S		X	Communication	Establishes strong lines of communication with/among staff, students, and communities
5	S		X	Culture	Fosters shared beliefs and a sense of community and cooperation
6				Discipline	Protects teachers from issues and influences that would detract from teaching time or focus
7				Flexibility	Adapts his or her leadership behavior to the needs of the current situation and is comfortable with dissent
8				Focus	Establishes clear goals and keeps those goals in the forefront of the district's attention
9	S	2		Ideals/Beliefs	Communicates and operates from strong ideals and beliefs about schooling

Table 7 *(continued)*

				Responsibility	The extent to which the leader…
10	S		X	Input	Involves staff in the design and implementation of important decisions/policies
11		2		Intellectual Stimulation	Ensures staff are aware of the most current theories and practices, and makes the discussion of these a regular part of the culture
12				Involvement in Curriculum, Instruction, Assessment	Is directly involved in the design and implementation of curriculum, instruction, and assessment practices
13		2		Knowledge of Curriculum, Instruction, and Assessment	Is knowledgeable about current curriculum, instruction, and assessment practices
14				Monitoring/Evaluating	Monitors the effectiveness of school practices and their impact on student learning
15	S	2		Optimizer	Inspires and leads new and challenging innovations
16			X	Order	Establishes a set of standard operating procedures
17				Outreach	Is an advocate and spokesperson for the district schools to all stakeholders

Table 7 *(continued)*

		Responsibility	The extent to which the leader…
18	S	Relationships	Demonstrates an awareness of the personal aspects of teachers and staff
19		Resources	Provides staff with materials and professional development necessary for the successful execution of their jobs
20	S	Situational Awareness	Is aware of the details and undercurrents in the running of the district and uses this information to address current political problems
21	S	Visibility	Has quality contact time and interactions with staff, students, and communities

S = Leadership responsibilities that lend themselves most easily to sharing.
2 = Leadership responsibilities that move leaders from first- to second-order change.
X = Leadership responsibilities most likely to stop improvement and change.

Although many extraordinary leaders exist, the complexity of leading school improvement in the context of contemporary society makes it impossible for an individual to fulfill the entire spectrum of requirements. Such conditions are ripe for distributed leadership, not only because there are too many requirements for any individual, but also because an organization is better served when leadership responsibilities are distributed. Marzano et al. (2005) encouraged leaders "to know what you don't know, to know your limitations, and to know you can't do it all" (p. 16). The

Balanced Leadership framework identifies the following responsibilities that most easily lend themselves to distribution: Affirmation, Communication, Culture, Ideals/Beliefs, Input, Optimizer, Relationships, Situational Awareness, and Visibility. Additionally, the framework identifies those responsibilities that are most likely to stop the change and improvement process: Communication, Culture, Input, and Order. Armed with such knowledge, a leader can strategically and proactively prepare to not only implement changes, but also address issues that could derail improvements.

Choi (2006) studied factors that led to effective communities of practice among members at Samsung Electronics Corp. She concluded that trust was one of the most important factors in the community of practice. Among other factors, leadership traits and skills were priorities in developing communities of practice.

Researchers often neglect conflict as a leadership topic, yet conflict is essential to developing effective distributed leadership teams. Achinstein (2002) maintained that communities-of-practice advocates underplay the reality of conflict within groups. Conflict, according to Achinstein, leads to critical reflection and, ultimately, continuous improvement. She cautioned against "group-think," in which group members accept various assumptions without questioning them under the guise of achieving consensus; group think ultimately leaves an organization unchanged. Three areas where conflict may surface are as follows: preference for consensus over comfort with critical reflection that may include argument and challenge of the status quo; group boundaries (who and what belong to or are excluded from the group); and professional beliefs and practice (Achinstein). Achinstein concluded that these three factors "played an essential role in

organizational learning that impacted structures, reform efforts, norms, and the whole school community" (p. 446). Further, she stated,

> Critically reflecting on conflicts within a school enables the potential for the kind of organizational learning and change advocated by reformers. An embracing stance towards conflict involves a community in an inquiry process that explores divergent beliefs and practices of the community; acknowledges and owns responsibilities for conflicts that may result; opens the borders to diverse members and perspectives; and, at times, questions the organization's premises to change them. (p. 447)

Although a distributed leadership team may learn how to function effectively, knowing how to use information or how to turn it into meaningful knowledge for decision-making is yet another challenge. Drucker (as cited in Watson, 2002) claimed that many top executives lack information literacy. He noted, "They know how to get data. But most still have yet to learn how to use data" (p. 60). Regarding quality and performance information, Drucker named four critical questions that must be answered: What information is due? To whom is it due? When should the information be presented? In what form should it be presented?

In their "middle-up-down" model, Nonaka (1994) and Nonaka and Takeuchi (1995) placed a great deal of emphasis on the role of top and middle management in creating knowledge. These researchers contrasted middle-up-down management with a traditional bureaucracy, in which information is filtered from the top down and the entire organizational structure supports a hierarchical pattern of information processing.

According to Nonaka, in a traditional bureaucratic model, the information processing by the organization's middle- and lower level members has little relevance to organizational knowledge creation, and the information top managers create is solely for implementation and not for the creation of new knowledge.

By contrast, middle-up-down management is characterized by a wide scope of cooperative relationships between top, middle, and lower managers for the purpose of knowledge creation. No one major department or group has the exclusive responsibility for creating new knowledge; rather, everyone shares the responsibility and creative benefit. In Nonaka's model, top managers provide the "vision for direction," along with a timeline for its accomplishment. Middle management translates the top management's vision into midrange visions to be accomplished by work groups. Both top and middle managers provide a conceptual framework for purposeful knowledge creation without limiting the scope or knowledge resources for those responsible for the work. Middle managers act as bridges between top managers, who articulate the "dreams of the organization," and lower managers, who are immersed in the day-to-day reality of the organization. Nonaka (1994, p. 31) contrasted top-down and middle-up-down management as shown in Table 8.

According to Nonaka (1988), middle managers mediate between "what is" and "what ought to be." Middle managers "serve as team leaders who are at the intersection of the vertical and horizontal flows of information in the company" (Nonaka, p. 18). Further, Nonaka and Takeuchi stated in their 1995 book, The Knowledge-Creating Company, that

Table 8

Contrast of Top-Down and Middle-Up-Down Management Features

	Top-down	Middle-up-down
Who: Agent of knowledge creation	Top management	Self-organized teams (with middle managers as team leaders)
Resource allocation	Hierarchical	From diverse viewpoints
Pursued synergy	Synergy of profit	Synergy of knowledge
Organization	Big, powerful headquarters, use of manuals and rules for structure	Team-oriented, affiliated groups
Management processes	Leaders in command, emphasis on information processing, chaos not allowed	Leaders as catalysts, create organizational knowledge, create/amplify chaos/noise
Accumulated knowledge	Explicit, documented, computerized	Explicit and tacit, shared in diverse forms

the most important knowledge creating individuals in this model are neither charismatic top managers nor the entrepreneur-like lower managers, but every employee who works in association with middle managers .... They work as a

bridge between the visionary ideals of the top and the often chaotic reality of the front-line of the organization. (p. 32)

Applied to education, Nonaka's view holds that school principals and teachers are the most important members of a school district's distributed leadership team. Such changing responsibilities for educational leaders can lead to confusion. To help clarify educational leadership roles, Leonard (1998) cited six leadership characteristics that support information management. The first is an enthusiasm for knowledge, which she described as respect and encouragement for the accumulation of knowledge as a legitimate undertaking. Leaders with enthusiasm for knowledge are curious and see knowledge building as fun. The second characteristic is a drive to stay ahead, which means staying knowledgeable about the latest and best ideas as well as staying ahead of and anticipating customer demands and needs. The third important characteristic is an appreciation for the "iterative, return-loop nature of all activities" (Leonard, p. 263). Good leaders never walk away from an activity assuming it is finished and complete; rather, they continue to support the activity through encouragement and attention. The last three characteristics of leaders who support knowledge management are an emphasis on higher order learning, good listening and learning skills, and the view that the development of an organization's core technology is a continuous process.

2.7 Chapter Summary

Hargreaves and Fink (2000) wrote that there were just three questions that matter in educational reform. The first question is as follows: Does the reform have depth—does it improve important (rather than superficial) aspects of student learning? This depth

includes not just the development of higher order thinking skills such as problem solving, but also cultural, emotional, and social (civic) learning. Cultural learning should be reciprocal; students should situate new learning within their cultural context, and teachers should learn about, respect, and appreciate their students' culture. To achieve depth, teachers develop emotional bonds with students. As Hargreaves (1998) noted, "Emotional understanding—the ability to read instantaneously how well students are learning or are engaged in learning—is foundational to the standards agenda, not a sidebar to it" (p. 321).

According to Hargreaves and Fink (2000), the second question is whether the reform has length, or sustainability. To achieve sustainability, leaders must anticipate and overcome obstacles. Many obstacles to long-term sustainability are achingly familiar to rural Alaska school districts, including leadership succession and teacher turnover (which in some Alaska districts is over 50% annually). No matter how "solid" a school community's shared vision may appear, reform will stall or fail if newcomers do not share the passion and commitment of the original reformers. Other challenges to sustainability include changes in the district and policy context. The QSM requires a high degree of professional development and training, which means the district office must commit resources. The model functions in a federal and state policy framework of increasing accountability; sustainability of the QSM will depend on the ability to change and adapt to those requirements. Yet another variable that affects sustainability is community support. In small, rural communities with a strong cultural context, building satisfaction among community stakeholders is critical and must be ongoing; this is not an

easy task when there is frequent turnover in schools or when NCLB requirements create a condition in which paraprofessionals from the local Native community are deemed no longer "highly qualified," causing schools to lose important human resource assets.

The third question is as follows: Does school reform have breadth? In other words, does it transfer to other schools or school systems? According to Hargreaves and Fink (2000), transplanting an initiative that was successful in one district to other settings is difficult, and the initiative must be transformed to fit the new local context. The QSM, which was so successful in the Chugach School District, must conform to a different local reality when used by other schools and districts. As Hargreaves and Fink noted, "Wholesale structural cloning is inadvisable" (p. 316). Additionally, they cited research indicating that initiatives are most likely to succeed and transfer to new sites when there is a "persistent emphasis on teaching, learning, and student performance; on partnerships that share and develop expertise on extensive professional development; on careful selection of teachers and leaders; and on assessment and accountability" (p. 34).

Hargreaves and Fink (2000) likened school reform to a Cubist painting with three dimensions that are all viewable at once. Furthermore, they cautioned against focusing too narrowly on student achievement outcomes by stating that these outcomes do not necessarily signal deeper learning within a cultural context and are not substitutes for working with all stakeholder groups to create a climate and culture for learning. Last, the researchers recommended that those engaged in educational reform treat the wider policy context as integral to the reform effort by directly addressing policy requirements.

This chapter has covered a wide range of topics and has woven them together in the context of the QSM of educational reform; such integration was necessary to address the QSM's broad, systemic nature and to build a context for the research findings in chapter 4. Additionally, I have included a historical look at the policies and research that have shaped educational reform and impacted the QSM. Because the QSM proposes a less bureaucratic organizational structure, including different kinds of roles for participants, I included a discussion of organization and systems theory. The QSM, as its name suggests, is built on the philosophy of providing quality services and processes, delivering high customer satisfaction; Crosby, Deming, Juran, and Drucker most notably articulated this philosophy.

The MBNQA Criteria for Education Excellence have been used to measure the QSM's quality and as a basis for continuous improvement. Because this research uses the MBNQA Education criteria as a basis for examining QSM implementation in selected districts, this chapter included an examination of the literature and research related to quality and the use of the Baldrige in Education criteria. Literature and research supporting the QSM design align with the known correlates of effective schools.

This research on QSM implementation is situated within the Alaska Native cultural context, so it was essential to discuss the literature and research related to Native culture and learning, and the history of rural Alaska education.

This dissertation focuses on education leadership evident in QSM implementation. Education leadership is a rich topic, as evidenced by the amount of literature in this area. This chapter summarized some of what is known about leadership

and created the framework for a subsequent discussion of leadership as it occurs in QSM implementation. This chapter also laid the foundation for the premise that leadership activities are found throughout the MBNQA Education criteria and should be found throughout any QSM implementation effort.

Last, because any educational reform initiative or model is linked to change, I have examined the literature and research related to change from both individual and organizational perspectives.

CHAPTER 3: METHODOLOGY

The purpose of this concurrent mixed-methods study is to describe the implementation of the QSM in three rural Alaskan school districts by examining the importance and existence of the MBNQA Education criteria as perceived by faculty, staff, and community members. In this study, the members of my research cohort used a questionnaire administered to school staff to measure the importance and existence of the MBNQA criterion of leadership and to explore the relationship between respondents' demographic characteristics and the degree to which they considered leadership to be important and in practice. At the same time, we sought to collect descriptions of QSM implementation through semi-structured interviews of school staff and community members.

This section outlines the methodology for this study according to the following organizational framework: Research Questions; Theoretical Lens and Research Approach; Population of the Study; Questionnaire Development and Administration; Analysis of Quantitative Data; Interviews; Triangulation; and Chapter Review. Elements of the methodology design and implementation that the four members of my cohort shared will be identified as such. I will identify methodology elements that I conducted independently through the use of the first person singular pronoun.

3.1 Research Questions

As stated in the first chapter, four research questions with supporting hypotheses serve as the basis for this study.

Research Question 1. To what extent do administrators, teachers, classified staff, and community members perceive leadership, measured using MBNQA Education constructs, *to be important* within the Quality Schools Model of educational reform?

Research Question 2. To what extent do administrators, teachers, classified staff, and community members perceive leadership, measured using MBNQA Education constructs, *to be in practice* within the Quality Schools Model of educational reform?

Research Question 3. Are there statistically significant differences between respondents' perceptions of importance and perceptions of practice of leadership factors as part of the Quality Schools Model, and do these differences vary across groups?

Research Question 4. What are the relationships among the MBNQA Education criteria that describe the Quality Schools Model?

3.2 Theoretical Lens and Research Approach

Creswell (2003) identified four schools of thought or paradigms that can guide researchers as they determine the best strategies of inquiry and methods to use in addressing research questions: postpositivism, constructivism, advocacy/participation, and pragmatism (p. 6). Postpositivism relates closely to the scientific method whereby researchers seek to identify the causes that influence outcomes and to reduce broad ideas to a discrete set of notions to test. In contrast to postpositivists, constructivists develop broad, general, open-ended research questions that address the "meanings others have about the world" (Creswell, p. 9) and utilize qualitative research approaches. Researchers who employ an advocacy/participatory lens approach their qualitative research with an action agenda for reform, seeking to give voice to those who have been marginalized or

disenfranchised (Creswell, p. 10). Finally, pragmatists consider all possible approaches to understanding a problem and consider the research problem, rather than commitment to a quantitative or qualitative research methodology, as most important. "Pragmatism opens the door to multiple methods, different worldviews, and different assumptions, as well as to different forms of data collection and analysis" (Creswell, p. 12). The lens of pragmatism and a mixed-methods approach guided this study.

There is growing consensus among researchers that qualitative and quantitative research can complement each other (Gall et al., 2007). Johnson and Onwuegbuzie (2004) stated that "researchers should collect multiple data using different strategies, approaches and methods in such a way that the resulting mixture or combination is likely to result in complementary strengths and non-overlapping weaknesses" (p .18).

Research strategies that integrate methods "encourage us to probe the underlying issues assumed by mixed-method" research and "produce better results in terms of quality and scope" than single-method studies (Sydenstricker-Neto, 1997, p. 4). Maxwell (1998) argued that the complementary use of qualitative and quantitative approaches

> provides a greater range of insights and perspectives and permits triangulation or the confirmation of findings by different methods, which improves the overall validity of results and makes the study of greater use to the constituencies to which it was intended to be addressed. (International Food Policy Research Institute, 1998, p. 3)

My research cohort selected a mixed-methods approach for several reasons. We sought to describe the implementation of the QSM as comprehensively as possible,

recognizing the unique cultural perspectives within each research site. In addition, we were committed to acknowledging our limitations as researchers, given the remote geographical settings in which we conducted our studies. The quantitative component of our research design facilitated reaching the largest possible number of participants and focusing specifically on the components of the QSM that were familiar to school staff. The qualitative component allowed both the elaboration of results from the quantitative component and the inclusion of participants for whom the quantitative component was not appropriate, given its school-specific content. Further, while the research sites were similar in many ways, they were unique both culturally and geographically. We believed that the qualitative component of the research design would provide more opportunities for that uniqueness to be reflected in the data than might occur with strictly quantitative methods.

Researchers use the term *complementary* to describe a mixed-methods approach whereby "the results of one method [are] used to elaborate, enhance, illustrate, or clarify the results from another method" (McMillan & Schumacher, 2001, p. 543). In order for an approach to be truly complementary, it cannot simply include "add-on" components. Complementarity "seeks elaboration, enhancement, illustration, or clarification of the results from one method with the results from the other method" (Greene et al., 1989, p. 257).

The design of this mixed-methods study reflects a concurrent nested strategy (Creswell, 2003, p. 218). As Creswell explained, "Unlike the traditional triangulation model, a nested approach has a predominant method that guides the project. The data

collected from the two methods are mixed during the analysis phase of the project" (p. 218). The predominant method for this research was quantitative, with data gathered through a questionnaire administered to school staff. My research cohort gathered qualitative data through interviews with school staff and community members.

Data analysis for each method occurred separately by both my cohort for common areas and by myself for leadership specific areas. The resulting analyses were then integrated in order to answer the research questions.

3.3 Population of the Study

My cohort selected three rural Alaskan school districts as the focus of study because these districts had implemented the QSM district wide for at least 4 years. The superintendent of each district agreed to cooperate in the study. While the survey was conducting with all three districts, one superintendent determined it was poor timing to conduct interviews in that district. The cohort determined the lack of interview data would result in minimal impact upon the research findings, as the primary data source was quantitative and the complimentary interview information was used for elaboration, enhancement, illustration, or clarification of that data. The three studied districts were Lake and Peninsula Borough School District, Bering Strait School District, and the Kuspuk School District.

3.4 Questionnaire Development and Administration

3.4.1 Participants

My cohort invited all administrators, teachers, and support staff with district e-mail accounts in the three target districts to complete the questionnaire. We contacted 538

potential respondents, as outlined in Table 9. Actual response numbers and response rate are provided in the Analysis of Quantitative Data section of this chapter.

Table 9

Potential Respondent Data

District	Total *N*	Certificated *N*	Classified *N*
BSSD	387	208	179
LPSD	74	57	17
KSD	77	43	34
Total	538	308	230

Total Possible $N = 538$

3.4.2 Questionnaire Development

Gall et al. (2007) made a distinction between the terms *survey* and *questionnaire*. Using their definition, *survey* is the more general label to describe mixed-method research in which researchers use both a questionnaire and interviews to gather data. The questionnaire, in this case, is the quantitative data-gathering tool. The development of the questionnaire for this research had three stages. In the first, my research cohort studied 19 questionnaires for measuring school improvement and educational reform. This review included six questionnaires from the North Central Regional Educational Laboratory (2005), two from the National Center for Education Statistics (2004), four written for the Re-Inventing Schools Coalition and designed to measure implementation of the four components of the QSM (Cope & Crumley, 2003), two from the Learning Center (2002),

and one each from the Southern Minnesota Initiative Foundation (2003), the National Education Association (2004), the National Institute of Standards and Technology (2005), and DuFour, DuFour, Eaker, and Many (2006). Following this review of existing questionnaires, the members of the cohort wrote 148 statements, each of which linked with one of the four QSM components; we planned to align each statement with one of the seven MBNQA Education criteria.

Next, we piloted the initial survey by asking a group of respondents to complete a categorical analysis of the items. The participants were 22 teachers and administrators who worked in districts that used the QSM and who were attending QSM training. In the categorical analysis, these participants coded each of the 148 statements to one of the seven MBNQA categories to which they thought the statement most closely aligned. Unfortunately, the analysis from the activity showed little consistency in respondents' coding decisions. After further study of the questionnaire items, the members of my cohort concluded that the questions that addressed the implementation of very specific elements or processes related to the QSM of educational reform and the language used in these questions were not general enough to obtain the desired alignment with MBNQA Education criteria. We also determined that the respondent group as a whole did not have sufficient familiarity with the MBNQA criteria to respond to the statements in a consistent manner, as we had not placed any control on their level of experience with either the QSM or MBNQA.

We then searched for questionnaire tools written to measure educational reform using MBNQA Education criteria. Our premise was that one could use the MBNQA

Education criteria to measure any reform effort, including the implementation of the QSM in Lake and Peninsula, Kuspuk, and Bering Strait School Districts. In addition, another QSM school district (Chugach School District) had already demonstrated the use of MBNQA Education criteria to measure its implementation of the QSM. We identified two existing questionnaires (Dale, 2003; Miller, 1996) designed to measure the Baldrige in Education criteria and obtained permission for their use.

The first of the Baldrige-related questionnaires, The School District Quality Profile, was designed by Miller (1996) to allow school districts to self-assess quality practices derived from the Malcolm Baldrige National Quality Award Criteria. The purpose of Miller's research was to create an instrument that could provide a baseline measurement for school improvement. The instrument she created includes 50 statements with a six-point Likert scale. She determined the content validity of the School District Quality Profile from four sources of data: responses from expert reviewers, input from graduate students, responses from questionnaire respondents, and results from the administration of the questionnaire. She used Cronbach's alpha to analyze reliability by category, subcategory, and statement. Five of the seven MBNQA categories had acceptable alpha correlations (.7 or higher). Of the 16 subcategories that contained two or more items, 2 had unacceptable coefficients (less than .5) and 4 that contained only two items had coefficients that indicated a need for improvement (less than .6). Miller recommended (a) refining the questionnaire in order to establish clear and concise content and to reduce educational jargon; (b) ensuring that each subcategory contained at

least two statements; and (c) reviewing items in the categories of Leadership and Strategic and Operational Planning that had coefficients of less than .7.

The purpose of the second questionnaire was to assess perceptions of school staff concerning the importance and existence of the MBNQA criteria (Dale, 2003). Participants in the study for which this questionnaire was developed were 378 administrators and staff of seven probationary Tennessee schools prior to the schools' involvement in a MBNQA Education Pilot program. The questionnaire contained 70 statements. Participants indicated the degree to which they considered each statement to be important, as well as the degree to which the corresponding concept was in existence in their schools. The same 5-point Likert scale was used for both the "importance" and "existence" responses. The researcher established content validity for the questionnaire based on feedback from expert reviewers who identified the MBNQA category to which each statement related. Two internal consistency estimates of reliability were computed for the perception and existence scales. The Spearman-Brown corrected correlation had a value of .9191 and the coefficient alpha had a value of .93, both indicating sufficient reliability.

In developing the questionnaire for this study, the members of my cohort coded the 120 items from the Dale (2003) and Miller (1996) questionnaires to the seven MBNQA categories and 28 subcategories. Although these statements had been previously coded in the Miller questionnaire, changes over the last 10 years in the MBNQA criteria and the content of the categories necessitated a thorough recoding using a more current version of the criteria. For the purpose of this questionnaire and research,

we adopted the 2006 MBNQA Education criteria as a standard. During the coding process, we discussed items for which there was not agreement in terms of the category and subcategory to which the items most closely related. With the objective of equalizing the number of items relating to each MBNQA subcategory, each cohort member focused on at least one category in order to eliminate items from overrepresented subcategories and to write new items for underrepresented subcategories. Cohort members used the following "Guidelines for Designing a Questionnaire" (Gall et al., 2007, p. 233) to analyze existing items and to write new items:

1. Do not use technical terms, jargon, or complex terms that respondents may not understand.
2. Avoid terms like *several, most,* and *usually*, which have no precise meaning.
3. State each item in as brief a form as possible.
4. Avoid negatively stated items, which are likely to be misread by respondents.
5. Avoid "double-barreled" items that require the subject to respond to two separate ideas with a single answer.
6. Avoid biased or leading questions.

We then collaboratively focused on each category in order to reduce the number of items per MBNQA category to no more than 15. Items containing technical terms or more than one key concept were revised further. This resulted in a questionnaire with 84 items.

We developed two Likert-type scales in order to assess participants' beliefs about the importance of MBNQA concepts and the degree to which they saw the concepts in

practice in their schools or districts. Szulanski (2003), in his research on transfer of business practices and knowledge, found that there could be large gaps between beliefs about or expected use of a practice and what actually transferred or occurred. He found that "routinized use of causally ambiguous knowledge was often accompanied by gaps between [expected] and actual patterns of use" (p. 26). Further, he found that where there was no causal ambiguity (meaning there was a complete understanding by the source of what was to be copied or replicated), the ideal description of the practice corresponded closely to actual practice or reality. But when the functioning of the exemplar being replicated or transferred was not well-understood, causal ambiguity existed; the higher the causal ambiguity, the greater the gap between the description of the ideal and reality. Successful transfer of a practice hinged on accurately communicating relevant information that allowed recipients to reconstruct every important detail of the necessary activities. Because it is possible that causal ambiguity exists regarding the transfer of the QSM, resulting in transfer stickiness, we included a belief as well as a practice scale for each item on the questionnaire. The "belief in importance" response scale for this questionnaire included; *strongly disagree*, *disagree*, *agree*, and *strongly agree*. The "in practice" response scale included *never*, *occasionally*, *frequently*, and *always*.

For the questionnaire design, we chose a 4-point Likert-type scale for responses, without a neutral option. According to Zhao (2003), a neutral or "no opinion" option may discourage cognition. The need for a neutral response varies with context, depending on whether questions are factual or attitudinal. Respondents may choose a neutral response on an attitudinal survey simply because they have not thought about their opinion. When

there is not a neutral choice, respondents must become engaged in order to select a positive or negative response to correspond with their opinion. A neutral or "don't know" response is more clearly needed when questions are factual and respondents might legitimately not know the answer (Walonick, 2004). Nowlis, Kahn, and Dhar (2002) found, in controlled experiments with undergraduate university students, that the possibility of response bias resulting from a lack of a neutral response option can be controlled if respondents are able to opt out of individual questions or the whole survey at any point. In a Web-based questionnaire, one can allow respondents to opt out at any point by simply closing their Internet browser to cancel their responses.

Once the questionnaire was complete, we calculated its readability using the algorithm for the Flesch-Kincaid grade level. Readability tests rely on the number of words per sentence and the number of syllables per word; they do not measure factors related to text layout and design or the background knowledge of the individuals who approach the task of reading the text. Nonetheless, readability scores provide a prediction of the reading ease of a document. The Flesch-Kincaid score is a measure of the level of education required to understand the content of a document. The Flesch-Kincaid readability score for the questionnaire was 10th grade, with 34 out of 98 sentences containing 12 or fewer words and 9 sentences containing more than 27 words. The readability for the companion Informed Consent document was Grade 8.6, with 13 out of 34 sentences shorter than 12 words and 3 long sentences containing more than 27 words. The readability of the survey directions (composed of 11 sentences) was 9th grade.

3.4.3 Expert Review

My research cohort conducted an expert review in order to establish content-related evidence of test validity for the questionnaire.

> Content-related evidence typically is determined systematically by content experts, who define in precise terms, the universe of specific content that the test is assumed to represent, and then determine how well that content universe is sampled by the test items. (Gall et al., 2007, p. 196)

Four MBNQA Examiners served as expert reviewers for this research's questionnaire. MBNQA Examiners review organizations that have applied for the Malcolm Baldrige National Quality Award. These individuals participate in a 4-day training session that prepares them to review, write an analysis of, and score written applications for the Award. Additionally, they complete a 30- to 40-hour case study evaluation prior to attending the training.

The expert reviewers assessed each questionnaire statement in terms of its alignment to the MBNQA category and subcategory to which it was assigned. The group also provided written feedback on those items that did not align with the MBNQA category or subcategory. The members of my cohort then deleted, revised, or added survey items in response to this analysis from the expert reviewers and the results of a field pretest.

3.4.4 A Comparison of Web-Based Versus Paper Questionnaires

My cohort decided to administer the questionnaire through the Internet after considering the pros and cons of this form of questionnaire delivery. While some research

shows that Web-based surveys often have a lower return rate than mail surveys (Solomon, 2001; Tomsic et al., 2000), other research (Kiernan, 2005) indicates that the Web-based method is superior to the paper-and-pencil approach. Yun, Yun, and Trumbo (2000) found, when examining data from a survey administered to members of a professional association using three modes of delivery (postal mail, e-mail, and Web-based delivery) that Web-based delivery did not bias results. Cheskis-Gold, Loescher, Shepard-Rabadam, and Carrol (2004) provided a concise summary of the pros and cons of using Web-based technology to administer a questionnaire, shown in Table 10.

After considering that respondents were very geographically dispersed and had school access to technology, we determined that the targeted population of school district employees' regular use of e-mail and the Internet would overcome limitations such as a lack of familiarity with the media that were cited in the research that found that a mail survey led to a higher level of return. A second consideration in this decision was the expediency of the electronic format. The remote location of many of the schools would likely have caused delays and lapses in traditional mail communication. Finally, we felt that the motivation to complete the questionnaire would be greater with a Web-based approach because we would offer the incentive of a gift card to randomly selected completers.

Table 10

Advantages and Disadvantages of Web-Based Surveys (Cheskis-Gold et al., 2004)

Advantages	Disadvantages
Savings in printing, postage, and data entry. No data entry errors from hand entry. (However, poor programming could lead to lost data.)	Need programming and IT expertise. Certain populations are not comfortable using personal computers.
Shortened timeframe to administer surveys (3 weeks with Web surveys vs. 6 weeks or more with paper surveys).	Must have accurate e-mail lists.
Easier and cleaner to provide skip patterns or survey sections customized to different respondent populations.	Web surveys are not recommended for e-mail software that doesn't support Web access. Must be able to click on a .url provided in an e-mail and have it bring respondent to a Web page.
Almost immediate access to data for analysis.	Possible problems finding software that is appropriate for both PCs and Macs. Problems developing surveys that run on both platforms.
Can easily link to background data, if appropriate (e.g., gender, years of service, etc.).	Data provided via a Web survey not *anonymous* (survey administrators may choose to keep the results *confidential*).

A Web format offered quick gratification for the respondents who learned that they were the recipients of gift cards. We hoped that offering these incentives would encourage others at the same work site to complete the questionnaire.

As Cheskis-Gold et al. (2004) noted, the development of a Web-based questionnaire requires some specialized skills in technology. Two of the researchers in this cohort studying the QSM had previous Web-based survey technology experience (Cope & Crumley, 2003), which was another consideration that made a Web-based questionnaire possible for this research.

Our primary goal in selecting a Web-based questionnaire was to get respondents to answer all questions as accurately as possible. Consequently, we focused on making the questionnaire-taking process streamlined and easy, with minimal distractions. Several researchers and technology experts have provided guidance related to the design of Web-based surveys (Archer, 2003; Crawford et al., 2005; Gale, 2000). Crawford et al. said, "screen design is arguably where the most deviation from known data collection methodologies exists" (p. 47) and used that premise to create standards for four categories related to Web-based surveys: screen design, questionnaire writing, respondent communications, and processes. Tufte (2001) advocated design that is free from clutter that distracts readers from the central message. He suggested a muted background for the Web page or pages to allow for good contrast between the text and the background, sparing use of bright colors, and use of the same color for all items that belong to the same category. In their proposed standards for the design of Web surveys, Crawford et al. (2005) recommended that any logo and contact information be placed in an out-of-the-

way location on each screen. These items, according to Crawford et al., should be available if respondents need them, but they should be placed a manner that allows most people to develop "banner-blindness" and ignore them. A line or change of color should set the questions apart from the rest of the viewing screen. The screen should also contain a progress bar or page number (e.g., presented in the format "page 1 of 6") that tells respondents how far they have progressed through the questionnaire. Crawford et al. recommended organizing a long questionnaire as pages, thereby avoiding the need to scroll down through a long list of questions on one page. They advised the use of black font for text and suggested that error messages, if used, give very specific information about the error. For this survey, which contained forced-response questions, respondents received a very specific error message if they did not answer all the items on a page when they tried to proceed to the next page. The message said, "Please select a response for question #__." Crawford et al. also recommended a maximum of 12 grid columns, including a column for the questions. All response columns should be evenly spaced, they explained, so that no response choice receives more or less attention than the others. Norman (n.d.) advised that Web-based surveys should always be password protected to restrict access by unauthorized respondents. My cohort used all of these standards, recommendations, and Web design principles in the design of the QSM questionnaire for this study.

3.4.5 Field Pretest

In order to establish internal reliability, we conducted a field pretest of the questionnaire. A representative sample of 20 administrators, teachers, and staff from

Chugach School District, a rural Alaskan school district that was not a subject of the study, participated in the field pretest (McMillan & Schumacher, 2001). To establish internal reliability, we calculated Cronbach's alpha values separately for each of the seven MBNQA categories. We retained 72 items that allowed for sufficient reliability in the final instrument. Table 11 shows the reliability alpha scores for each MBNQA category as the number of survey items was reduced from 84 to 72.

3.4.6 Questionnaire Administration

Two weeks prior to administering the questionnaire, we sent an e-mail to all participants introducing the members of the cohort, providing an overview of the study, and explaining the incentive. We administered the questionnaire electronically via a secure third-party Web site. A database linked to the survey captured responses as participants completed the questionnaire. We sent an e-mail to each participant containing an explanatory cover letter and informed consent document, request for completion, and link to the questionnaire. In the e-mail, we asked participants to complete the questionnaire within one week. Table 12 details the contacts we made with respondents.

3.5 Analysis of Quantitative Data

3.5.1 Response Data

All administrators, teachers, and support staff with district e-mail accounts in the Bering Strait, Lake and Peninsula, and Kuspuk School Districts were invited to complete the questionnaire. Completion of the survey was voluntary, with prize incentives provided to randomly selected participants.

Table 11

Pilot Questionnaire Reliability with 84 and 72 Items

Questionnaire Category	Alpha before cut (84 items)—Importance scale	Alpha after cut (72 items)—Importance scale	Alpha before cut (84 items)—Practice scale	Alpha after cut (72 items)—Practice scale
Leadership	0.9394	0.9265	0.8396	0.8386
Knowledge Management	0.9044	0.8966	0.8246	0.8234
Process Management	0.9148	0.9093	0.8471	0.8552
Results	0.8953	0.895	0.7174	0.729
Staff Focus	0.8886	0.8831	0.801	0.8008
Student, Stakeholder, and Market Focus	0.9047	0.901	0.7659	0.7354
Strategic Planning	0.8843	0.8742	0.7195	0.7175

$N = 20$

Table 12

Contact Log to Elicit Questionnaire Participation

Lake and Peninsula School District

Date	Contact type	Contact information
4/16/07	e-mail	E-mail to district superintendent to get individual e-mail addresses for all staff.
04/17/07	e-mail	Cohort and survey introduction to all staff.
04/24/07	e-mail	Survey access directions to all staff.
05/02/07	e-mail	Encouraging follow-up prompt to all staff.
05/10/07	e-mail	Thank you to all respondents requesting them to encourage nonrespondents to participate. Announcement of prizewinners thus far.
05/10/07	e-mail	Encouraging follow-up to updated list of nonrespondents. Announcement of prizewinners thus far.
05/16/07	phone	Phone calls to principals to encourage nonrespondents.
05/16/07	e-mail	"Now that the school year has ended" message to nonrespondents.
Ongoing	phone and email	Individual staff contacts (phone and e-mail) to answer survey questions, provide technical assistance with the survey, and encourage participation.

Table 12 *(continued)*

Bering Strait School District

Date	Contact type	Contact information
04/16/07	e-mail	Cohort and survey introduction to all staff.
04/24/07	e-mail	Survey access directions to all staff.
04/25/07	e-mail	E-mail to district technology coordinators to request numerical breakdown of district certified and classified staff.
05/02/07	e-mail	Encouraging follow-up prompt to all staff.
05/09/07	e-mail	E-mail to district office staff member to get individual staff member e-mail accounts.
05/15/07 to 05/17/07	e-mail	Encouraging follow-up to updated list of nonrespondents. Announcement of prizewinners thus far.
05/15/07 to 05/17/07	phone	Phone calls to principals to encourage nonrespondents.
05/19/07	e-mail	"Now that the school year has ended" message to nonrespondents.
Ongoing	phone and email	Individual staff contacts (phone and e-mail) to answer survey questions, provide technical assistance with the survey, and encourage participation.

Table 12 *(continued)*

Kuspuk School District

Date	Contact type	Contact information
04/20/07	e-mail/phone	Contact superintendent for district e-mail addresses.
04/24/07	e-mail	Cohort and survey introduction to all staff.
04/25/07	e-mail	Survey access directions to all staff.
05/02/07	e-mail	Encouraging follow-up prompt to all staff.
Ongoing	phone and email	Individual staff contacts (phone and e-mail) to answer survey questions, provide technical assistance with the survey, and encourage participation.

The total number of usable responses was 212, including 125 from Bering Strait School District, 49 from Kuspuk School District, and 38 from Lake and Peninsula School District. The total response rate for the survey was 212 out of 638 potential respondents (33%). The participation rate was much higher for certificated staff (54%) than for classified staff (13%) who were less likely to access their district e-mail accounts on a regular basis. Table 13 presents certified and classified staff member response rates along with the total response rate.

Table 13

Certified and Classified Response Data for Questionnaire

	Total		Certified			Classified		
	P.	A.	Possible	Actual	Response	Possible	Actual	Response
	N	*N*	*N*	*N*	Percentage	*N*	*N*	Percentage
BSSD	468	125	203	103	50%	265	22	8%
LPSD	76	38	61	30	49%	15	8	53%
KSD	94	49	46	35	76%	48	14	29%
Total	638	212	310	168	54%	328	44	13%

3.5.2 Handling of Missing Data

Two hundred forty-nine participants started the Web-based questionnaire. Thirty-three of these participants stopped at some point and didn't finish. By checking the identifying computer number and clock time, my cohort determined that most of the individuals who stopped taking the questionnaire started anew at a later time and completed it. The 33 incomplete cases were removed from the data file. Four additional cases each had one missing response; those cases were also removed from the data file, leaving 212 cases for analysis.

3.5.3 Reliability of Instrument

We used Cronbach's alpha to analyze reliability separately for each MBNQA category for the belief and practice scales. Each category had acceptable internal consistency ($\alpha > .7$) for both the importance and practice scales, as shown in Table 14.

Table 14

Questionnaire Reliability by Category for Importance and Practice Scales

MBNQA category	Importance scale alpha	Practice scale alpha
Knowledge Management	0.90	0.89
Process Management	0.91	0.91
Leadership	0.91	0.91
Results	0.88	0.83
Staff Focus	0.91	0.87
Student, Stakeholder, and Market Focus	0.89	0.87
Strategic Planning	0.90	0.87

$N = 212$

3.5.4 Analysis for Research Questions 1, 2, and 3

Research Questions 1, 2, and 3 focus on respondents' perceptions of the importance and existence of the construct of Leadership as part of the QSM. Through categorical analysis, expert review, and field-testing conducted prior to administration of the questionnaire, I retained 12 items measuring the construct of Leadership on the final questionnaire. I used principal components analysis with varimax rotation to identify the dimensionality of the leadership items from the questionnaire. Using the rotated solution and theory regarding the MBNQA criterion of Leadership, I grouped the variables into

appropriate subfactors, retaining those variables that best measured the construct and the subfactors.

Because the hypotheses for these research questions relate to the demographic data of respondents, I identified the groupings in which these data would be analyzed. For example, while the questionnaire provided the options "4 to 7 years" and "8 to 10 years" for the demographic item "education work experience," I found that these two options could be grouped together for the purpose of analysis in order to create a category representing staff who were neither new to education nor midcareer. I considered the usefulness of various groupings (e.g., 3 years or less of educational experience versus 10 years of less of educational experience), as well as the number of respondents that would be in each of the various grouping options.

I used descriptive statistics to determine perceptions of importance and existence for leadership subfactors and variables. I calculated means and standard deviations for importance and existence responses, as well as response frequencies and percentages for each possible response.

In order to evaluate the difference between the perceptions of respondents in the demographic groups corresponding to each hypothesis, I utilized parametric statistical methods. For Research Questions 1, 2, and 3, the independent variables were the demographic groups (e.g., certified staff and classified staff), and the dependent variables were perceptions of the importance and existence of leadership as measured by the responses to the questionnaire items. I conducted an independent-samples *t* test in order to test the hypotheses comparing two independent variables (e.g., respondents with less

than 3 years of experience and respondents with more than 3 years of experience) to determine whether there was a statistically significant difference in the perceptions of the two demographic groups. For hypotheses involving more than two independent variables (e.g., administrators, teachers, and classified staff), I conducted a one-way analysis of variance (ANOVA) to compare perceptions of the demographic groups. I performed ad hoc comparisons to identify which of the groups had statistically significant differences in their means.

For Research Question 3, I conducted a paired-samples *t* test to compare perceptions of the importance of leadership items to perceptions of the practice or existence of leadership items.

3.5.5 Analysis for Research Question 4

The MBNQA Education theoretical model displayed in chapter four, is a visual diagram illustrating how the seven categories interact with and influence each other. Because this figure does not provide qualitative information about the effect each MBNQA category has on the other categories, it has long been a disappointment to me. As a practitioner working to improve an organization's performance, I have sought quantified evidence showing which components drive other components and how the causal interplay among these components impacts the organizational performance as a whole. In the process of this research, I have studied multiple models that used structured equation modeling (SEM) to provide such quantified data. At this point I am glad that the Malcolm Baldrige National Quality Award program uses a non-quantified model as an example as I now better understand that in the varying contexts of business, health, or

education, the quantified model will be different. I believe this to be true even within an industry. In education for instance, I believe a SEM for a small rural school district SEM will be different than that for a large urban school district. My research used structural equation modeling (SEM) to determine the actual causal relationships between these components in three rural Alaskan school districts.

SEM combines confirmatory factor analysis (CFA) as the measurement model to test the reliability of the observed variables with a structural model to display the interrelationships among latent constructs and observable variables. CFA has three main purposes: construct validity evaluation, response pattern comparison, and competing model comparison (Sun, 2005). The purpose and value of SEM is that it allows one to test a theory about potential relationships among variables. Tabachnick and Fidell (2007), in describing the value of SEM, said, "When the phenomena of interest are complex and multidimensional, SEM is the only analysis that allows complete and simultaneous tests of all the relationships" (p. 679). In stating their preference for SEM, Schreiber, Nora, Stage, Barlow, and King (2006) pointed to the assumptions for path analysis that are rarely met in educational settings, including a premise that variables are all unidirectional, without feedback loops. Schreiber et al. (2006) pointed out that "almost all of the variables of interest in education research are not directly observable" and concluded that "the use of a single indicator to fully capture the complexities of [latent constructs such as test anxiety and self-reported behaviors] as required in path analysis is impractical" (p. 326).

In this study, Research Question 4 focused on assessing the relationships among the organizational quality dimensions as proposed by the MBNQA Education Criteria for Performance Excellence framework using the variables from the practice scale of the questionnaire. This research question was of interest to all four members of my research cohort to help explain individual results within a systems context. We used SEM to examine the MBNQA framework as a whole to determine if the causal relationships implied by the model structure fit the actual relationships within the data set. The theory behind these relationships was detailed in chapter 2, along with a number of studies that used SEM to apply the theoretical framework to a specific set of data and conditions, usually with results different from the theory.

In SEM, statistical terminology and graphical elements are used very specifically. For example, constructs that influence but are not influenced by other constructs are exogenous (Schreiber, Nora, Stage, Barlow, & King, 2006). Endogenous variables are influenced by and influence other constructs (Schreiber et al., 2006). Exogenous variables are similar to independent variables, and endogenous variables are similar to dependent variables. SEM determines whether constructs within a model are exogenous or endogenous. Observed variables are represented graphically with a square or rectangle. Latent factors—the unobserved variables—are depicted graphically with circles or ovals. In this study, the latent factors were the seven MBNQA Education criteria, and the measured variables were the questionnaire items that reflected each of the constructs. Smaller circles are used to designate the measurement error in the variables. Arrows and

lines in a CFA or SEM diagram achieve their meanings based on whether they are straight or curved and single or double ended. Schreiber et al. (2006) explained,

> The straight line pointing from a latent variable to the observed variables indicates the causal effect of the latent variable on the observed variables. The curved arrow between latent variables indicates that they are correlated. If the curve were changed to a straight one-headed arrow, a hypothesized direct relationship between the two latent variables would be indicated. (p. 323)

Structural modeling is very sensitive to missing data and sample size. While researchers differ regarding the number of cases (respondents) needed per variable (item), many apply the "rule of 10" (Garson, 2007), which advises that 10 cases are a minimum for each variable retained for structural modeling. I conducted other preparatory assumptions tests for normality, outliers, and multicollinearity, as discussed earlier.

My research cohort used responses from the practice scale of the questionnaire for SEM because we concluded that they were more actionable as such, representative of the MBNQA model. Prior to the CFA analysis, we reexamined all of the questionnaire data, using principal components analysis (PCA) to reaffirm the placement of variables within the seven MBNQA constructs of Leadership; Strategic Planning; Process Management; Staff Focus; Knowledge Management; Student, Stakeholder, and Market Focus; and Results. The communalities and factor loadings from the PCA as well as knowledge of the underlying theory were used as suggestive of measurable variables for the CFA. Next, using AMOS 7.0, we conducted a CFA for each of the seven identified constructs separately in order to confirm that the variables reliably measured subfactors and the

factor, and to reduce the variables to a number appropriate for the sample size of 212 respondents. From the seven individual CFAs, we retained 72 variables for possible inclusion in a CFA that combined all seven latent factors and related variables. After loading all 72 variables, we selected maximum-likelihood estimation for the CFA to capture the greatest amount of variance with the variables and to maximize differences among the latent factors. The initial CFA contained too many parameters to produce an acceptable fit; it was necessary to then reexamine the variables and reduce the number to those with the highest communalities. We achieved satisfactory goodness of fit with a confirmatory factor analysis, which allowed us to retain all seven of the factor constructs specified by the MBNQA theoretical model by freeing some parameters and using Leadership as the driver for the model. The final CFA model included 28 observed and 34 unobserved variables and 62 distinct parameters.

The goal of both CFA and SEM is to use as many of the identified measurable variables as possible to achieve the most parsimonious fit as measured by acceptable model index scores. That said, Schreiber et al. (2006) cautioned that many researchers become enamored with fit statistics and lose sight of the fact that both CFA and SEM should be guided by theory. Tanaka (1993) identified a classification schema for fit indices along six dichotomous dimensions: 1—population based or sample-based; 2—simplicity or complexity; 3—normed or nonnormed; 4—absolute or relative; 5—estimation method free or estimation method specific; and 6—sample size independent or sample size dependent. Dimensions 1, 2, and 4 relate to how fit indices are constructed, while dimensions 3, 5, and 6 relate to some of the characteristics of fit indices.

Our cohort created a hypothesized structural model using all of the variables and factors identified with the maximum-likelihood CFA. We achieved an acceptable and plausible structural model with significant direct and indirect paths to all seven factors based on the CFA without making post hoc modifications.

3.6 Interviews

3.6.1 Purpose of the Interviews

Kushman and Barnhardt (1999) wrote "Community voice captures the essence of what we believe to be the important elements of a productive educational partnership between schools and communities in remote Alaska villages" (p. 13). Active solicitation and incorporation of community input is expected in many of the processes within the QSM. Likewise, the MBNQA criteria contain an expectation of community involvement for educational effectiveness. My research cohort conducted semi structured interviews with a cross-section of individuals from two of the school districts to elicit the community perspective related to implementation of the QSM. The interviews had two main objectives: (a) to ascertain the degree to which respondents considered the QSM to be important and in existence in their schools; and (b) to do so in a manner that "elaborates, enhances, illustrates, or clarifies," (Greene, 2002, p. 257) the information obtained through the questionnaire.

3.6.2 Interview Participants

Utilizing criterion sampling, my cohort selected staff and community members from the communities serviced by each of the school districts. "Criterion sampling involves the selection of cases that satisfy an important criterion. This strategy is

particularly useful in studying educational programs" (Gall, 2007, p. 187). We requested assistance from the district superintendent and school principals in identifying potential interview participants who were likely to have knowledge of school programs and activities. We conducted interviews of 14 individuals, including individuals serving in one or more of the following roles: community member, parent, elder, school board member, classified staff person, district office administrator, teacher, and principal. Table 15 provides demographic information for interview participants.

Where possible, we conducted the interview in person in the interviewee's community. When this was not possible due to our travel limitations, we conducted the interview at a location and time of mutual convenience, such as at a conference or by telephone. We recorded the setting and mode (face-to-face or telephone) for each interview on the interview protocol form.

3.6.3 Interview Questions

> For a question to be useful, it must first be logically relevant to the objectives of the interview. However, for it to be relevant is not enough; the question must also be formulated to motivate the respondent to give complete and accurate answers. (Gorden, 1992, p. 23)

My cohort used the interview process to bridge the more general educational reform criteria of MBNQA Education and the specific cultural focus that is a strength of the QSM. The second objective for the interviews was to collect data that would complement the information gathered through the questionnaire and document review.

Table 15

Demographic Information for Interview Participants

Stakeholder Group	Site	Years of QSM Experience	Years of Educational Experience
Community Member / Retired Teacher	A	6	23
Community Member	B	6	
School Board President / Elder	C	8	28
Classified Staff / Elder	C	8	30
Elder	D	6	
Board Member	C	6	20
Teacher	E	3	6
Teacher	F	6	6
Teacher	G	22	7
Teacher	D	2	2
Principal	A	15	7
Principal	H	25	7
District Administrator	I	19	6

Patton (1987, p. 118) provided a "Matrix of Question Options" that outlines six types of interview questions. Behavior/experience questions address participants' past, present, or future actions and result in responses in which participants describe activities, decisions, or behaviors that would actually be observable. Opinion/belief questions are aimed at understanding how individuals cognitively structure their reality. They attempt to uncover a participant's worldview and frequently begin with phrases such as "What is your opinion of ..." or "What do you think about ..." Often, people confuse these kinds of questions with two other types: feeling questions and knowledge questions. Feeling questions deal with affective rather than cognitive subjectivity. In these questions, the participant's emotional responses (i.e., happiness, fear, anxiety, confidence, etc.) are what are important. Knowledge questions, on the other hand, seek factual information regarding what the participant knows. Questions of the fifth type, sensory questions, assess what a participant sees, hears, feels, tastes, or smells. Finally, background/demographic questions obtain information about a participant's identifying characteristics, such as age, educational level, annual income, place of residence, and so on.

In developing interview questions, the members of my cohort sought a balance between questions that probed respondents' beliefs about the importance of implementation of the QSM and those that probed the degree to which they saw evidence of the QSM in practice in their districts. The former primarily took the form of opinion/belief and feeling questions, while the latter took the form of knowledge and sensory questions. Experience/behavior questions and background/demographic

questions provided us with clarifying information about the interview participants. Five questions served as the focus for the interviews:

1. What do you know about the QSM?
2. Is the QSM important to you?
3. What is working best with the QSM?
4. What could be improved with the QSM?
5. What recommendations or suggestions do you have for improving the QSM?

3.6.4 Interview Protocol

Eisner (1998, p. 183) warned that "interviews need not—indeed, should not—be formal, questionnaire-oriented encounters. The aim is for the interviewer to put the person at ease, to have some sense of what he or she wants to know, but not to be either rigid or mechanical in method." A semi structured, open-ended interview format was selected in order to allow follow-up prompts that would help to elicit rich responses while also reducing the possibility of interviewer variance (Groves et al., 2004, p. 281). Groves et al. explained "one of the most effective ways to reduce interviewer variance is to create questions that do not require the interviewers to vary their behavior over respondents. The variation of importance here concerns clarifying questions and probing inadequate answers" (p. 281). Consistency between interviews was important in this case because two different interviewers collected the data for the cohort. Groves et al. gave the following five suggestions for standardizing the data-collection process:

1. Interact with the respondent in a way that is professional and task oriented, and that minimizes the potential of respondents to adhere to or infer preferences for the kinds of answers that are obtained.
2. Read question exactly as worded.
3. Explain the survey procedures and question-and-answer process to the respondent.
4. Probe nondirectly; that is, in a way that does not increase the likelihood of one answer over others.
5. Record answers that respondents give without interpreting, paraphrasing, or inferring what respondents themselves have not said.

The interview protocol specified the questions, the sequence in which they were asked, and guidelines for what the interviewer was to say at the beginning and end of each interview (Gall et al., 2007). Notes and tape recording preserved information collected during the interviews. Interviews were transcribed verbatim for later analysis. Where possible, interviews were conducted in person in the interviewee's community. When that was not possible due to our travel limitations, interviews were conducted at a location and time of mutual convenience, such as at a conference or by telephone. The setting and mode (face-to-face or telephone) for each interview was recorded on the interview protocol form.

3.6.5 Analysis of Interview Data

The collection and analysis of interview data occurred separately after the completion of all interviews. Using the recordings of the interviews, my research cohort

transcribed interview responses verbatim to word-processed documents; these transcripts served as the data set for analysis.

I applied several caveats from the literature regarding the data coding process. Lincoln and Guba (1985) advised that researchers view categories as temporary during the early stages of coding. As coding continues, researchers should "devise rules that describe category properties and that can, ultimately, be used to justify the inclusion of each data bit that remains assigned to the category as well as to provide a basis for later tests of replicability" (Lincoln & Guba, p. 347). This requires flexibility on the part of the researcher to allow for new observations and new directions (Day, 1993). Tesch (1990) stressed that the objective of qualitative analysis is not merely to make the data smaller or more manageable, but to interpret and organize the data for meaning.

I first read the interview data once without trying to assign codes, simply noticing patterns and connections to the research questions. As I read each interview transcript for a second time, I employed an inductive approach to coding whereby I generated labels or codes in response to the data, rather than applying predetermined codes (Miles & Huberman, 1994). I created codes and assigned them to units of data using both a descriptive and interpretive approach. Descriptive coding requires little interpretation of the data and focuses on key words or phrases as the basis for creating and assigning codes. Interpretive coding focuses on the underlying meaning or concept represented by the interview data. For example, if a teacher said, "The Quality Schools Model is a big change," a descriptive code of "change for staff" might be assigned. The same code could be applied interpretively to the following response: "Sharing the grading with other

teachers is a difficult thing for high school teachers." I analyzed data sentence-by-sentence or in several-sentence chunks. While doing so, I maintained a list of codes, adding to it after coding each interview. After I had coded all interviews once, I reviewed the list of codes and created pattern codes that grouped the codes by theme or construct (Miles & Huberman, 1994). I then reread and recoded each interview using the pattern codes, creating, eliminating, or combining codes as appropriate and assigning more than one code to a unit of analysis if necessary. This process continued until the list of codes had stabilized and I had determined that I had coded all relevant data. As Lincoln and Guba (1985) advised, the categories should be viewed as temporary during the beginning stages of coding.

3.7 Triangulation of Data

Authors in the literature use various terms to describe the practice of considering multiple sources of data in order to achieve a fuller understanding of the phenomenon studied (Bogden & Biklen, 2003). The most frequently used term, *triangulation*, refers to "cross-validation among data sources, data collection strategies, time periods, and theoretical schemes" (McMillan & Schumacher, 2001, p. 478). Eisner (1998) proposed the term *structural corroboration* for identifying "the means through which multiple types of data are related to each other to support or contradict the interpretation and evaluation of a state of affairs" (p. 110).

In this study, the purpose of collecting data through a questionnaire and interviews was to describe the implementation of the QSM in a way that reflected the stakeholder-inclusive design of the QSM framework and the comprehensive

consideration of quality as defined by the MBNQA criteria. I analyzed data from the questionnaire in order to answer the first four research questions regarding the perceived importance and existence of knowledge management. In addition, I considered interview data in order to determine the extent to which community members perceived leadership to be important and in existence in their schools and to amplify questionnaire responses from school staff. The study's findings and recommendations reflect my consideration and comparison of all data in order to "seek a confluence of evidence and feel confident about observations, interpretations, and conclusions" (Eisner, 1998, p. 110).

3.8 Chapter Summary

This chapter has detailed the research design and methodology for this study, in which I sought to answer four research questions with 10 supporting alternative hypotheses. Using a mixed-method approach, I considered quantitative and qualitative data concurrently through the analysis of questionnaire and interview data. Chapter 4 presents the results of the quantitative and qualitative data analysis.

CHAPTER 4: RESULTS

This chapter presents the quantitative and qualitative results of this study of leadership factors related to the implementation of the QSM, measured using MBNQA Education categories. My research cohort derived quantitative results from a Web-based questionnaire tool we designed. The questionnaire contained 72 items, with a Likert scale for importance responses (*strongly disagree, disagree, agree, strongly agree*) on the left side of the questionnaire statements and another Likert scale for in-practice responses *(never, occasionally, frequently, always*) on the right side of the questions, for a total of 144 responses per participant. We gathered qualitative data through 14 interviews with school staff and community members.

Research Question 1 used responses from the importance scale, and Research Question 2 used responses from the in-practice scale. Research Question 3 addressed differences between the importance and in-practice scale responses. Research Question 4 used the in-practice scale responses to test theory about relationships among the seven MBNQA Education categories. This chapter is organized with the hypotheses restated first, followed by the quantitative data analysis results and the results of the qualitative interviews.

4.1 Research Questions and Hypotheses

Research Question 1. To what extent do administrators, teachers, classified staff, and community members perceive leadership, measured using MBNQA Education constructs, *to be important* within the Quality Schools Model of educational reform?

Hypothesis 1.1. **Partially Satisfied**

Administrators reported significantly higher levels of importance to both leadership factors than did teachers and classified staff.

Hypothesis 1.2. **Rejected**

There are no significant differences in how important the leadership factors are perceived to be between educators based on years of educational work experience.

Hypothesis 1.3. **Rejected**

There are no significant differences in how important the leadership factors are perceived to be between educators based on years of experience in a QSM district.

Research Question 2. To what extent do administrators, teachers, classified staff, and community members perceive leadership, measured using MBNQA Education category criteria, *to be in practice* within the Quality Schools Model of educational reform?

Hypothesis 2.1. **Partially Satisfied**

Administrators report significantly higher levels of both leadership factors being in practice than do teachers and classified staff.

Hypothesis 2.2. **Rejected**

There are no significant differences in the levels that educators reported leadership factors to be in practice between groups based upon their years of educational work experience.

Hypothesis 2.3. **Rejected**

There are no significant differences in the levels that educators reported leadership factors to be in practice between groups based on their years of experience in a QSM district.

Research Question 3. Are there statistically significant differences between respondents' perceptions of importance and perceptions of practice of leadership factors as part of the Quality Schools Model, and do these differences vary across groups?

Hypothesis 3.1. **Satisfied**

All job categories (Administration, Teachers, Classified) reported significantly higher levels of the leadership factors being important than those factors being practiced.

Hypothesis 3.2. **Satisfied**

All ranges of educational experience (≤ 3 years, 4 years $\leq$ x years ≤ 10 years, ≥ 11 years) reported significantly higher levels of the leadership factors being important than those factors being practiced.

Hypothesis 3.3. **Satisfied**

Both ranges of QSM experience (≤ 3 years, > 3 years) reported significantly higher levels of the leadership factors being important than those factors being practiced.

Research Question 4. What are the relationships among the MBNQA category criteria that describe the Quality Schools Model?

Hypothesis 4. **Satisfied**

In the QSM, leadership has a direct causal effect on two MBNQA categories and an indirect causal effect on the remaining four MBNQA categories.

This chapter of quantitative and qualitative results is presented in seven sections. Section 4.2 includes the statistical analysis used to validate the set of leadership-related variables and factors used to answer the research questions. In section 4.3, I answer Research Question 1 using importance-scale leadership variables and factors; in section 4.4, I answer Research Question 2 using practice-scale leadership variables and factors; in section 4.5, I provide an analysis to answer Research Question 3; in section 4.6, I present the CFA and SEM analysis related to Research Question 4, using practice scale data. Finally, in section 4.7, I present the qualitative findings.

In addition to the questionnaire and interviews conducted during this research, additional information was gathered and used to help form my interpretations of the results. Supplemental information came from the following sources:

- Statewide Alaska Superintendent Stability study spanning 1977 – 2008
- Superintendent Survey of the three studied districts (current and former)
- Document Review

A summary of findings from these additional information sources fall into three areas:

1 Overcoming a lack of identified shared values and beliefs

- Mission and vision statements in all three districts speak to
- Increased stakeholder engagement
- Increased shared leadership
- Increased student ownership

2 Overcoming a lack of shared leadership

- Superintendent stability in the three studied districts was higher than the state average
- All Superintendents noted district transformations toward a shared leadership model
- All three districts were insisting upon increased contribution from outside entities
    - 2 out of three studied districts suing the state (Moore vs. State of Alaska)
    - All three districts partner with other districts and businesses to leverage resources
- All three districts have School Board Resolutions supporting the QSM adoption
- All three districts have web-based information systems providing a more transparent and balanced scorecard about student, school, and district performance

3 Overcoming a lack of ownership

- All three districts require student learning in non-traditional content areas which my experience and this research tell me leads to increased student ownership
- Teacher stability rates have improved in all three districts

- Student leadership has become a formal practice in two of the three districts which interviews show has led to significant student ownership increases

4.2 Selection of Leadership Variables and Factor Analysis

I used principal component and confirmatory factor analyses to verify the choice of variables and their placement into two leadership factors. The purpose of factor analysis is to reduce a number of variables into a smaller number of representative constructs, called factors. There are two kinds of factor analysis used in different instances to examine the interrelationships among variables: exploratory (or principal components) and confirmatory factor analysis. Exploratory factor analysis is a theory-generating procedure while confirmatory factor analysis is a theory-testing procedure (Stapleton, 1997).

I identified 12 leadership-related variables from the Quality Schools Model Implementation Questionnaire. I subjected these 12 items to Principal Component Analysis (PCA) using SPSS 15.0, performing this action twice, once for the items from the importance scale and then for the items from the practice scale. Prior to performing the PCA, I assessed the suitability of the data for factor analysis. Inspection of the correlation matrix revealed the presence of many correlations of .3 and above for each scale. All indicator variables were assessed for univariate normality and the presence of outliers. The results of the assumptions tests for the leadership variables from the questionnaire were as follows: 11 of 12 variables had a slight negative skew, the value of which did not exceed +/- 1.0 for any variable. I found outlier scores for seven variables

(items 2, 8, 31, 39, 42, 63, and 72). The greatest difference between the .5% trimmed mean and the original mean for these variables was .05. Outliers were not removed due to their lack of effect on the mean scores.

Principal component or exploratory factor analysis can be used, as in this case to determine the communality among variables. All of the QSM leadership variables had sufficiently high communality and acceptable results from Barlett's Test of Sphericity to warrant factor analysis. All of the variables had good communalities, with values higher for the Importance scale than for the practice scale as noted on Table 16.

Table 16

Communalities for Leadership Importance and In-Practice Sets

Questionnaire item	Extraction— In Practice scale	Extraction— Importance scale
2. District leadership provides for staff and stakeholders to have input into the values, directions, and performance expectations of our school district.	.483	.675
8. District leadership requires legal and ethical behavior from themselves, staff, and students.	.495	.762
31. Our district leadership works to ensure that everyone knows what is going on.	.664	.692
32. District leadership regularly communicates to the staff and community about the importance of student/family satisfaction.	.434	.591

Table 16 *(continued)*

Questionnaire item	Extraction—In Practice scale	Extraction—Importance scale
39. Stable and consistent district leadership helps lead toward a successful QSM implementation.	.683	.638
42. District leadership does more than just talk about quality; they are very much involved in making it happen.	.583	.673
47. District leadership guides the district to practice good citizenship.	.648	.595
48. District leadership regularly communicates to the staff and community about the importance of quality in our system.	.595	.626
49. District leadership is trusted by students, staff, and community.	.685	.656
63. District leadership creates conditions for ongoing staff learning.	.571	.600
66. District leadership works to develop the future leaders of our district.	.535	.646
72. Our district leadership consistently emphasizes a focus on student learning when communicating to staff members.	.587	.533

Note. Extraction method: PCA with varimax rotation.

PCA with varimax rotation suggested two factors, which along with leadership theory and research led to assigning six leadership variables to one factor with the

remaining six being assigned to the second factor. Examination of the content within each questionnaire item led to naming the two leadership factors: Developing Ownership and Trust and Stability. I then calculated a Cronbach's alpha coefficient for the variables within each scale for the two factors. Both factor scores were greater than .70, suggesting very good internal consistency reliability for this scale and indicating that the items measured related concepts, as shown in Table 17.

Table 17

Cronbach's Alpha for Leadership Importance and In-Practice Scales

Items	Importance scale	In-practice scale
Stability and Trust Factor	.888	.877
Developing Ownership Factor	.807	.804

$N = 212$

An interitem correlation matrix for the two leadership factors showed all positive values, indicating that all factors measured the same underlying characteristic. See Tables 18 and 19.

Table 18

Interitem Correlation Matrix for Leadership Factor 1—Stability and Trust

Item number	31	39	47	48	49	63
31	1.000					
39	.595	1.000				
47	.447	.508	1.000			
48	.546	.534	.639	1.000		
49	.564	.517	.550	.588	1.000	
63	.569	.598	.521	.546	.429	1.000

Table 19

Interitem Correlation Matrix, Leadership Factor 2—Developing Ownership

Item number	2	8	32	42	66	72
2	1.000					
8	.496	1.000				
32	.292	.313	1.000			
42	.330	.287	.570	1.000		
66	.345	.231	.569	.605	1.000	
72	.294	.327	.457	.534	.599	1.000

Finally, a CFA was run twice, once for the belief variables and then again for the practice variables. CFA results confirmed the two leadership factors as presented on Table 20. The measurement structure used for the CFA is shown in Figure 6.

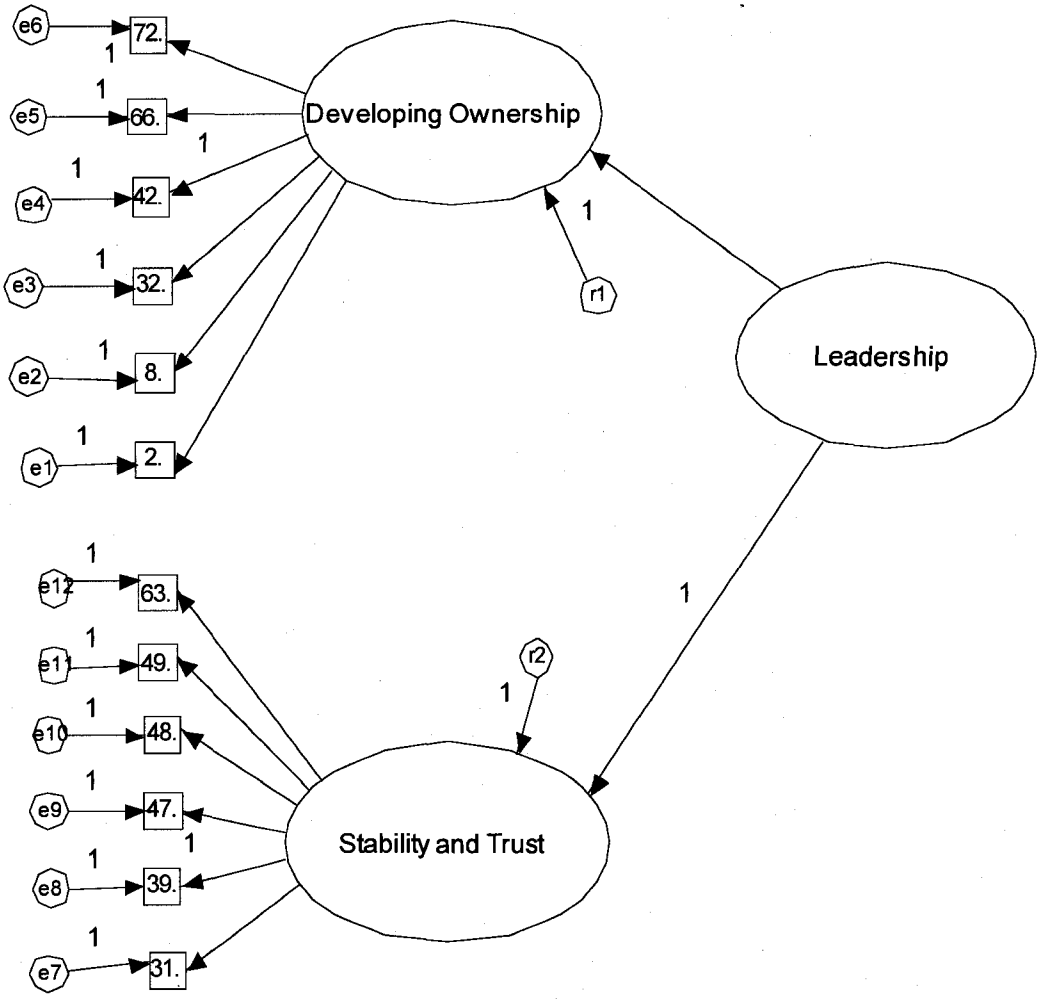

Figure 6. Second Order Confirmatory Factor Analysis for Leadership Importance and Practice Scales

Table 20 shows the standardized regression scores for individual variables on the importance and practice scales as they loaded on the leadership factors in CFA. The standardized regression loadings are indicators of reliability of each of the items to measure the factor construct. The R^2 value for the two latent leadership subscales are between .500 and .694, which indicates that a more than 50% of the variation in each subscale is explained by the variables included in the subscale, with less than 50% variance due to measurement error.

Other goodness of fit statistics indicate the importance and practice measurement models are acceptable as well, shown in Table 21.

The fit statistics commonly used to determine the suitability of a CFA solution or structural model are $\chi^2/df \leq 2$ or 3; comparative fit index (CFI) or normed fit index (NFI) $\geq .95$; goodness-of-fit index (GFI) $\geq .95$; and root mean square error of approximation (RMSEA) < .06 to .08. The chi-square statistic is especially helpful for comparing different models as modifications are made. Both CFI and GFI are sample-based absolute fit indices, with GFI accommodating more complex models better than CFI, which almost always goes down as more parameters are freed. GFI is sometimes considered the normed chi-square statistic (Sun, 2005). RMSEA is a population-based absolute fit index based on the estimated difference between the reproduced covariance matrix and the unknown population covariance matrix. Sun (2005) recommended RMSEA for construct validity evaluation. NFI was designed to be sensitive to sample size, guarding against an inflation effect for large samples and a bias effect for small samples.

Table 20

Maximum Likelihood Standardized Regression Weights for Importance and Practice Variables

Item		Leadership Factor	β imp.	S.E. imp.	R^2 imp.	β practice	S.E. practice	R^2 practice
72	<---	Developing Ownership	.672	.074	.452	.644	.076	.415
66	<---	Developing Ownership	.747	.080	.557	.683	.084	.466
42	<---	Developing Ownership	.806		.650	.771		.594
32	<---	Developing Ownership	.747	.102	.558	.642	.094	.413
8	<---	Developing Ownership	.365	.083	.133	.518	.085	.269
2	<---	Developing Ownership	.416	.090	.173	.587	.076	.345
63	<---	Stability and Trust	.738	.121	.544	.726	.099	.528
49	<---	Stability and Trust	.770	.130	.593	.694	.102	.482
48	<---	Stability and Trust	.703	.108	.495	.683	.107	.614
47	<---	Stability and Trust	.669		.447	.697		.486
39	<---	Stability and Trust	.785	.128	.616	.757	.099	.572
31	<---	Stability and Trust	.824	.146	.679	.757	.106	.573
Dev. Own	<---	Leadership	.833		.694	.754		.569
Stab. Trust	<---	Leadership	.707		.500	.707		.500

$p < .01$

Table 21

Model Fit Statistics for Leadership Importance and Practice Confirmatory Factor Analysis Models

Model	χ^2	*df*	χ^2/df	*p*	CFI	GFI	RMSEA
Belief	105.585	49	2.155	< .05	.960	.927	.074
Practice	98.793	53	1.864	.000	.962	.929	.064

4.3 Analysis for Research Question 1

4.3.1 Research Question 1 and Hypotheses

Research Question 1 asked to what extent administrators, teachers, classified staff, and community members perceive leadership, measured using MBNQA Education constructs, *to be important* within the QSM of educational reform. Three hypotheses predicted that job category, years of total educational work experience, and years of experience with the QSM would all affect participants' perceptions about the importance of the two leadership factors.

4.3.2 Descriptive Statistics for Importance Scale

Once I had identified the leadership variables and factors and had validated them statistically, I computed univariate and bivariate descriptive statistics to assess the normality of the distribution of the data. Means for the leadership factors on the importance scale were all positive (agree). Table 22 offers a descriptive summary of the importance scale.

Table 22.

Univariate and Bivariate Descriptive Statistics for Leadership Importance Scale

Response distribution, means, and standard deviations for Leadership dependent variables

Importance scale

$N = 212$

Variable	Strongly disagree		Disagree		Agree		Strongly agree		*M*	*SD*
	N	%	*N*	%	*N*	%	*N*	%		
Factor 1—Stability and Trust									3.57	.469
31	3	1.4	10	4.7	73	34.4	126	59.4	3.52	.656
39	3	1.4	3	1.4	55	25.9	151	71.2	3.67	.580
47	0	0	2	.9	94	44.3	116	54.7	3.54	.518
48	1	.5	10	4.7	91	42.9	110	51.9	3.46	.611
49	2	.9	5	2.4	72	34.0	133	62.7	3.58	.590
63	1	.5	4	1.9	70	33.0	137	64.6	3.62	.551
Factor 2—Developing Ownership									3.58	.419
2	2	.9	5	2.4	70	33.0	135	63.7	3.59	.589
8	1	.5	5	2.4	51	24.1	155	73.1	3.70	.536
32	5	2.4	18	8.5	88	41.5	101	47.6	3.34	.735
42	2	.9	1	.5	72	34.0	137	64.6	3.62	.550
66	1	.5	6	2.8	84	39.6	121	57.1	3.53	.579
72	1	.5	1	.5	65	30.7	145	68.4	3.67	.510

None of the kurtosis values was greater than 3; even though the data exhibited slight skewness and peakedness, the range of values was acceptable. The negative skewness shows that responses were skewed in the direction of *agree* and *strongly agree*.

The slightly positive kurtosis numbers show that the distribution of scores was faintly peaked.

Hypothesis 1.1. The first hypothesis for research question one predicted a significant difference in the mean score on the perceived importance scale for leadership factors between administrators, teachers, and classified staff.

I conducted a one-way between-groups analysis of variance to explore the impact of job classification on the leadership importance factors. I divided participants into three groups based on their jobs within the school system (administrator, teacher, and classified staff). Data showed that the perceived importance of leadership factors was significantly higher for administrators than it was for teachers and classified staff in both leadership constructs. Table 23 shows means for each group for each factor.

I calculated Levene's test for homogeneity of variances at .002 for both factors, which violated the assumption of homogeneity. Therefore, I applied the Robust Tests of Equality of Means and used the Equal Variances Not Assumed *t* test data. The Robust Tests of Equality of Means showed a significance of < .05 for the Stability and Trust factor and a .001 significance for the Developing Ownership factor. I found statistically significant differences at the $p < .05$ level between the job classification groups on leadership importance factors, as shown in Table 24.

Table 23

Means and Standard Deviations for Leadership Importance Factors by Job Classification

Factor	Job classification	*N*	Mean	*SD*
Stability and	Administrator	36	3.769	.274
Trust	Teacher	132	3.532	.501
	Classified	44	3.500	.460
	Total	212	3.565	.469
Developing	Administrator	36	3.760	.263
Ownership	Teacher	132	3.532	.457
	Classified	44	3.561	.368
	Total	212	3.577	.419

While reaching statistical significance, the actual difference in mean scores between the groups was small. The effect size, calculated using eta squared, was .04 signifying minor importance. The mean score for administrators ($M = 3.769$, $SD = .274$) was significantly different from that of classified staff ($M = 3.500$, $SD = .460$), with a mean difference of .270. The second leadership factor, Developing Ownership, also showed a significant difference between the administrator mean ($M = 3.760$, $SD = .263$) and the teacher mean ($M = 3.533$, $SD = .457$), with a mean difference of 0.078. The other groups did not differ significantly in this factor.

Table 24

One-Way Analysis of Variance for Effects of Job Classification on Leadership Importance-Related Variables

Factor		Sum of squares	*df*	Mean square	*F*	Sig.	eta
Stability and Trust	Between groups	1.825	2	.912	**4.277***	.015	0.039
	Within groups	44.578	209	.213			
	Total	46.403	211				
Developing Ownership	Between groups	1.465	2	.733	**4.300***	.015	
	Within groups	36.610	209	.170			
	Total	37.075	211				0.040

*$p < .05$

Hypothesis 1.2. The second hypothesis for Research Question 1 predicted that there would be a significant difference in the mean score on the perceived importance scale for leadership factors between teachers based on years of educational work experience.

I conducted a one-way between-groups analysis of variance to explore the impact of years of educational work experience on importance-scale leadership factors. I divided participants into three groups according to years of educational work experience (Group 1: 3 years or less of experience; Group 2: 4 to 10 years of experience; and Group 3: 11 years or more of experience). Levene's test for homogeneity of variances was greater

than .05 for each factor, showing that the assumption for homogeneity of variances was met. Means and standard deviations for the leadership Importance Factors by years of work experience are shown in Table 25.

Table 25

Means and Standard Deviations for Leadership Importance Factors by Years of Educational Work Experience

Factor	Years of educational work experience	*N*	Mean	*SD*
Stability and Trust	≤ 3 years experience	44	3.546	.457
	4 ≤ x ≤ 10 years experience	67	3.647	.409
	≥ 11 years experience	101	3.520	.507
	Total	212	3.565	.469
Developing Ownership	≤ 3 years experience	44	3.542	.410
	4 ≤ x ≤ 10 years experience	67	3.642	.362
	≥ 11 years experience	101	3.550	.456
	Total	212	3.577	.419

I found no statistically significant differences at the $p < .05$ level between the years of educational work experience groups on leadership importance factors, as shown in Table 26.

Table 26

One-Way Analysis of Variance for Effects of Years of Educational Work Experience on Leadership Importance-Related Variables

Factor		Sum of squares	*df*	Mean square	*F*	Sig.
Stability and Trust	Between groups	.671	2	.336	1.533	.218
	Within groups	45.732	209	.219		
	Total	46.403	211			
Developing Ownership	Between groups	.413	2	.206	1.176	.311
	Within groups	36.662	209	.175		
	Total	37.075	211			

Hypothesis 1.3. The third hypothesis for Research Question 1 predicted that there would be a significant difference in the mean score on the perceived importance scale for leadership factors between participants based on years of experience in a QSM district.

I conducted an independent-samples *t* test to compare the perception scores of QSM experience groups. I divided respondents into two groups: 3 years or less of experience with the QSM ($N = 94$) and more than 3 years of experience with the QSM ($N = 118$). For the Stability and Trust subfactor, there was no significant difference in the

score between respondents with 3 or fewer years of experience ($M = 3.60$, $SD = .501$) and respondents with more than 3 years of experience, $M = 3.53$, $SD = 438$; $t(210) = 1.049$, $p = .295$ (two tailed). For the Developing Ownership subfactor, there was no significant difference in the scores for respondents with 3 or fewer years of experience ($M = 3.59$, $SD = .449$) and for respondents with more than 3 years of experience, $M = 3.57$, $SD = .392$; $t(210) = .290$, $p = .772$ (two-tailed).

4.4 Analysis for Research Question 2

4.4.1 Research Question 2 and Hypotheses

Research Question 2 was as follows: To what extent do administrators, teachers, classified staff, and community members perceive leadership, measured using MBNQA Education constructs, *to be in practice* within the Quality Schools Model of educational reform? Three hypotheses related to Research Question 2 predicted that job category, years of total educational experience, and years of experience with the Quality Schools Model would all affect participants' perceptions of the existence of the four knowledge factors.

4.4.2 Descriptive Statistics and Tests for Skewness and Kurtosis for Practice Scale

I computed univariate and bivariate descriptive statistics for practice-scale variables and factors to assess the normality of the distribution of the data. Means for both practice scale leadership factors were lower than the mean for the corresponding importance factors. Table 27 offers a descriptive summary for the practice scale.

Table 27

Univariate and Bivariate Descriptive Statistics for In-Practice Scale

Response distribution, means, and standard deviations for Leadership dependent variables

In-practice scale

$N = 212$

Variable	Strongly disagree		Disagree		Agree		Strongly agree		*M*	*SD*
	N	%	*N*	%	*N*	%	*N*	%		
Factor 1—Stability and Trust									**2.98**	**.640**
31	13	6.1	65	30.7	92	43.4	42	19.8	2.77	.837
39	5	2.4	32	15.1	89	42.0	86	40.6	3.21	.782
47	8	3.8	52	24.5	91	42.9	61	28.8	2.97	.828
48	10	4.7	49	23.1	93	43.9	60	28.3	2.96	.839
49	9	4.2	73	34.4	90	42.5	40	18.9	2.76	.805
63	5	2.4	33	15.6	89	42.0	85	40.1	3.20	.784
Factor 2—Developing Ownership									**3.02**	**.552**
2	2	.9	36	17	112	52.8	62	29.2	3.10	.701
8	3	1.4	38	17.9	90	42.5	81	38.2	3.17	.768
32	25	11.8	90	42.5	68	32.1	29	13.7	2.48	.873
42	6	2.8	40	18.9	90	42.5	76	35.8	3.11	.807
66	3	1.4	61	28.8	91	42.9	57	26.9	2.95	.784
72	2	.9	24	11.3	89	42.0	97	45.8	3.33	.711

None of the kurtosis values was greater than 3, so even though the data exhibited slight skewness and peakedness, the range of values was acceptable. The negative skewness shows that responses were skewed in the direction of *agree* and *strongly agree*.

The slightly negative kurtosis numbers show that the distribution of scores was faintly flat, unlike the importance-scale factors, where kurtosis was positive.

For the in-practice scale, I examined box plots for the leadership factors to determine whether there were any outlier scores. Because I found a few outlier scores, I compared the 5% trimmed mean to the factor mean to determine the effect of the outlier scores. Similar to the importance scale, the percent differences between the factor means and the 5% trimmed means was very small. I left the outlier cases in for analysis because they did not have a large effect on the mean scores.

Hypothesis 2.1. The first hypothesis for Research Question 2 predicted that there would be a significant difference in the mean scores on the in-practice scale for leadership factors between administrators, teachers, and classified staff. I conducted a one-way between-groups analysis of variance to explore the impact of job classification on the two leadership in-practice factors. I divided participants into three groups based on their jobs within the school system (administrator, teacher, and classified staff). Data showed that the perceived level of leadership factors being in practice was significantly higher for administrators than it was for teachers and classified staff in both leadership constructs. Table 28 lists means for each group for each factor.

Levene's test for homogeneity of variances showed a significance level of .082 for the Stability and Trust factor, meeting the assumption of homogeneity. Levene's test showed a .021 result for the Developing Ownership factor, thereby not meeting the assumption of homogeneity.

Table 28

Means and Standard Deviations for Leadership In-Practice Factors by Job Classification

Factor	Job classification	*N*	Mean	*SD*
Stability and	Administrator	36	3.370	.490
Trust	Teacher	132	2.854	.610
	Classified	44	3.019	.708
	Total	212	2.980	.640
Developing	Administrator	36	3.398	.361
Ownership	Teacher	132	2.905	.543
	Classified	44	3.076	.570
	Total	212	3.024	.552

I applied the Robust Tests of Equality of Means and used the Equal Variances Not Assumed *t* test data. Additionally, I calculated the effect size using mean squared. The Robust Tests of Equality of Means showed a significance of < .05 for factor 2, Developing Ownership. I found statistically significant differences at the $p < .05$ level between the job classification groups for the leadership in-practice factors, as shown in Table 29.

Table 29

One-Way Analysis of Variance for Effects of Job Classification on Leadership In-Practice Related Variables

Factor		Sum of squares	*df*	Mean square	*F*	Sig.	eta
Stability and Trust	Between groups	7.619	2	3.810	**10.116***	< .05	0.088
	Within groups	78.707	209	.377			
	Total	86.327	211				
Developing Ownership	Between groups	7.017	2	3.509	**12.828***	< .05	
	Within groups	57.163	209	.274			
	Total	64.180	211				0.109

*$p < .05$

While it did reach statistical significance, the actual effect size between the groups was of medium effect as calculated using eta squared, which was .09. Post-hoc comparisons using the Tukey Honestly Significant Differences (HSD) test indicated that the mean score for administrators ($M = 3.370$, $SD = .490$) was significantly different from that of teachers ($M = 2.855$, $SD = .610$) in the Leadership Stability and Trust factor, with a mean difference of .516. The mean score for administrators ($M = 3.370$, $SD = .490$) also significantly differed from that of classified staff ($M = 3.019$, $SD = .708$), with a mean difference of .351. The second leadership factor, Developing Ownership, showed significant differences between these groups as well. This was supported by the effect size, which I calculated to be .11. The significant difference between the administrator

mean (M = 3.398, SD = .361) and the teacher mean (M = 2.905, SD = .543) showed a mean difference of .493. The Developing Ownership factor also showed a significant difference between the administrator mean (M = 3.398, SD = .361) and the classified mean (M = 3.076, SD = .569), with a mean difference of .322.

Hypothesis 2.2. Hypothesis 2.2 predicted a significant difference in the mean scores on the in-practice scale for leadership factors between groups based on years of educational work experience. I divided participants into three groups: 3 or fewer years of experience (N = 44); 4 to 10 years of experience (N = 67); and 11 or more years of experience (N = 101). I conducted a one-way between-groups ANOVA to test for differences according to years of educational work experience within the teacher group for in-practice leadership factors. Results are shown on Table 30.

Levene's test for homogeneity of variances was greater than .05 for both leadership in-practice factors, thereby meeting the assumption of homogeneity. I found no statistically significant differences at the $p < .05$ level between the years of educational work experience groups on leadership importance factors, as shown in Table 31.

Hypothesis 2.3. Hypothesis 2.3 predicted a significant difference in the mean scores on the in-practice scale for leadership factors between participants based on years of experience in a QSM district. I divided respondents into two groups: 3 or fewer years of experience with the QSM (N = 94) and more than 3 years of experience with the QSM (N = 118).

Table 30

Means and Standard Deviations for Leadership In-Practice Factors by Years of Educational Work Experience

Factor	Years of educational work experience	*N*	Mean	*SD*
Stability and Trust	≤ 3 years experience	44	2.917	.659
	4 ≤ x ≤ 10 years experience	67	3.012	.569
	≥ 11 years experience	101	2.979	.679
	Total	212	2.976	.640
Developing Ownership	≤ 3 years experience	44	2.981	.585
	4 ≤ x ≤ 10 years experience	67	3.040	.493
	≥ 11 years experience	101	3.033	.577
	Total	212	3.024	.552

The mean perception of the Leadership Stability and Trust subfactor being in practice was 2.980 for respondents with 3 or fewer years of QSM experience and was 2.983 for respondents with more than 3 years of QSM experience. The mean perception of the Developing Ownership subfactor being in practice was 3.023 for respondents with 3 of fewer years of QSM experience and 3.026 for respondents with more than 3 years of QSM experience.

Table 31

One-Way Analysis of Variance for Effects of Years of Educational Work Experience on Leadership In-Practice Related Variables

Factor		Sum of squares	*df*	Mean square	*F*	Sig.
Stability and Trust	Between groups	.244	2	.122	.297	.744
	Within groups	88.082	209	.412		
	Total	86.327	211			
Developing Ownership	Between groups	.106	2	.053	.173	.841
	Within groups	64.074	209	.307		
	Total	64.180	211			

I conducted an independent-samples *t* test to compare the perception scores of the two QSM experience groups. There were no significant differences between the two groups for the Stability and Trust subfactor (t (210) = .082, p = .935) or for the Developing Ownership subfactor (t (210) = -.032, p = .975).

4.5 Analysis for Research Question 3

Research Question 3 asked whether there are statistically significant differences between respondents' perceptions of importance and perceptions of practice of leadership factors as part of the Quality Schools Model, and whether these differences vary across groups. Three hypotheses tested the impact of respondents' demographic characteristics on the differences between importance and in-practice responses.

I conducted a paired-samples *t* test to compare the importance perception scores to the practice perception scores. Comparison groups were job classification (administrator, $N = 36$; teacher, $N = 132$; and classified staff, $N = 44$); years of educational work experience (Group 1: 3 or fewer years of experience, $N = 44$; Group 2: 4 to 10 years of experience, $N = 67$; and Group 3: 11 or more years of experience, $N = 101$); and years of QSM experience (Group 1: 3 or fewer years of experience, $N = 94$; Group 2: 4 or more years of experience, $N = 118$).

There were significant differences between respondents' perceptions of the importance and perceptions of the practice of the Stability and Trust subfactor and the Developing Ownership subfactor for all groups. In all instances, the mean score was higher for the importance scale than for the in-practice scale.

Hypothesis 3.1. Hypothesis 3.1 predicted the differences between the extent to which respondents perceive leadership items to be important and the extent to which they perceive leadership items to be in practice would vary between administrators, teachers, and classified staff.

Because we had one set of respondents from which we gathered two sets of data, importance data and in-practice data, I conducted a paired-samples *t* test.

Table 32 provides the paired-samples *t* test results, allowing the comparison of perceptions of the importance and practice of the leadership factors from the perspective of the three job classification groups.

Table 32

Paired-Samples t Test Comparing Beliefs About Leadership Factors Being Important and in Practice, by Job Classification

		Mean decrease	Std Dev	*t*	*df*	Sig (2 tailed)	eta
Admin.	Stability and Trust	.398	.488	4.891	35	< .05	.102
Admin.	Developing Ownership	.361	.395	5.480	35	< .05	.125
Teacher	Stability and Trust	.677	.623	12.484	131	< .05	.425
Teacher	Developing Ownership	.628	.512	14.085	131	< .05	.485
Class.	Stability and Trust	.481	.721	4.427	43	< .05	.085
Class.	Developing Ownership	.485	.600	5.358	43	< .05	.120

Table 32 shows all two-tailed significance levels of < .05, demonstrating that there was a statistically significant difference between perceived importance and in-practice scores for all job classifications. All effect size (eta) scores were greater than .010, which signifies these differences are of medium importance.

Hypothesis 3.2. Hypothesis 3.2 predicted that the differences between the extent to which respondents perceive leadership items to be important and the extent to which they perceive leadership items to be in practice vary between groups based on years of educational work experience. Because we had one set of respondents from which we gathered two sets of data, importance data and in-practice data, I conducted a paired-samples *t* test. There were significant differences between respondents' perceptions of the importance and perceptions of the practice of the Stability and Trust subfactor and for the Developing Ownership subfactor for all groups. In all instances, the mean score was higher for the importance scale than for the in-practice scale.

Table 33 provides *t* test results, allowing a comparison of perceptions of how important and in-practice the leadership factors were from the perspective of the three categories of educational experience longevity.

Table 33 shows all two-tailed significance levels of $< .05$, demonstrating that there was a statistically significant difference between perceived importance and in-practice scores for all ranges of educational experience. All effect size (eta) scores were greater than .14, which is also signifies these differences are important.

Hypothesis 3.3. Hypothesis 3.3 predicted that the differences between the extent to which respondents perceive leadership items to be important and the extent to which they perceive leadership items to be in practice would vary for participants based on years of experience in the QSM district.

Table 33

Paired-Samples t Test Comparing Beliefs About Leadership Factors Being Important and in Practice, by Years of Educational Work Experience

		Mean decrease	Std dev	*t*	*df*	Sig (2 tailed)	eta
≤ 3 yrs.	Stability and Trust	.629	.712	5.854	43	< .05	.140
≤ 3 yrs.	Developing Ownership	.561	.543	6.850	43	< .05	.190
Between 4 and 10 yrs.	Stability and Trust	.634	.519	10.001	66	< .05	.322
Between 4 and 10 yrs.	Developing Ownership	.602	.424	11.611	66	< .05	.390
≥ 11 yrs.	Stability and Trust	.541	.666	8.173	100	< .05	.240
≥ 11 yrs.	Developing Ownership	.517	.572	9.078	100	< .05	.281

There were significant differences between respondents' perceptions of the importance and the practice of the Stability and Trust subfactor and the Developing

Ownership subfactor for all groups. In all instances, the mean score was higher for the importance scale than for the in-practice scale. Table 34 provides *t*-test results, enabling the comparison of perceptions of how important and in-practice the leadership factors were, based upon respondents' years of experience working in a QSM school district.

Table 34

Paired-Samples t Test Comparing Beliefs About Leadership Factors Being Important and in Practice, by Years of QSM Experience

		Mean decrease	Std dev	*t*	*df*	Sig (2 tailed)	eta
≤ 3 yrs	Stability and Trust	.620	.642	9.711	100	< .05	.309
≤ 3 yrs.	Developing Ownership	.563	.490	11.532	100	< .05	.387
≥ 4 yrs	Stability and Trust	.560	.625	9.445	110	< .05	.297
≥ 4 yrs	Developing Ownership	.544	.552	10.379	110	< .05	.338

Table 34 shows all two-tailed significance levels of < .05, demonstrating that there was a statistically significant difference between perceived importance and in-practice scores for both ranges of QSM experience. All effect size (eta) scores were

greater than .14, which is also considered to signify these differences are of large importance.

4.6 Analysis for Research Question 4

4.6.1 Research Question 4 and Hypotheses

Research Question 4 addressed the relationships among the MBNQA Education category criteria that describe the QSM, using the MBNQA theoretical model as a starting point. Hypothesis 4 predicted that leadership would have either a direct or an indirect effect on all other MBNQA categories, as shown in the MBNQA theoretical model. While Research Questions 1, 2, and 3 were unique to this researcher, the four members of the research cohort shared Research Question 4, as all of us had an interest in the overall structural model for the QSM data.

4.6.2 Tests for Assumptions

Based on theory and previous testing of the questionnaire design, my research cohort had assigned each questionnaire item to one of the seven latent variables that are descriptive of the MBNQA Education theoretical model (Leadership; Strategic Planning; Process Management; Staff Focus; Knowledge Management; Student, Stakeholder, and Market Focus; and Results). Table 35 shows the assignment of variables to the latent factors.

Table 35

Assignment of Questionnaire Items to Factors

Factor	Survey questions
Leadership	2, 8, 31, 32, 39, 42, 47, 48, 49, 63, 66, 72
Strategic Planning	16, 24, 34, 38, 45, 53, 54, 56
Knowledge Management	7, 20, 22, 25, 27, 29, 40, 44, 52, 57, 59,
Process Management	6,10, 12, 18, 21, 30, 33, 41, 58, 61, 62
Staff Focus	3, 4, 9, 14, 46, 50, 51, 55, 60, 65, 68
Student, Stakeholder, and Market Focus	1, 11, 13, 15, 23, 35, 36, 37, 67, 71
Results	5, 17, 19, 26, 28, 43, 64, 69, 70

All of the indicator variables for each of the latent factors were tested for univariate normality and the presence of outliers. Because I described the tests for assumptions for the leadership variables and factors previously in relationship to Research Questions 1 through 3, I focus the description in this section on the other variables necessary to create the structural model.

The bivariate sample statistics of skewness and kurtosis are routinely used to assess normality for both parametric statistics and SEM. The results of the assumptions tests for the remaining variables from the questionnaire were as follows: For the Staff Focus factor, 10 of the 11 variables had a slight negative skew toward *agree* and *strongly agree*, the value of which did not exceed .09 for any variable. No items had outliers. For the factor of Strategic Planning, the skewness value did not exceed 1.0 for any variable,

though six of the eight had a slight negative skew. Items 24 and 45 had outliers with differences between the 5% trimmed mean and the original mean of .04 and .05, respectively. All skew and kurtosis values for the factor of Student, Stakeholder, and Market Focus were within the range of + / -1.0. Item 15 had an outlier and a difference of only .04 between the 5% trimmed mean and the original mean. Eight of the 11 variables in the Process Management variable had slight negative skews, all of which were less than + / - 1.0. There were no outliers for any variable. For Results, all skew values for the variables were within the + / - 1.0. Five of the nine variables had a slight positive skew toward the *disagree* and *strongly disagree* response options. Item 5 had two outlier scores with a difference between the 5% trimmed mean and the original mean of only .04. Item 64 had one outlier score and a difference between the two means of .05. None of the variables showed evidence of non-normality (skewness > 3.0; kurtosis > 2.0), and the effect of outlier scores on means was not significant. The cohort retained 72 variables for possible inclusion in the structural equation model.

In addition to univariate normality, both CFA and SEM assume multivariate normality. Bryant and Yarnold (1995) said, "This means that besides assuming each observed indicator is normally distributed, all linear combinations of these indicators are also assumed to be normally distributed. Violations of multivariate normality can distort goodness-of-fit indexes and invalidate the conclusions drawn from statistical tests" (p. 116). Mahalanobis distance is one test used to check for multivariate normality where x^2 for each variable to be included is compared against a table of values. Tabachnick and Fidell (2007) provided the table of values; for 72 variables, the critical value of x^2 is

112.317 (p. 949). They recommend a conservative significance value, $p < .001$. All of the items from the practice scale from the Quality Schools Model Questionnaire had acceptable x^2 values when checked for multivariate normality, so this assumption was also met.

4.6.3 The Hypothesized Model and Confirmatory Factor Analysis

We hypothesized seven-factor model based on the MBNQA Education measurement constructs where all seven factors would covary, shown by recursive arrows. While our initial choice as a research cohort was to include all variables in the measurement model, that number of parameters would have led to an inadmissible solution. J. Schreiber et al. (2006) advised,

> The validity of the final results of the structural model is dependent on capturing and establishing the reliability of the underlying constructs. The power of SEM is seen most fully when multiple indicators for each latent variable are first tested through CFA to establish the conceptual soundness of latent variables used in the final structural model. (p. 335)

Working as a cohort and based on our literature review, we reduced the number of variables from the questionnaire to 55 from 72. Table 36 shows the variables retained for each factor. Next we reran the CFAs for each individual factor. The results of the 7 individual factor CFAs are in Appendix E.

Table 36

Questionnaire Items Considered for the Quality Schools Model Structural Equation Model

Factor	Survey questions
Leadership	8, 39, 42, 47, 49, 31, 63, 66, 72
Strategic Planning	16, 34, 38, 45, 53, 54, 56
Knowledge Management	7, 20, 22, 25, 40, 52, 57, 59
Process Management	6,10, 12, 18, 21, 41, 58, 61
Staff Focus	4, 9, 14, 50, 51, 55, 65, 68
Student, Stakeholder, and Market Focus	1, 13, 15, 23, 35, 36, 37, 67
Results	5, 19, 26, 43, 64, 69, 70

We examined the CFA results to trim the number of variables down to 28 observed variables to achieve an acceptable model, following the advice of Bryant and Yarnold (1995),

> In deciding which factor loadings to include in a CFA model, researchers seek to develop parsimonious models in which individual items load on as few factors as necessary to reasonably fit the data. In this way, they balance their desire to explain variance in subject responses with their desire for conceptual parsimony. (p. 115)

Both Tabachnick and Fidell (2007, p. 710) and Garson (n.d.) provide guidance to determine the minimum number of variables that may be retained to create a

measurement model. We retained four variables with the highest standardized regression weights and squared multiple regression scores for each factor. Cronbach's alpha scores for the four measurement variables within each latent variable are shown in Table 37. All of the alpha scores were > .70, the commonly accepted minimum for reliability of a scale.

Table 37

Cronbach's Alpha for Variable Subsets used for Quality Schools Model Confirmatory Factor Analysis

Factor	**Cronbach's Alpha**
Leadership	.85
Strategic Planning	.80
Knowledge Management	.82
Process Management	.84
Staff Focus	.77
Student, Stakeholder, and Market Focus	.79
Results	.75

The second-order CFA model for the QSM data followed model conventions with ovals representing latent variables and rectangles representing the measured variables. The seven first-order latent endogenous variables fully explain the second-order latent exogenous variables of the MBNQA framework using the Quality Schools Model questionnaire items from the practice scale. In the CFA, the latent variables were uncorrelated to free some parameters, shown by the change from curved lines to straight

directional lines. J. Schreiber et al. (2006) called CFA and SEM "iterative processes by which modifications are indicated in the initial results, and parameter constraints altered to improve the fit of the model" (p. 335). The second-order CFA measurement model for the QSM data is recursive with 28 observed and 43 unobserved variables. There are 36 exogenous variables and 35 endogenous variables, shown in Figure 7.

Table 38 shows the unstandardized and standardized regression estimates and goodness of fit statistics for the modified CFA model of the QSM data.

Squared multiple correlation values are shown in Table 39. All indicator variables measured the corresponding factors moderately to very well with small to moderate covariance.

4.6.4 Model Fit

After determining which measurement variables to include for each of the seven assumed latent variables the structural model was drawn, showing linkages supported by the theoretical literature and based on the findings of other researchers. The theoretical MBNQA model hypothesizes and some researchers have found Leadership to have a direct effect on four factors: Knowledge Management, Strategic Planning, Staff Focus, and Process Management. The parameter values for the individual measurement variables were fixed to the values obtained in the individual factor CFAs to reduce the number of parameters being measured, as described in Garson (n.d.) and Edwin (2007, p. 102). Incorporation of all four causal paths produced an unacceptable fit for the model, so the paths were then tested one by one to achieve an acceptable fit.

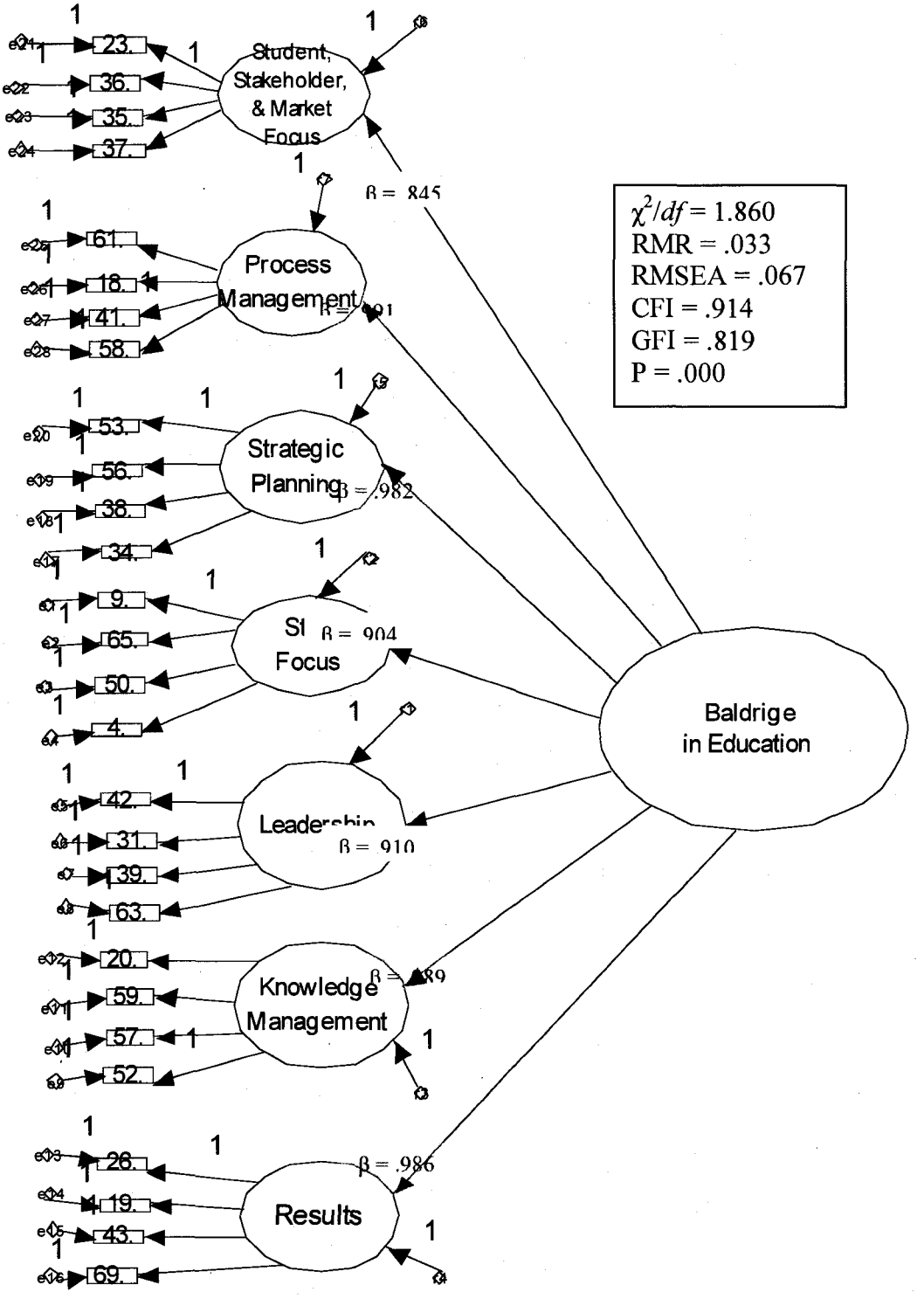

Figure 7. Second Order Confirmatory Factor Analysis for Quality Schools Model Practice Scale.

Table 38

Maximum-Likelihood Parameter Estimates of the Quality Schools Model Confirmatory Factor Analysis

			B	*SE*	*p*	β
Student, Stakeholder, and Market Focus	<---	Baldrige in Education	.857	2370.420	***	.845
Process Management	<---	Baldrige in Education	.868	2402.413	***	.991
Strategic Planning	<---	Baldrige in Education	.888	2457.200	***	.982
Staff Focus	<---	Baldrige in Education	.815	2253.672	***	.904
Leadership	<---	Baldrige in Education	.880	2433.504	***	.910
Knowledge Management	<---	Baldrige in Education	.898	2485.084	***	.989
Results	<---	Baldrige in Education	.679	1879.572	***	.986
61	<---	Process Management	1.000		***	.700
18	<---	Process Management	1.156	.106	***	.792
41	<---	Process Management	1.033	.103	***	.723
58	<---	Process Management	1.106	.104	***	.769
4	<---	Staff Focus	.877	.112	***	.597
50	<---	Staff Focus	1.015	.115	***	.689
65	<---	Staff Focus	1.047	.113	***	.726
34	<---	Strategic Planning	.805	.086	***	.638
63	<---	Leadership	.956	.084	***	.759
59	<---	Knowledge Management	.916	.090	***	.687
23	<---	Student, Stakeholder, and Market Focus	.886	.102		.646
69	<---	Results	1.109	.163		.562
43	<---	Results	1.442	.175		.746
19	<---	Results	1.388	.169	***	.747
57	<---	Knowledge Management	1.127	.097	***	.770
20	<---	Knowledge Management	1.010	.096	***	.712
39	<---	Leadership	.978	.083	***	.779
31	<---	Leadership	1.037	.090		.772
42	<---	Leadership	1.000			.771
9	<---	Staff Focus	1.000			.681
53	<---	Strategic Planning	1.000		***	.756
38	<---	Strategic Planning	.981	.093	***	.716
56	<---	Strategic Planning	1.034	.098	***	.709

Table 38 (*continued)*

		B	*SE*	*p*	β
37	<--- Student, Stakeholder, and Market Focus	.876	.085	***	.724
35	<--- Student, Stakeholder, and Market Focus	.867	.088	***	.696
36	<--- Student, Stakeholder, and Market Focus	1.000		***	.766
26	<--- Results	1.000		***	.566
52	<--- Knowledge Management	1.000		***	.750

*** Significant probability at .01

Table 39

Squared Multiple Correlations for the Second-Order Quality Schools Model Confirmatory Factor Analysis

Variable	R^2
Strategic Planning	.963
Student, Stakeholder, and Market Focus	.714
Staff Focus	.818
Knowledge Management	.979
Process Management	.983
Results	.972
26	.320
19	.558
52	.562
9	.464
34	.407
38	.513
56	.503
53	.571
23	.417
36	.587
65	.527
58	.591
41	.523

Table 39 *(continued)*

Variable	R^2
43	.557
69	.316
20	.507
39	.606
42	.594
63	.576
18	.627
61	.490
57	.593
59	.472
31	.595
37	.524
50	.475
4	.356
35	.484

The acceptable fit structural model for the QSM data is shown in Figure 8. All except one (Leadership to Strategic Planning) of the paths shown on the structural model are significant. Correlated error terms indicate that a model has omitted one or more relevant exogenous variables and therefore correlations between error variances were not allowed (James, Mulaik, & Brett, 1982). Model fit indices show that this to be a good model of the relationships between the latent variables derived from the QSM data.

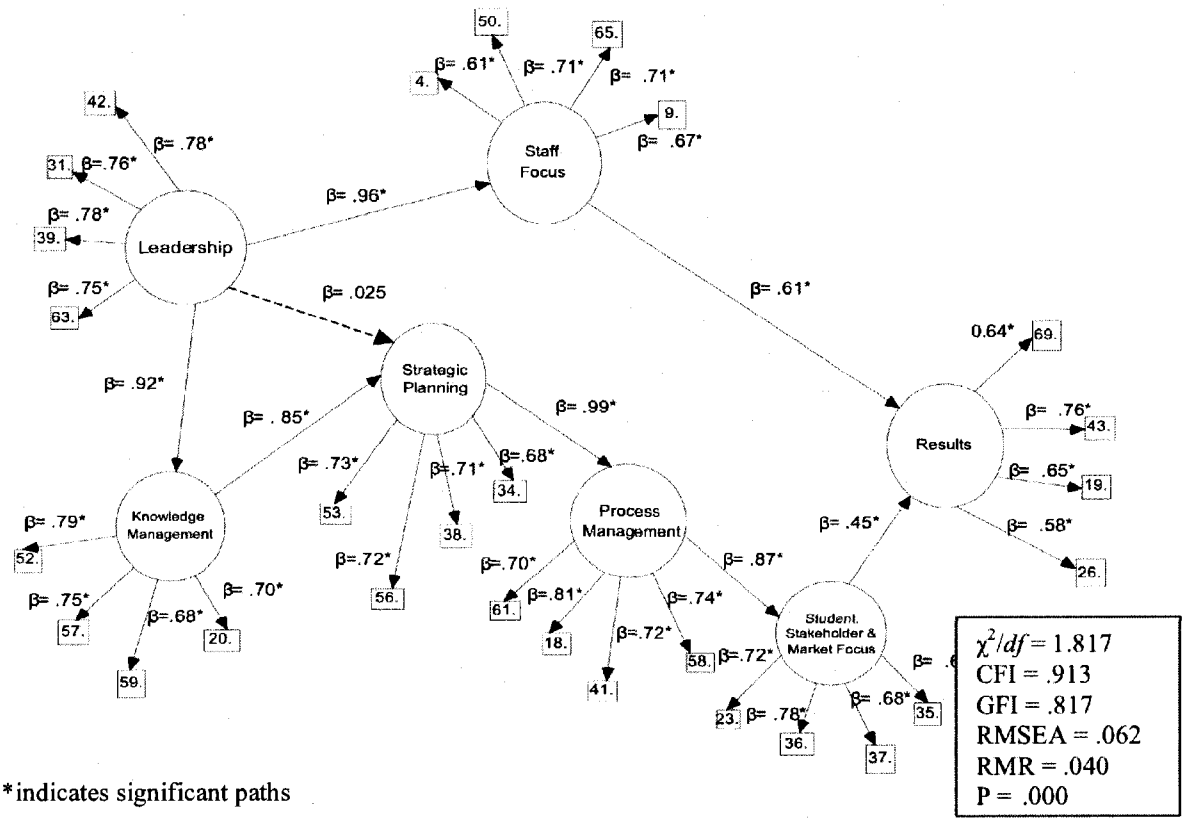

Figure 8. Structural Model for the Quality Schools Model Questionnaire Based on Baldrige Education Factor Constructs.

4.6.5 Structural Model Results

The QSM structural model in Figure 8 shows Leadership as the only exogenous latent variable in the structural model for the QSM data, and the only latent variable with an effect on all other latent variables. Leadership has a direct effect on Knowledge Management and on Staff Focus. Additionally, Leadership has a strong indirect effect (.944) on Results through the mediating variables of Staff Focus, and the path from Knowledge Management through Strategic Planning to Process Management to Student,

Stakeholder, and Market Focus; on Strategic Planning (.896) through Knowledge Management as a mediating variable; on Process Management through the mediating variables of Knowledge Management and Strategic Planning (.914); and on Student, Stakeholder, and Market Focus through the mediating variables of Knowledge Management, Strategic Planning, and Process Management (.795). Four endogenous variables have a direct effect on other endogenous variables: Knowledge Management on Strategic Planning; Strategic Planning on Process Management; Staff Focus on Results; and Process Management on Student, Stakeholder, and Market Focus. Knowledge Management also has an indirect effect on Process Management through the mediating variable of Strategic Planning (.967), an indirect effect on Student, Stakeholder, and Market Focus through Strategic Planning and Process Management (.840), and an indirect effect on Results through Strategic Planning, Process Management, and Student, Stakeholder and Market Focus (.377). The indirect effect of Strategic Planning on Student, Stakeholder, and Market Focus through Process Management is .862. All six other factors influence Results in the Quality Schools Model, and four latent variables (Leadership, Knowledge Management, Strategic Planning, and Process Management) affect the other latent variables (outcomes) of Student, Stakeholder, and Market Focus. These results support the hypotheses that I made for research question four: Leadership has a direct or indirect causal effect on the remaining MBNQA constructs.

As the Malcolm Baldrige National Quality Award (MBNQA) framework was designed with input from over 200 quality experts (Hart and Bogan, 1992), and the fact that it includes most strategies supported by nearly all quality theorists in North America

and Asia (Winn and Camaron, 1998), it is safe to say this model is comprehensive. To help clarify this comprehensive and complex model, the seven constructs are divided into three classifications. Leadership has been classified as the *driver*, Knowledge Management, Process Management, Strategic Planning, and Staff Focus have been classified as *operational systems,* and both Results and Student, Stakeholder, Market Focus are classified as *outcomes*. The QSM SEM was conducted to compare this assumed model framework with the actual framework produced by rural Alaskan QSM data in order to determine if this data fits the assumed model. In this analysis, it is important to note both the parts that do fit with the hypothesized model, as well as those parts that do not. The QSM data clearly fits the three general MBNQA model classifications of *driver*, *operational systems*, and *outcomes*. The QSM data shows that leadership indeed does act as the driver and as such, I will henceforth refer to this model as the QSM Leadership Model. Both of the strong direct causal effects that Leadership has in the QSM Leadership Model are of no surprise to myself. The QSM trains staff in, and practices regularly, distributed leadership. Therefore the leadership knowledge (Knowledge Management) in a QSM district is dispersed among a relatively large segment of the staff, who in turn drive the strategic plans and processes of the district. Distributed or shared leadership also plays a key role in Staff Focus. In this study, leadership training followed by empowering employees with genuine authority while holding them to high expectations is shown to increase individual motivation, which in turn directly and causally impacts organizational results. A noteworthy omission from the hypothesized MBNQA model is a path between Staff Focus and Knowledge

Management. In the QSM, knowledge is embodied by the staff and therefore I am surprised by the fact a path between these two constructs isn't supported by the QSM data. It is possible that because these two constructs have a large overlap in measuring the area of organizational knowledge, the data show these two constructs to be measuring much of the same information.

While Leadership is the independent driver in this model, most of its influence is operationalized through two paths, the Knowledge Management path and Staff Focus path.

Leadership drives the Knowledge Management path, which in turn sets into motion the actions that achieve the results of QSM reform model. As a system factor, Knowledge Management has an effect on two other system factors (Strategic Planning and Process Management), as well as both of the outcomes (Results and SSMF).

Again the driver, Leadership initiates the Staff Focus path. Leadership creates conditions for effective Staff Focus activities and practices, which directly affect (causally) Organizational Results. Staff Focus is the only operational systems factor that has a direct causal effect on Organizational Results in this QSM Leadership Model.

The fact that one outcome in the QSM Leadership Model effects the other outcome is of no surprise. Student, Stakeholder, Market Focus, effects Organizational Results, albeit not relatively strongly. This effect, I believe, is in part due to the QSM regular and purposeful efforts to engage all stakeholders, including all of those in the MBNQA category title Student, Stakeholder, Market, to meaningfully contribute in the coproduction of Organizational Results.

The QSM data has provided rural Alaskan education leaders with a viable Leadership Model that will guide practicing leaders with actionable insights. The QSM Leadership Model clearly indicates that to be effective, leadership must acquire and use information to feed the development of district staff, who in turn design and plan the operational processes towards the shared goal of improved results. Although the QSM Leadership Model results are encouraging, I caution against broadly generalizing these results to other situations. We conducted a principle component analysis, yet because we had already used a theoretical basis including an expert review to declare which variables fit into the categories early in the process, we were able to conduct a confirmatory factor analysis (CFA) related to structural equation modeling (SEM). CFA and SEM are very dynamic and relational processes that result in iterative versions of the model conducted to result in the model of best fit.

Table 40 presents the standardized loadings for the variables and factors, which can be used as an indicator of reliability that the items measure the construct they are intended to measure. All of the regression values are moderate (at least 0.5), with most above the 0.7 acceptable threshold for good reliability.

The standardized residual covariances for the QSM structural model are presented in Table 42. Three of the Strategic Planning variables have an absolute standardized residual covariance value > 2 but they are randomly attached to other variables measuring different endogenous factors. Since all other fit indices show acceptable values, the three standardized residual covariances > 2 are noted but accepted.

Table 40

Maximum-Likelihood Parameter Estimates of the QSM Structural Model

			B	*SE*	*p*	β
Knowledge Management	<---	Leadership	.938	.056	***	.920
Strategic Planning	<---	Leadership	.025	.203	.903	.025
Strategic Planning	<---	Knowledge Management	.937	.207	***	.975
Process Management	<---	Strategic Planning	1.048	.052	***	.992
Student, Stakeholder, & Market Focus	<---	Process Management	.872	.060	***	.869
Staff Focus	<---	Leadership	1.011	.058	***	.961
Results	<---	Staff Focus	.618	.122	***	.611
Results	<---	Student, Stakeholder, & Market Focus	.459	.129	***	.449
69	<---	Results	.640			.595
19	<---	Results	.650			.694
39	<---	Leadership	.780			.772
43	<---	Results	.760			.745
61	<---	Process Management	.700			.710
18	<---	Process Management	.810			.791
26	<---	Results	.580			.603
31	<---	Leadership	.760			.734
42	<---	Leadership	.780			.759
63	<---	Leadership	.750			.762
20	<---	Knowledge Management	.700			.690
59	<---	Knowledge Management	.680			.698

52	<---	Knowledge Management	.790	.782

Table 40 *(continued)*

			B	*SE*	*p*	β
57	<---	Knowledge Management	.750			.736
50	<---	Staff Focus	.710			.686
9	<---	Staff Focus	.670			.660
65	<---	Staff Focus	.710			.706
4	<---	Staff Focus	.610			.593
36	<---	Student, Stakeholder, & Market Focus	.780			.746
23	<---	Student, Stakeholder, & Market Focus	.717			.657
37	<---	Student, Stakeholder, & Market Focus	.680			.709
35	<---	Student, Stakeholder, & Market Focus	.670			.679
41	<---	Process Management	.720			.728
58	<---	Process Management	.740			.764
34	<---	Strategic Planning	.680			.677
38	<---	Strategic Planning	.710			.698
56	<---	Strategic Planning	.720			.676
53	<---	Strategic Planning	.730			.742

*** Significant probability at .01

Table 41

Squared Multiple Correlations for the Quality Schools Model Structural Equation Model

Factor or variable	R^2
Knowledge Management	.846
Strategic Planning	.996
Process Management	.984
Staff Focus	.924
Student, Stakeholder, and Market Focus	.756
Results	.995
53	.550
56	.457
38	.487
34	.458
58	.584
41	.529
23	.432
36	.557
65	.499
9	.435
52	.611
20	.477
43	.576
26	.363
63	.581
18	.625
61	.503
43	.555

Table 41 *(continued)*

Factor or variable	R^2
57	.542
59	.487
31	.539
37	.503
39	.596
50	.471
4	.352
19	.481
69	.354
35	.461

Table 42

Standardized Residual Covariances for the QSM Structural Equation Model

Variable	53	56	38	34	58	41	23	36	65	9	52
53	.215										
56	.864	.618									
38	-.417	.139	.254								
34	-.118	.529	.139	-1.146							
58	.051	1.308	.250	-.534	.498						
41	.191	-.213	-.662	-.933	.122	-.111					
23	-.132	.599	.493	-.887	1.117	.763	.000				
36	.224	.332	1.035	.247	.524	-1.016	-.230	-.151			
65	.092	.390	1.488	-.341	.621	-.773	.644	-1.119	.037		
9	-.212	-.052	1.123	-.620	-1.030	.096	.993	-1.656	.778	.170	
52	-.420	.809	-.602	-1.393	.095	.001	-.744	-1.174	-.935	-.436	-.852
20	.233	-.460	-.250	-1.496	-.079	.185	1.105	-.849	1.172	.815	-.562
43	.155	-.718	.477	-.458	-.704	2.103	-.015	-.608	-.763	-.548	-.910
26	-.386	.076	-.156	-.717	-.508	-.209	.338	-1.037	-.992	-.717	-1.506
63	.123	-.079	-.694	-1.269	-1.087	.061	.773	-1.704	.270	1.515	-.444
18	-.821	-.317	-.060	-2.084	.317	-.034	.691	-1.374	.496	.493	-.992
61	.306	.532	.235	-.856	.393	.007	-.073	-1.858	.032	.013	.123
43	.961	1.299	.339	-.925	.032	.967	.524	-1.417	-.245	-.437	-.298
57	.638	1.434	.928	-1.108	1.192	.012	1.192	.266	.246	.247	.194
59	.633	.282	-.023	-1.457	.724	-.474	-1.266	-1.674	.815	.250	-.557
31	.707	.305	.658	-1.239	.025	-.039	1.375	.577	-.406	-.722	-.516
37	-.208	.739	2.234	.640	.849	-1.303	-.638	.941	.309	.488	-.977

Table 42 *(continued)*

Variable	20	43	26	63	18	61	43	57	59	31	37
20	.294										
43	.700	-.141									
26	.874	-.801	-.678								
63	1.101	.111	-.089	.168							
18	1.141	-.104	.332	.124	-.361						
61	.253	-.844	-.307	.076	-.359	.001					
43	-.123	.577	-.689	.057	-.109	-.049	.007				
57	.716	-.772	-.344	-.668	.046	1.209	1.229	.871			
59	-.088	-.038	-1.531	.251	-.094	.591	.104	.748	-.141		
31	2.079	.312	.317	.341	1.040	.564	.708	1.206	-.330	.465	
37	-1.181	-.559	-.731	-.582	-.877	-.678	.472	1.898	-.646	.523	.087
39	.658	.354	-.331	.020	-.566	-1.257	-.919	-.498	-.635	.373	.493
50	.202	.319	-.992	.460	-.030	-.445	-.155	.124	-.867	.192	.436
4	1.735	-.880	-.683	.362	.269	-.282	.506	1.645	-.477	.063	.615
19	2.177	-.310	-.201	.200	2.614	.721	.225	2.089	.747	.929	.980
69	-.031	-1.043	-.530	-1.090	-1.125	-.705	.741	1.122	-1.370	.194	-1.029
35	-.321	.261	-.807	-.905	-.125	-.722	-.661	.972	-.228	1.765	-.321

Table 42 continued

Standardized Residual Covariances for the QSM Structural Model

Variable	39	50	4	19	69	35
39	-.435					
50	-1.032	-.151				
4	-.868	-.480	-.059			
19	.112	-.084	.613	.991		
69	-.392	-1.096	.101	-.462	-.642	
35	-.165	.348	-.238	.787	-1.196	.089

4.7 Qualitative Results

4.7.1 Development of Codes, Categories, and Themes

The five interview questions connect to specific research questions, as illustrated in Table 43.

With the interview data coded and pattern codes identified, I developed themes in relation to the research questions. For example, an initial broad category of analysis was "value of the model for students." This code, in theory, relates well to Research Question 2 regarding the importance of the QSM. In reality, however, this approach, while convenient for synthesizing the quantitative and qualitative data, was too narrow and limiting of the themes that emerged from the data. Therefore, I struck a balance between the agreement that "codes should relate to one another in coherent, study-important ways" (Miles & Huberman, 2004) and the need to allow themes to emerge from the perspectives of participants.

Table 43
Relationship Between Interview Questions and Research Questions

Interview question	Research question
Is the QSM important to you?	Research Question 1: To what extent do administrators, teachers, classified staff, and community members perceive Leadership, measured using Baldrige in Education constructs, to be important within the Quality Schools Model of educational reform?
What do you know about the QSM? What is working well with the QSM?	Research Question 2: To what extent do administrators, teachers, classified staff, and community members perceive Leadership, measured using Baldrige in Education constructs, to be in practice within the Quality Schools Model of educational reform?
What could be improved with the QSM? What recommendations or suggestions do you have for improving the QSM?	Research Question 3: Are there statistically significant differences between respondents' perceptions of importance and perceptions of practice of Leadership factors as part of the Quality Schools Model, and do these differences vary across groups?

The initial categories of analysis resulted from the research questions themselves. They were value of the model, challenges of the model, and suggestions for improvement. From these categories, second-level categories were created, which related primarily to the groups of individuals for whom the model was valuable or challenging. Figure 9 identifies the three first-level categories and the related second-level categories.

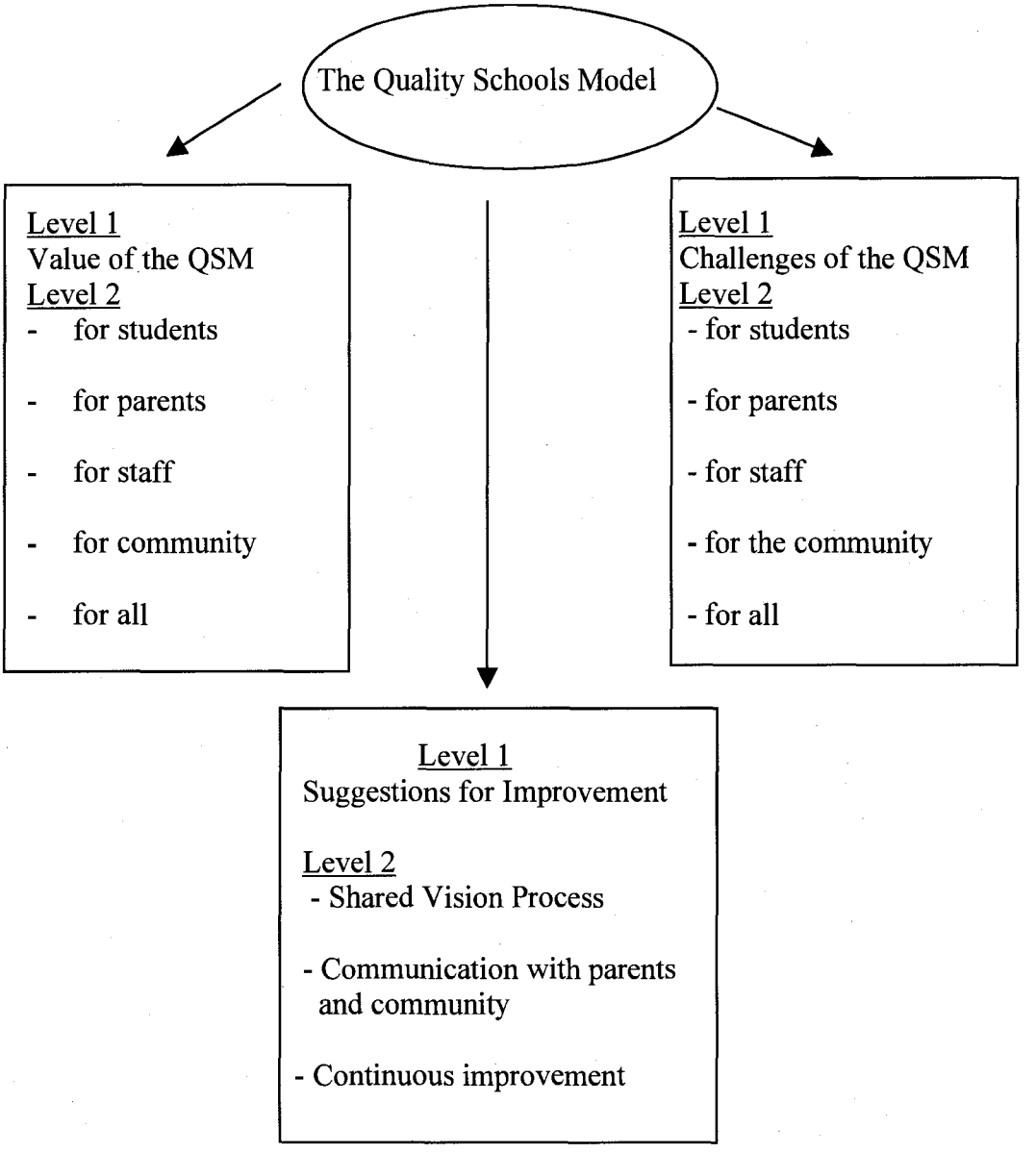

Figure 9. First and Second Level Interview Categories.

A third level of coding expressed the ways in which the model was valuable or challenging for the stakeholder groups. For example, the second-level code "value of the model for students" had the following third-level codes: future success, growth in

learning, voice and buy-in in their education, focus on their individual needs, and accountability.

This approach resulted in the identification of themes that relate to the research questions in an overlapping manner. For example, one theme that emerged was the demanding nature of the QSM for teachers. Interview data that contributed to this theme may have had a first-level code of "challenges of the model," a second-level code of "challenges for staff," and a third-level code of "model is demanding, a lot of work." One could interpret these data as connecting to Research Question 3 concerning perceptions about what needs to be improved with the QSM. The same data, however, might have had a first-level code of "value of the model," a second-level code of "value for staff," and a third-level code of "empowerment to make decisions about teaching," connecting therefore to Research Question 1 about the model's importance. What was most important to the researcher was the diverse data that contributed to the theme of the demanding nature of the QSM for teachers, not how those data could be assigned to a specific research question.

The data that I present as the qualitative results are those that represent the perspectives of all stakeholder groups about how leadership has implemented the QSM. In the sections that follow, the qualitative results are organized by level one themes (Value of the QSM, Challenges of the QSM, and Suggestions for QSM Improvement) and by the two leadership subfactors (Stability and Trust and Developing Ownership).

4.7.2 Value of the QSM

The QSM interview theme "value of the QSM" divided naturally into the two leadership subthemes: Stability and Trust and Developing Ownership.

4.7.2.1 Stability and Trust. Interview data from all stakeholders spoke to the value of staff stability in the process of implementing the QSM. Four out of four current and former QSM superintendents of the districts in this study also commented that stability of the superintendent was essential. These superintendents echoed each other in saying that it was too easy for a district to succumb to the ebb and tide of support for change and therefore waver from its mission. The superintendent, they suggested, must remind everyone of why the changes are being made, and that the rewards of change and improvement are stronger than the rewards of the natural state of comfort that is found with no change. One superintendent stated,

> An intact, stable leadership is key, along with the corollary that all are leaders in this model. The person at the top must act as lightning rod at times, shielding others; must rally all leaders behind the vision; must ensure that the vision is widely known, understood, and walked as well as talked. Stable leadership from the superintendent, the board, teachers, administration, and staff is critical. As people come and go, others need to move in to take over roles, to keep the walk and the talk of the vision going. Stable leadership and sustainability go hand in hand.

When leadership and authority for an organization begin to be genuinely "shared" by many stakeholders, leadership stability is vulnerable to turnover of all job

classifications. This becomes pronounced in isolated rural Alaskan schools where official district leadership may only be able to visit a school and community as an itinerant. Therefore, high turnover rates—among both certified teachers and classified employees—negatively affect shared leadership. Five of the 14 interviewees identified teacher turnover as challenging for effective implementation of the QSM. A district office administrator explained, "With a high teacher turnover rate, it is crucial that this road map of student expectations exists from year to year." Further, he stated,

> With our high teacher turnover, it is hard to get our staff completely up to speed in a standards-based system. Very few stay around long enough to master teaching in the new model, and a few that do stick around do things their own way.

A village elder commented, "Keep the teachers at the schools for longer. It seems that when a teacher leaves, it makes the kids sad. The new system is hard to learn."

4.7.2.2 Developing Ownership. Two sub-subthemes emerged within the subtheme of Developing Ownership: Improvement of Student Learning and Shared Leadership and Vision.

4.7.2.2.1 Improvement of student learning. In interviews, teachers and administrators identified improvement in student learning and increased participation by students in their learning as a source of motivation for students, staff, and administrators alike. The following comments from current and former QSM superintendents of the districts in this study reflect this idea:

> "The focus is now on the students, not the adults in the system."

"We now have the highest state test scores in the entire history of our school district."

Teachers and community members expressed similar ideas:

"We just finished our third year of making AYP. Math-wise, we're top three in the district for scores, and our reading and writing skills have been pretty much above the state level, but we've worked our tail ends off."

"The best part that is working is that kids have ownership of their work. They know that they can advance quickly in places and also know that if they go to a phase, they can get back on track by working and not waiting for teacher to offer a lesson on this."

"Students in the high school have really bought into the system."

"Attendance is much better now."

"Kindergarten kids are going to come out a little more advanced so that the first-grade teacher doesn't have to spend a year teaching kindergarten again."

"The larger importance of QSM is the idea of it; the idea that exists is we're asking kids to say, here, we've been driving this thing for however long, now you drive it. We're gonna give it deadlines, you have to do this and that and have expectations, but really, you drive it."

"I look at some of the younger kids coming up, and they've been indoctrinated in what we're doing since they were in kindergarten. Now they're in fifth and sixth and they're right where they should be in terms of pacing and how they're participating in their own education."

> "In the short time that I have been with the district, I have seen it work. Students know what level that they are on and what they need to do to graduate."

4.7.2.2.2 Shared leadership and vision. The second sub-subtheme to emerge was that the QSM had provided shared leadership and a shared vision for where the school and district were going. Through shared leadership, all stakeholders had been involved in the process by which the shared vision was established. Four out of four current and former QSM superintendents of the districts in this study who were interviewed stated that district leadership had moved from a more autocratic to a more collaborative structure. One superintendent stated, "At first, the leadership style was more autocratic and as the adoption process has deepened and spread, so has the leadership. More leaders and less autocrats. People are more vested and have a deeper understanding of what and why they are doing."

A teacher explained that "[the QSM] has given our school and all [the students] a direction. We are all headed on the same path using the same sets of standards; however, we might do different things to get to that different end." A principal at another site echoed this idea,

> ... part of what works well is that as a district we don't have an end goal but we have a vision of where we we're gonna get, where we're going, and that continuous drive which is supported. Supported financially. It's supported by man-hours. It's not someone's dream. It's really a district; I won't say dream, but district road we're traveling. You can feel very strongly that it's not going to be stopped. That's something that works very well.

A second-year teacher said, "The district has a shared vision and has schools making improvement plans." A teacher in her sixth year of teaching explained that the QSM had provided "a lot more consistency across the district."

Staff members talked proudly about the stakeholder-inclusive way that the district had established and continued to refine a shared vision. When asked what was working well with the QSM, a principal responded,

> I would think it's that sense of empowerment that everybody feels about the school. Students, teachers, they know that they can have a voice in the way we're gonna run things, and they know that they can trust that process to help make sure things are gonna happen. Because of my belief in that type of leadership style, if it comes to a decision that's been made and I've asked people to be part of it and I don't necessarily agree with it, I'll still go with it because I know that that's part of that process, and so in a sense, it's going well.

He noted as well that students value their inclusion in establishing a direction for the school:

> I've really empowered the student council to have a voice in what we do, and they see it. Kids get it right away. When I hear them talking to other kids or adults about our student council, that's one of the first things they recognize is that we do effect change in our school.

One teacher explained that students are empowered to influence specific components of the model to best fit their needs. He observed, "The nice thing about QSM is that if you

[the student] (don't like what I got, you come up with it. You design it, and I will let you know if it meets the requirements, but you design it."

4.7.3 Challenges of the QSM

The QSM interview theme "challenges of the QSM" fell naturally into the two leadership subthemes: Stability and Trust and Developing Ownership.

4.7.3.1 Stability and Trust

4.7.3.1.1 Demanding of leaders and staff Staff members, parents, and community members noted that the implementation of the QSM had been challenging for staff. Four out of four current and former QSM superintendents of the districts in this study who were interviewed commented on the demands on leaders during the adoption of the QSM and the courage that needed to come into play. One superintendent stated,

> Leadership must include the superintendent. If a school district does not recognize that the schools are about students and not about adults (teachers and parents), then any change will be problematic. When tradition trumps evidence, then leadership is required, and that may require placing all the chips on the table and a willingness to recognize you are "all in." Implementing the best of our professional knowledge to transform failed or mediocre programs is more important than playing it safe. There must be a commitment to teach all children and a belief we can teach all children. There must be an understanding that this effort is not about us.

Leaders not only must successfully address leadership challenges, but also must understand and mitigate the challenges that all staff face during the adoption of the QSM.

Interviews showed that these staff challenges fall into instruction and assessment workload, time management, and classroom/record management processes.

Three of the four teachers interviewed expressed that the QSM was more demanding of teachers than other, more traditional, approaches to education. Characterizations of the demands ranged from general ("If you're going to do a good job teaching standards, there is no life for a teacher") to specific ("You have to observe a student for 20 minutes three times before he can pass Level 4 reading"). Community members, as well, were aware of the demands on teachers:

> "Too much pressure on the teachers right now. It is good that we are moving quickly with the implementation of the system, but it is sometimes too much for the staff." (Retired board member)
>
> "The new system is hard to learn. That one teacher used to always complain about too much paperwork." (Elder)
>
> "So [students are] checking off when they meet standards, but a lot of the times at the end of a lesson, we are crammed for time and can't go get our standard book and see where we are emerging or developing." (QSM Teacher)
>
> "Teaching [the standards] in isolation in a sense defeats the purpose. It's hard for teachers ... to realize that they can all toggle the same area." (QSM Teacher)

Some of the challenges related to teaching strategies were associated with the model's focus on teaching methodologies appropriate for Alaska Native children. As a teacher explained,

> In their culture, you watch. I mean, if you're going to learn to filet a fish, you watch grampapa or you watch mom or dada. And you maybe watch them for 6 months before you even pick up an ulu to do it. Well, we don't do enough of that because in the elementary we're kinda spoonfeeding more, and I don't know how we get around that because the kids don't like to step out.

4.7.3.1.2 Difficulty of change for staff

> "This is my first exposure here in Alaska using it. It's a big change." (teacher)
>
> "[School name] never did really buy into the system for 2 or 3 years. We were having success with what we were doing. I think it's been easier for the younger teachers to do it, to grapple with this, than the older teachers, especially if an older teacher has had some success with what they have done. I think this has been my struggle." (teacher)

These interview quotes sum up the second sub-subtheme of QSM challenges: to the difficulty of change for staff. Aversion to risk associated with any sort of change is a natural human tendency. Leadership has the daunting task of acknowledging and proactively addressing change aversion. All three school districts in this study used what they called a "Burning Platform" to begin this process. The traditional platform upon which the school districts had stood was burning out from under them. Student results had a history of being below expectations, and leadership in each case pointed to the Chugach School District as an example of turning those student results around. The following quote is expressive of staff sentiment toward these change processes:

> Have to get adjusted. Have to learn this new system, and I was used to this old. See, every time we learn something new and we adapt to it, another system come up and changes it. It's a big cycle thing we have to learn. (classified staff)

4.7.4 Suggestions for QSM Improvement

Interview respondents did not separate aspects of the QSM that they felt were working from aspects that they felt could be improved. Both level 1 interview codes "value of QSM" and "challenges of QSM" led to suggestions for improvement. The most common theme that emerged from both categories was more attention to the Shared Vision. While 11 of the 14 interview participants explicitly described their knowledge of the Shared Vision as a productive QSM component, 7 of the 14 also commented that this was an area that required improvement. In their comments, two parents summarized this need. "It's a wonderful mission but needs to teach parents more about how it works, how it's better ... need more parents involved in the mission, more effective communication and training for families so they understand it and are advocates rather than complacent and against it," said the first. The second parent stated, "the district needs to start a formal team to improve communication with families and community and to help them understand it." One elder even recommended that the school district perform a simulation, putting the parents through a little training session where they would be scored like the children in the QSM so the parents understand how the QSM is better than previous approaches. A teacher recommended that leadership give the system more time to build community ownership, saying, "give it the time it needs."

4.8 Chapter Summary

This chapter has presented the quantitative and qualitative results of the research. Quantitative results were based on data from questionnaire items that measured participants' perceptions of the importance and practice of the leadership factors. I presented quantitative data for the four research questions and the corresponding hypotheses. Qualitative results were based on data from interviews conducted with 14 participants representing various QSM stakeholder groups, and four current and former QSM superintendents of the districts within this study. I presented the interview data within the context of the two leadership factors and the themes that emerged from the data related to the subfactors.

CHAPTER 5: DISCUSSION

Rather than extending arguments about applying business practices to education, I sought in this study to draw from public administration, educational administration, business management, and political economics concepts. This study's description of the MBNQA Education leadership concepts within the Alaska Quality Schools Model incorporates theory from all social arrangement frameworks involved in education's coproduction. In today's shrinking world and global economy, an effective school leader must learn and relearn about the school's changing culture and anticipate how multiple stakeholder groups will respond to fluctuating cultural norms. If an organization's management is complex, education systems management—where the "product" is jointly produced as well as jointly consumed—remains even more so. Educational leaders are beginning to apply strategic, quality-focused management practices from a variety of sources with encouraging results.

Dr. W. Edwards Deming, considered the father of Japan's postwar industrial revival, is to this day regarded as the leading quality management authority in the United States. Deming's 14 management principles continue to influence business management and are now beginning to take root in the management of "professional structured" organizations such as those in education (Gearing, 1962). The relatively recent addition of an education category in the Malcolm Baldrige National Quality Award program is testimony to this trend.

This dissertation's final chapter restates the research problem, reviews the major methods used in the study, provides a discussion of the results presented in chapter 4, and offers recommendations for further study.

This study's purpose was to describe the implementation of the QSM in three rural Alaskan school districts by examining how faculty, staff, and community members perceived the MBNQA Education leadership criteria. In this concurrent mixed-methods study, my four-member research cohort administered a questionnaire to school staff. I sought to measure the importance and existence of the MBNQA Education leadership criteria and to explore the relationship between respondents' demographic characteristics and their perceptions of leadership. At the same time, I sought to describe QSM implementation through semistructured interviews with school staff and community members. Finally, my cohort and I examined relationships among the seven MBNQA Education constructs and devised an alternative to the MBNQA Education model that has been put into practice in three rural Alaskan school districts implementing the Quality Schools Model (QSM).

5.1 Summary of Findings

Chapter 4 presented the quantitative and qualitative research findings as they relate to the four research questions. The following sections summarize the principal findings for each research question.

5.1.1 Research Question 1 Results Summary

To what extent do administrators, teachers, classified staff, and community members perceive leadership, measured using MBNQA Education constructs, *to be important* within the Quality Schools Model of educational reform?

- Fourteen of 14 interview participants stated that the QSM was important.
- On the survey, administrators reported significantly higher levels of importance to both leadership factors than did teachers and classified staff.
- A teacher explained that "[the QSM] has given our school and all [the students] a direction. We are all headed on the same path using the same sets of standards; however, we might do different things to get to that different end."

5.1.2 Research Question 2 Results Summary

To what extent do administrators, teachers, classified staff, and community members perceive leadership, measured using MBNQA Education constructs, *to be in practice* within the Quality Schools Model of educational reform?

- Seven of 14 interview participants explicitly stated that the QSM allowed schools to achieve much-improved results.
- On the survey, administrators report significantly higher levels of both leadership factors being in practice than do teachers and classified staff.
- Four out of 4 current and former QSM superintendents of the districts in this study noted changes in their districts' focus and in student performance. "The focus is now on the students, not the adults in the system," stated one

superintendent. Another said, "We now have the highest state test scores in the entire history of our school district."

- Three of the 4 teachers interviewed expressed that the QSM was more demanding of teachers than other, more traditional approaches to education. "If you're going to do a good job teaching standards, there is no life for a teacher," stated one teacher.

5.1.3 Research Question 3 Results Summary

Are there statistically significant differences between respondents' perceptions of importance and perceptions of practice of leadership factors as part of the Quality Schools Model, and do these differences vary across groups?

- As a whole and in all respondent subgroups, the perceived level of importance of the leadership factors was significantly higher than the perceived practice of those factors.
- In all cases, teachers perceived significantly greater differences between levels of importance and levels of practice than other groups did.
- Seven of 14 interview participants stated that although the shared vision process was in practice and was one of the QSM's strong points, the process needed to be improved.
- Five of the 14 interview participants explicitly identified teacher turnover as a challenge to effectively putting QSM strategies into practice. A district office administrator explained, "With a high teacher turnover rate, it is crucial that this road map of student expectations exists from year to year."

- Four out of 4 current and former QSM superintendents of the districts in this study commented that the superintendent's stability was essential.
- Four out of 4 current and former QSM superintendents of the districts in this study stated that district leadership had moved from a more hierarchical to a more collaborative structure. One superintendent stated that "at first, the leadership style was more autocratic, and as the adoption process has deepened and spread, so has the leadership. More leaders and less autocrats. People are more vested and have a deeper understanding of what and why they are doing."

5.1.4 Research Question 4 Results Summary

What are the relationships among the MBNQA Education criteria that describe the Quality Schools Model?

- The QSM data provide a statistically acceptable alternative to the MBNQA Education model of relationships between the seven quality constructs. Model fit indices from SEM showed that this alternative is a good model of the relationships between the MBNQA Education constructs.
- QSM survey data confirmed the theory that as an independent construct, leadership drives the MBNQA model with the other six MBNQA constructs being dependent.
- Through factor analysis, CFA, and SEM, we discovered that within the studied QSM school districts, leadership had a significant direct affect on two MBNQA Education constructs (Staff Focus and Knowledge Management)

and indirectly affected the remaining four constructs (Process Management; Strategic Planning; Student, Stakeholder, and Market Focus; and Results).

- The three studied districts have overcome, or are on their way to overcoming, three barriers to successful school improvement:
  - Lack of identified shared values and beliefs
  - Lack of shared leadership
  - Lack of ownership

5.2 Discussion of Findings

"We now have the highest state test scores in the entire history of our school district." This statement from Jim Hickerson, Superintendent of Bering Strait School District, should on it's own prompt studies of such an important accomplishment. Applying traditional methods of measurement regarding how the schools in this study are performing yields information that shows tremendous progress. Yet the districts in this study aren't stopping at traditional measurement. They are interested in the many leading indicators of progress as well as the lagging indicators. In their New Teacher Orientation Handbook, the Bering Strait School District lists the following array of encouraging progress due to implementing the Quality Schools Model

- Increased achievement in core content areas
- Greatly expanded, coordinated staff development in all district programs
- Dispersed leadership for reform in a "horizontal" dimension
- Widely adopted technology-based tools for collaborative work over distance

- Reduced dependence on proprietary curriculum materials and vendor-driven programs
- Organizational commitment to collecting and using data for decision-making
- Dramatically reduced teacher turnover rates - Now one of the lowest teacher turnover rates in rural Alaska!
- Significantly improved ability to recruit and retain high quality educators

Information learned and presented in this study, which goes beyond traditional lagging test scores to measure how these three districts are performing, should provide useful balanced-scorecard information for these districts. Simultaneously it should provide insight to other practicing educational leaders and researchers alike regarding how such results are being achieved. I personally hope this research prompts further study of the Quality Schools Model as it is yet in the fledgling implementation stages relative to other models of school reform.

While the QSM purports to develop a holistic system based upon philosophies and concepts related to MBNQA Education criteria, there had been no empirical investigation of the QSM's MBNQA Education constructs prior to this study. This research examined the predicted relationships among constructs and led to the development of an alternative model that reveals leadership directly impacting school-district operations and indirectly impacting organizational results. Therefore, with few exceptions, ideas about charismatic leaders *directly* impacting a rural Alaskan school district's results are not on target. Unless a leader can influence a school district's systems and processes, that leader has a minimal chance of affecting organizational or

student results. The alternative model presented in this paper provides guidance to rural Alaskan school-district leaders who embark upon systems-based, quality-focused, student centered school reform. This research defines the context within which QSM leadership works as they attempt to retool the school system as recommended by the New Commission on the Skills of the American Workforce in their report *Tough Choices or Tough Times* (2007):

> The core problem is that our education and training systems were built for another era, an era in which most workers needed only rudimentary education. It is not possible to get where we have to go by patching the system. There is not enough money available at any level of our intergovernment system to fix this problem by spending more on the system we have. We can get where we must go by changing the system itself … The problem is not with our educators. It is with the system in which they work. (p. 8)

Leading and lagging indicators in this research tell me that the three school districts in this study are on their way to successfully changing their systems, whereas some other school districts who have attempted QSM implementation have abandoned the model. My research suggests that to accomplish this, these three districts have overcome, or are on their way to overcoming, three monumental barriers to successful school improvement.

1 Lack of identified shared values and beliefs

2 Lack of shared leadership

3 Lack of ownership

What drives effective practices in rural Alaskan educational organizations? This study has led me to a deeper understanding of the complexities involved in answering that question. The alternative to the Malcolm Baldrige National Quality Award model that was derived from our QSM questionnaire affirms that as an independent construct, leadership drives the remaining six dependent constructs. This doesn't lead me to believe that the context, infrastructure, tradition, and past practice of a district have no bearing upon how effective a leader can be in that district. It does tell me that leadership, as an independent variable, will have either a positive or negative impact upon a school district's performance. An age-old question about whether leadership impacts student performance is therefore put to rest; leadership matters and it does impact student performance.

Overcoming a lack of identified shared values and beliefs

- *Aligned with both Leadership Factors; Developing Ownership and Stability and Trust*
- *Aligned with the QSM Component Shared Vision*

Overcoming the lack of identified shared values and beliefs includes included practices, processes, and beliefs such as:

- Engage all stakeholders meaningfully to gather input regarding values and beliefs
- Act upon the value and belief input to articulate a Shared Vision and to develop the new education system

- Develop processes to direct, align, and focus *all* work with the value and belief input
- Connect shared values and beliefs with identified effective practices
- Increase staff value levels associated with effective practices
- Close the gap between levels of importance (value) and practice in identified areas
- Engage stakeholders in usage of shared values to develop relevant local standards, multiple assessment formats, and a balanced instructional model

To overcome some of the traditional barriers to successful school reform, the three studied districts purposefully and deliberately attacked the lack of identified shared values and beliefs. The results of these ongoing efforts are mission and vision statements such as this sample from the Lake and Peninsula School District:

> *The mission of the Lake and Peninsula School District is to develop productive citizens who are positive role models, self-directed learners, academically prepared, and resilient. We will accomplish this through our Standards-Based System in a safe, culturally sensitive environment with an emphasis on technology, extended opportunities, and committed partnerships.*

Gaining a pulse on the values of the district stakeholders and coalescing that into a unified message or "Shared Vision" was a key step in overcoming territorialism, pet programs, or attitudes such as "That's not part of my job". While the end result of shared mission statements is very important, the process of involving staff, students, parents, and communities to identify these shared values was yet more important. The process of

meaningfully engaging, listening, valuing, and acting upon the input built trust and a sense of unity. The sense that *all* are working and pulling in the same direction and for the same purpose, namely student success, was key in overcoming unhealthy practices such as finger-pointing accountability avoidance. Item 39 on the QSM survey comes from the Stability and Trust factor and reads "Stable and consistent district leadership helps lead toward a successful QSM implementation". This item showed the smallest difference between the importance and practice means confirming the idea that leadership stability is a shared value being put into practice. Survey item 72 comes from the Developing Ownership factor and reads, "Our district leadership consistently emphasizes a focus on student learning when communicating to staff members". This second item had the smallest difference between importance and practice in the Developing Ownership factor, affirming that the leadership in the studied districts indeed does communicate a focus on student learning.

Knowing that people find it difficult to carry out practices they see little or no value in, it behooves leadership to be aware of what their staff, students, and communities value. The two-columned QSM survey used in this research provides information about staff values from the "Importance" column that queries respondent perceptions regarding the level of importance associated with specific beliefs and practices. If people generally need to value a practice before they feel inclined to carry it out with fidelity, the information from the QSM survey Importance column should provide practicing leaders with insight into what is valued, allowing deeper analysis into why effective practices may or may not be put into practice with fidelity. In an effort to

motivate staff to increasing usage levels of effective practices, leadership can begin by determining current employee value levels of those practices and then design plans to increase the value placed upon those practices. Leadership may be able to increase the value placed upon effective practices through a combination of education, empowerment, incentives, and mandates.

As apparent from the QSM survey results, the level of importance is significantly higher than the level of practice in all cases. Therefore, increasing the level that a staff values effective practices is necessary, but not sufficient. To close the gap between the level of importance and the level of practice leadership is using data. Measurement of the implementation of the practices provides data for constructive feedback. Leadership is at that point able to longitudinally measure the correlation between Importance and Practice. The two QSM survey items mentioned earlier again serve as examples of how district leadership may further use data to close this gap. QSM survey item 39 reads, "Stable and consistent district leadership helps lead toward a successful QSM implementation". Applying a Pearson Paired Samples Correlation test to the Importance and Practice mean scores for this item results in a correlation score of .508 and significance score < .05. A suitable interpretation would be that if stakeholders believe it is important to have stable and consistent leadership for QSM to be successful, stable leadership is more likely to occur in practice. Survey item 72 reads, "Our district leadership consistently emphasizes a focus on student learning when communicating to staff members". The correlation between all 212 Importance scores for that item, and the associated Practice scores is .508 with a significance level of $p < .05$. Educational leaders

could appropriately interpret this to mean that if stakeholders believe it is important for district leadership to emphasize a focus on student learning, they have a chance of increasing that practice with about half of the leaders. Armed with such information, and tracking it longitudinally, a superintendent, school board, and/or leadership team is in a much more informed position regarding the effectiveness of the strategies which they have implement to achieve specific goals and objectives.

Overcoming a lack of shared leadership

- *Aligned to the Leadership Stability and Trust factor*
- *Aligned to the QSM Component Shared Leadership*

Overcoming the lack of shared leadership in the studied districts included practices, processes, and beliefs such as:

- Increase Leadership and Teacher Stability
- Empower, train, and expect staff to move toward shared leadership
- Model and institutionalize an opportunity focused leadership mindset
    - Do not settle for mediocre external factor contributions
        - Insist high expectations be met by government, communities, families, and universities
    - Do not settle for mediocre internal factor contributions
        - Insist high expectations be met by leadership, teachers, support staff, and students
- Institutionalizing a systems approach to leading and measuring the district

- The most important thing for leadership to focus upon is that all parts of the system are important
- The most accurate portrayal of district performance is in the form of a transparent balanced score card report

Effective practices in rural Alaskan education occur all of the time. District leadership shoulders the responsibility of creating conditions for these effective practices to occur systemically. Not inconsistently nor in isolation, but consistently and integrated throughout all aspects of the organization. One or a few individuals cannot accomplish extensive and complex work such as this. Shared leadership is therefore not only a good strategy used to empower staff, shared leadership is required to get the job done right. Overcoming the lack of genuine shared leadership is a challenge that is well worth the effort. QSM Survey item 66 reads, "District leadership works to develop the future leaders of our district. While the gap between Importance and Practice for this item is relatively high, I believe other information helps to illustrate that the studied districts are on their way to accomplishing this. It is also likely that the QSM has not matured to the point where it is appropriate for shared leadership to become one of the highest priorities. That said, four out of 4 QSM Superintendents agreed with the statement, "We've developed more shared leadership which is focused on the students rather than on the adults", along with the corollary, "All are leaders in this model". One principal spoke about the growing role students are playing in the newfound shared leadership. He stated, "I've really empowered the student council to have a voice in what we do, and they see it. Kids get it right away. When I hear them talking to other kids or adults about our student

council, that's one of the first things they recognize is that we do effect change in our school".

With NCLB rewriting the charge of American education from providing learning opportunities to promoting universal competence (Porter, 2006), educators, parents, students, and policymakers alike are searching for educational leaders who can lead that charge. Likewise, educational leaders are searching for educational models and practices that encourage and compel all stakeholders to contribute in the pursuit of that charge. What are those effective leadership practices? Where are those effective instructional practices? Coproduction of the QSM Standards-Based Design component is how each studied district has answered those questions within the context of their own districts. The guiding principle that all students advance through the system (levels of content performance standards) based upon demonstrated mastery is one example of a shared value that instructional leaders have turned into the formal practice of each student advancing at his or her individual developmental pace. It is in the student-teacher exchange where the individual developmental pace is learned and accelerated. While the student-teacher exchange is the core technology for coproduction of education, the teacher-leader exchange is at the core of providing the necessary conditions for that healthy student-teacher exchange. Within this leader-teacher exchange are the effective practices that the universal competence leader seeks. Practices based upon shared values and operationalized through shared leadership were listed by one QSM superintendent; identifying shared values, acting upon input, promoting shared leadership, building trust, fostering relationships, empowering stakeholders, modeling continuous learning,

embracing healthy conflict, supporting continuous improvement, and providing meaningful quality evaluations. The QSM districts studied showed evidence of these leadership practices most notably through qualitative interviews. One teacher stated,

> I would think it's that sense of empowerment that everybody feels about the school. Students, teachers, they know that they can have a voice in the way we're gonna run things, and they know that they can trust that process to help make sure things are gonna happen. Because of my belief in that type of leadership style, if it comes to a decision that's been made and I've asked people to be part of it and I don't necessarily agree with it, I'll still go with it because I know that that's part of that process, and so in a sense, it's going well.

While empowerment has proven to help engage and motivate stakeholders in the three QSM districts, leaders also spoke to the idea that no one strategy works for all people and all situations. This is especially true when you begin crossing gender, cultural, and age-range boundaries. Beginning long before Maslow developed his hierarchy of needs chart, the study of motivating people has come far in recent years. Current studies that focus upon the workplace show that achievement of meaningful work, working with others, a sense of self-determination, and recognition top the list for motivators (Fiona Robb, Robert Myatt, Kaisen Consulting Ltd, 2004). It's important to note that while salary is not in this list of top five motivators, it did come show up as the 12th ranked motivator and is certainly still important.

According to the semistructured QSM interviews, QSM questionnaire items, and QSM superintendent survey results, the most important underpinning of shared

leadership is leadership stability. I reduced the scope of my personal study to identify Alaska superintendent stability rates due to the overwhelming size of the task involved with attempting to locate information for school board, principal, and district administrator stability rates across Alaska. I highly recommend stability rates for these other educational leadership categories receive research attention in the future. It was apparent from Susan Garton's research on Alaskan superintendent turnover, from items on the QSM survey, from my individual QSM superintendent surveys, and from the QSM semi-structured interviews alike, that educator stability in rural Alaska is an important issue. In completing this work I've witnessed the turnover of superintendents of all three of the studied districts. In my professional work with all three districts, I hear concern from multiple stakeholders regarding the affect of these leadership transitions. It was from the semi-structured interviews and the superintendent surveys that the most telling information came regarding stability.

A village elder commented in the semi-structured interviews, "Keep the teachers at the schools for longer. It seems that when a teacher leaves, it makes the kids sad. The new system is hard to learn." Kim Langton, who has worked in three QSM districts, had this to say about leadership stability,

> It's too easy to waver from the mission, to succumb to the ebb and tide of support for change. The superintendent must remind everyone of why the changes are being made, and that the rewards of change and improvement are stronger than the rewards of the natural state of comfort that is found with no change. An intact, stable leadership is key, along with the corollary that all are leaders in this model.

> The person at the top must act as lightning rod at times, shielding others; must rally all leaders behind the vision; must ensure that the vision is widely known, understood, and walked as well as talked. Stable leadership from the superintendent, the board, teachers, administration, and staff is critical. As people come and go, others need to move in to take over roles, to keep the walk and the talk of the vision going. Stable leadership and sustainability go hand in hand.

With superintendents often acting as a "lightening rod", school boards also shoulder the burden of supporting the reform efforts through the trials and errors of implementation. This topic notably merits further study. One example of how school boards in the studied districts fulfilled their shared leadership support role for implementation of the QSM comes in the form of the following 2003 resolution from the Bering Strait School Board.

> Bering Strait School District Board of Education Board Resolution on Implementing the Alaska Quality School Model.
>
> "In our ongoing effort to provide a quality educational experience for all of our students, the Bering Strait School District endorses and supports the effective implementation of the Alaska Quality Schools Model (AQSM). The Bering Strait School District will work to effectively and comprehensively implement the AQSM and will seek to actively engage all stakeholders (parents, students, staff, School Board, community, and businesses in the process."

In concluding this description of strategies used by the studied districts to overcome the lack of shared leadership, I return to the essential ingredient stability. Dr.

John Davis, the former Bering Strait School District QSM superintendent, spoke of stability of all staff in the following comment,

> I have learned there is little that substitutes for people feeling that they are doing important work well. You can't pay enough, provide better housing, or give them a better contract. When I focused on student achievement and provided the tools to do better, folks stayed longer, worked harder and seemed happier than when I focused on staff retention.

Leadership teams within the studied districts are also on their way to developing a transparent balanced scored card approach to measuring district performance as indicated during interviews and a review of documents. An often forgotten benefit of initiating a balanced score card assessment system, and arguably the most important, is that in doing so, an organization is required to seriously communicate about expectations. It becomes obligated to clarify expectations. It forces focus. It compels us to work in alignment and in a common direction. We have decades of evidence to prove that on their own, traditional organizational performance assessment systems, namely lagging indicators such as last year's test scores, are inaccurate and misleading indicators at worst and inconsistent at best. While some headway has been made, education has tended to continue relying upon traditional lagging indicators to measure organizational performance. It's easier. Even in the face of the landslide of research and experience supporting authentic assessment for students, educators are reluctant to apply authentic assessment to their own organizations. This said, the call for increasing accountability will not and should not disappear. This research and my experience inform me that

transparency of data within a balanced score card approach provides a far more effective accountability model than those being mandated at present. As usual though, too much of a good thing isn't good. A caution for leadership on moving toward implementation of an organizational balanced scorecard would be to guard against allowing it to blind the organization and/or leadership to human relationship building. For valid reasons leaders often become entangled in minutia of assessing organizational performance. It is a complicated, messy, and time-consuming ordeal that is vulnerable to charges of not impacting students. The complexity of such endeavors makes it easy to lose focus on what we are working toward, namely improving student performance. The word "Balanced" in the phrase, balanced scorecard, should not be interpreted too narrowly.

In closing this description of practices and beliefs to overcome a lack of shared leadership, I return to the idea that trusting and respectful relationships are the foundation upon which much of effective school improvement is built. School reform is complex and passionate by nature. The organizational mindset toward conflict and toward problems that arise during school reform is key (Achinstein, 2002). Leadership has the responsibility of establishing a healthy mindset. Encouraging staff to voice differing perspectives and to embrace problems as opportunities for improvement are wonderful phrases in research reports, yet it is up to leadership to model them, formalize them, measure them, and to make them a reality. Leadership must find ways to turn these underlying values and philosophies into tangible standard operating procedure. Traditionally, industrial-era educational leadership has operated with the mindset that external conditions are beyond their control. More specifically, funding, regulations, and

fluctuating societal norms have been blamed for education's problems. This mindset continues to have validity yet can no longer be cited as the sole reason for poor school performance. Rather than perpetuating a deficit or victim-focused organizational outlook in which external factors are in charge, the QSM leaders are continuously working with all stakeholders in an attempt to guide and influence those external conditions. Beyond the QSM leadership insisting upon more effective contribution from internal factors such as itself (leadership), teachers, classified, and students, the QSM leadership is insisting upon increased contribution from external factors. Indicators of this are:

- Two out of the 3 studied districts are in the midst of a lawsuit, Moore vs: State of Alaska, insisting the state fulfill it's obligation to provide adequate resources to teach all students.
- Not waiting for increased resources or expertise from the state, all three studied districts have partnered with outside entities such as local government councils, other school districts, and business partners, in order to secure grants and additional expertise aimed at providing conditions for student and staff success.
- All three studied districts have worked with other branches of government such as the departments of labor and commerce to secure student and staff facility resources such as schools and teacher housing.

As Jerry Covey, a former Commissioner of Education in Alaska, stated in a personal interview,

> Nobody wants to follow a leader who is not in charge. People want to follow a leader who is in charge, one who doesn't automatically settle for external conditions running their schools. People will see that this leader doesn't allow external conditions to limit his or her authority. This leader develops an opportunity-focused organization where the leader is in charge.

As the driver of the QSM Leadership Model, shared leadership is at the foundation of all four of the QSM components: S*hared Vision, Leadership, Standards-Based Design, and Continuous Improvement.* The QSM leadership individuals in the studied districts commented upon addressing all four of these QSM components on a daily basis. Leadership's establishment of a systems approach to school reform with formal measurement and constructive feedback loops provide the *Continuous Improvement.* Leadership's development of a healthy teacher-leader exchange leads to a healthy student-teacher exchange that supplies the foundation for the *Standards-Based Design* component. Training and empowering staff with authority to develop and improve the effective formal processes aids in staff ownership of the system and develops the *Leadership* component. Finally, the identification of shared values and then acting upon that input provides the foundation for the *Shared Vision* component.

Overcoming the lack of ownership

- *Aligned with the Leadership Developing Ownership factor*
- *Underpinning of all four QSM components*

Overcoming the lack of ownership in the studied districts included practices, processes, and beliefs such as:

- Upon gathering input, explicitly act upon that input
- Notably, honor input regarding social, emotional, and volitional learning standards
- Value internal expertise
  - Provide conditions for staff, community, and students to train others
  - Notably, use local expertise to train staff and to teach students in nontraditional areas such as personal and social skills and employability skills
- Empower all stakeholder groups with genuine authority
- Formal and public recognition of stakeholders contributions
- Celebrate individual, group, and district steps toward success
- Work transparently

In identifying shared values, leadership meaningfully engaged all stakeholders in a process to provide input. Stakeholders began to take ownership of the school system when leadership explicitly began to act upon that input. Students and families began to see their input being used to plan, design, and develop the school system. Too often stakeholders provide input and see no tangible results. This not only blocks the development of ownership, but also erodes trust between the community and school or district leadership. In the studied QSM districts, ownership is begot healthy and willing coproduction of learning which the districts consider a requirement in order to move toward universal competence. Universal competence need not be defined by current legislation, though NCLB philosophy should always play a part in that definition.

Universal competence is more importantly defined at the local level. A pointed example lies in the Bering Strait School District Mission Statement:

> *The mission of the Bering Strait School District is to educate our children to become self-sufficient and responsible citizens through quality programs that express high expectations for all in a safe and supportive learning environment, which respects our children's heritage.*

In reading the mission statements of the three studied districts, it appears they would consider themselves to be attaining universal competence when all students reach self-sufficiency, are self-directed learners, are academically prepared, become responsible, respectful, contributing members in their communities and are resilient. Reading, writing, and math scores are important here, but they take their place beside other important abilities these districts want their students to learn. Character skills equally important with the academic skills, all under the umbrella of a holistic education system focused on success in life.

Although no single reciprocally interdependent entity (student, family, teacher, community, school) is solely responsible for how students or schools perform, the three studied educational systems, hence their leadership, has improved how they motivate and meaningfully engage all parties toward willing coproduction of student and school results. Educational leaders today are charged with understanding and effectively leading the complex relationships within systems-based school reform while at the same time understanding the student- teacher exchange at a level to be able to provide guidance and the necessary conditions to empower students with ownership of their learning. An

effective student-teacher exchange is at the core of the conditions necessary for effective school reform let alone achieving universal competence. Beyond engaging stakeholders in developing Shared Vision statements, administrators must provide teachers with training, resources, authority and time so they can guide students toward educational ownership.

Through shared leadership, and based upon shared values, educators work as a team to provide the conditions necessary for this foundational nexus of school reform to work effectively. Table 44 provides an overview of contributions that both the teachers and students make within an effective teacher-student exchange. This is where teachers move students away from being passive or resistant learners toward becoming learners who take responsibility for their learning. The QSM leaders in this study felt prepared and able to provide conditions for this to occur due to their understanding of the exchange at a practitioner level.

Teachers are traditionally trained and comfortable providing the services in the intellectual/academic quadrant of Table 44, yet they receive less training and system support to make volitional and emotional contributions. Many teachers do contribute in the social, emotional, volitional quadrant but often do so in isolation or by their own initiative. In the large majority of cases, little or no system wide supports or processes exist to formally teach and assess work ethic, integrity, goal setting, team building, conflict resolution, or respect.

Table 44

Core Technology of Education—The Teacher-Student Exchange

	1 **Teacher contribution**	2 **Student contribution**
Intellectual contributions	Academic and instructional delivery expertise: o Lesson planning, scope and sequence o Formative/summative assessment feedback o Reading, writing, math, science o Technology, social studies, PE o College preparatory skills o Academic content area integration	Ability to contribute to one's own learning: o Family support o Resources o Home/living environment o Intellect o Skills
Volitional, social & emotional contributions	Formal and systemic teaching of values, norms, and life-learning processes: o Respect, civics, cultures o Problem-solving skills o Goal-setting skills o Conflict resolution skills o Communication skills o Leadership skills o Teambuilding skills o Delayed gratification o Intellectual, emotional, and volitional learning integration Helping students answer the following questions: o Why put forth effort to learn? o What's in it for me… my family? o What opportunities exist? o Is this relevant to my life/future?	Willingness to contribute to one's own learning: o Learned values—volitional attitudes o Persistence o Commitment o Work ethic o Priorities o Level of ownership o Emotional Quotient (EQ) o Recognizing personal emotion o Leveraging positive emotions o Controlling counterproductive emotions o Learning Styles

A prime example of the system supports in the academic quadrant is the current legislation mandating state assessment of reading, writing, and math without that legislation addressing character, cultural, or career skills. Systematic student assessment in reading, writing, and math certainly has value and is a positive practice, yet it is not sufficient to accurately measure a system. It also sends the message that non-traditional

subjects are of less value and therefore need not have these system wide supports or assessment systems. School reform efforts suffer when messages such as this prevent them from gaining the healthy balance required for effective reform.

The QSM, following the belief that if it's important you measure it, requires formative and summative assessment in all content areas, including those in the volitional quadrant that lead to educational ownership. This sends the message that all content areas, traditional and non-traditional, are equally important. Below are lists of the equally important content areas taught to each student from Kindergarten through graduation for the studied school districts.

Bering Strait School District Content Areas:

Life Skills, Career Skills, Cultural Awareness, Math, Reading, Science, Social Studies, Technology, Writing

Kuspuk School District Content Areas:

Reading, Writing, Math, Personal & Social, Technology, Science, Social Science, Healthy Lifestyles, Career & Technical, Cultural Expression and Arts

Lake and Peninsula School District Content Areas:

Reading, Writing, Math, Social Studies, Science, Technology, Cultural Awareness, Employability

Adding the non-traditional content areas and valuing them equally with traditional content areas was a both a challenge and an opportunity. One teacher said, "I wish we would just go back to the four original content areas", indicating her frustration with the formal instruction and assessment of students in content areas in which she had little

formal training to conduct. Teachers also relayed that the most effective QSM training had been peer to peer (Cope and Crumley, 2003). This peer expertise in teaching and assessing character education content was used as an opportunity for those with expertise to develop and own the program, while the teachers who were learning were more willing to learn from someone with local knowledge, context, and credibility. As Carl Glickman said, "One of the highest forms of professional development is to participate with other professionals in intense, intellectual discussions over the nature of content and performance standards."

As the Superintendent of a QSM school district, I have data beyond the scope of this study to quantifiably verify that 100% of the students in my school district who are performing strong in the, social, emotional, volitional quadrant also pass the mandated state exams in reading writing and math. This is an area in which I've long sought quantitative evidence and to my knowledge has not been studied by anyone else in the QSM school districts. I strongly recommend further study of the correlation between these areas of learning.

Guiding students, staff, and stakeholders to participate willingly is at the core of universal competence (Porter, 2007). Understanding how crucial it is to promote participation, let alone knowing how to promote participation, is an overwhelming responsibility for educational leaders. The QSM interview participants consistently voiced that motivating students, parents, community members and staff to participate was a never-ending challenge, but that the cost of not doing so far outweighed the costs to do so. This is especially true in schools where leaders face not only the usual misgivings

about change, but also work within the context of severe fluxing cultural issues. In these cases community values may not be strongly aligned with educational values. Here, regardless of what model, strategy, or philosophy leadership attempts to employ for school reform, one can anticipate epic challenges in achieving meaningful stakeholders contributions. As Alford (2002), Porter (2006), and Whitaker (1980) pointed out, citizens are more likely to participate in coproduction when they are willing volunteers. The findings in this research show the studied districts are building that ownership and therefore they are developing willing coproducers of learning. It is ownership that is required to attain universal competence.

5.3 Limitations and Additional Suggestions for Further Study

As noted in chapter four, I caution those who may want to extend my findings to other situations. This research was guided by a voluntary survey, which has potential to bias results. Response rates for certified staff were far higher than for non-certificated staff, and the number of responses (interviews) from community members was lower still. The fact that the Kuspuk School District disallowed interviews in that district due to poor timing resulted in a reduced qualitative data pool which also potentially impacted results. Finally, although multiple measures were taken to mitigate our cohort member affiliations with the studied school districts, this too had potential to influence responses. Please note this study is a point in time snapshot of a three very dynamic systems with fluxing personnel.

Recommendations for further study that emerged during this research are listed are areas I believe would benefit researchers, educators, and students in rural Alaska.

- Educational Leadership Stability, including School Boards, Principals, and District Administration
- Structural Equation Modeling of QSM school districts based upon subscales
- Developing Ownership as a means for willing coproduction of learning
- Who provides the conditions for Educational Leaders and what are those conditions?
- What caused school districts to abandon the Quality Schools Model?
- Transparency-Balanced Scorecard Accountability Model
- Correlation between Character Education learning and Academic learning
- Correlation between values held by staff and stakeholders and the effective practices aligned with those values and beliefs
- Definition of a new Baldrige in Education construct, Ownership, which includes explicit information regarding what it is, how it's built, and how it supports other constructs

In sum, I sought in this study to describe the QSM implementation in three rural Alaskan school districts by examining the importance and practice of MBNQA Education leadership criteria as perceived by faculty, staff, and community members. In the process of quantitatively and qualitatively developing that description, my cohort and I have provided rural Alaskan educational leaders with an alternative MBNQA Educational Leadership Model based upon data from three rural Alaskan school districts. The data that led to the development of slightly different model that can provide guidance to practicing educational leaders in developing and maintaining systemic conditions that are

ultimately best for students. In addition to helping Alaska's educational leaders to develop and implement effective practices which support innovative educational delivery services, this research affirms that the QSM has emerged as a powerful management system aimed at meeting education's new charge of universal competence.

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Appendices

APPENDIX A: 2006 BALDRIGE IN EDUCATION CRITERIA

Education criteria (Total points: 1,000)	Point values
Leadership (120 points)	
1. Organizational leadership	**70**
2. Social responsibility	**50**
Core values:	
• **Visionary leadership:** "Leaders set direction to create a student focused learning-oriented climate, clear and visible values and high expectations" (NIST, 2003b, p. 1).	
• **Learning-centered education:** "To develop the fullest potential of all students, education organizations need to afford them opportunities to pursue a variety of avenues to success.... A learning-centered education supports this goal by placing the focus of education on learning and the real needs of students. Such needs derive from market and citizenship requirements" (NIST, 2003b, p. 1).	
Strategic and Operational Planning (85 points)	
1. Strategy development	**40**
2. Strategy deployment	**45**
Core values:	

• **Focus on the future:** "A focus on the future requires understanding the short-and longer-term factors that affect your organization and the education market" (NIST, 2003b, p. 2).	
Student, Stakeholder, and Market Focus (85 points)	
1. Student, stakeholder, and market knowledge	**40**
2. Student and stakeholder relationships and satisfaction	**45**
Core values:	
• **Agility**: "Is an increasingly important measure of your organizational effectiveness. It requires a capacity for faster and more flexible response to the needs of your students and stakeholders" (NIST, 2003b, p. 3).	
• **Managing for innovation**: "Means making meaningful change to improve an organization's programs, services, and processes and to create new value for the organization's stakeholders. Innovation should lead the organization to new dimensions of performance" (NIST, 2003b, p. 4).	
Measurement, Analysis, Knowledge Management (90 points)	
1. Measurement and analysis of organizational performance	**45**
2. Information and knowledge management	**45**
Core values:	

• **Management by fact:** "Organizations depend on the measurement and analysis of performance. Such measurements should derive from the organization's needs and strategy, and they should provide critical data and information about key processes and results" (NIST, 2003b, p. 4).	
Faculty and Staff Focus (85 points)	
1. Work systems	**35**
2. Faculty and staff learning and motivation	**25**
3. Faculty and staff well-being and satisfaction	**25**
Core values:	
• **Organizational and personal learning:** Requires a well-educated approach to organizational and personal learning. Organizational learning includes both "continuous improvement of existing approaches and adaptation to change, leading to new goals and/or approaches" (NIST, 2003b, p. 2).	
• **Valuing faculty, staff, and partners:** Means commitment to (staff and faculty) development and well-being. Increasingly, this involves "more flexible, high-performance work practices tailored to faculty and staff with diverse workplace and home life needs" (NIST,	

2003b, p. 3).	
Process Management (85 points)	
1. Learning-centered processes	**50**
2. Support processes	**35**
Core values:	
• **Systems perspective:** The Baldrige criteria provide a systems perspective for managing the organization and its key processes to achieve results-performance excellence. The seven Baldrige categories and the core values form the building blocks and the integrating mechanism for the system. However, successful management of overall performance requires organization-specific synthesis, alignment, and integration. Synthesis means looking at the organization as a whole and building upon key education requirements, including strategic objectives and action plans. Alignment means using the key linkages among requirements given in the Baldrige categories to ensure consistency of plans, processes, measures, and actions. "Integration builds on alignment so that the individual components of your performance management system operate in a fully interconnected manner" (NIST, 2003b, p. 5).	

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APPENDIX B: IRB APPROVAL LETTER

April 23, 2007

To: Eric Madsen, Ph.D
Principal Investigator

From: Bridget Stockdale, Research Integrity Administrator
Office of Research Integrity

Re: IRB Protocol Application

Thank you for submitting the IRB protocol application identified below. I have administratively reviewed this protocol and determined that it meets the requirements specified in federal regulation for exempt research under 45 CFR 46.101(b)(2). Therefore, I am pleased to inform you that your protocol has been approved. .

Protocol #: 07-16

Title: *Beliefs and Practices Related to the QSM in Alaska*

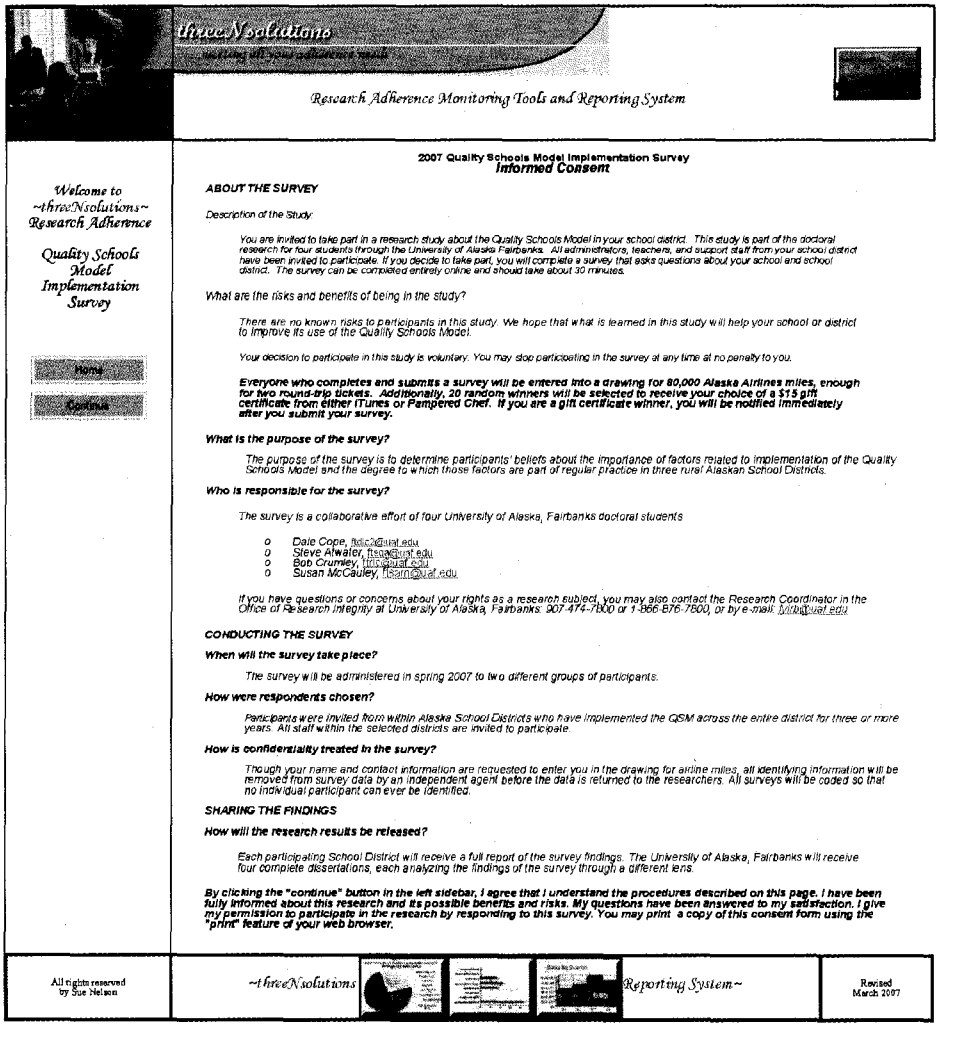
Level: Exempt

Received: March 21, 2007
(orig) April 22, 2007 (rev)

Approved: April 22, 2007

Exempt research does not require annual continuing review, but please submit any modifications or changes to this protocol to fyirb@uaf.edu for administrative review. Modification Request Forms are available on the IRB website (http://www.uaf.edu/irb/Forms.htm). Please contact the Office of Research Integrity if you have any questions regarding IRB policies or procedures.

APPENDIX C: QSM QUESTIONNAIRE



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Quality Schools Model Implementation Survey

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ABOUT THE SURVEY

Description of the Study

You are invited to take part in a research study about the Quality Schools Model in your school district. This study is part of the doctoral research for four students through the University of Alaska Fairbanks. All administrators, teachers, and support staff from your school district have been invited to participate. If you decide to take part, you will complete a survey that asks questions about your school and school district. The survey can be completed entirely online and should take about 30 minutes.

What are the risks and benefits of being in the study?

There are no known risks to participants in this study. We hope that what is learned in this study will help your school or district to improve its use of the Quality Schools Model.

Your decision to participate in this study is voluntary. You may stop participating in the survey at any time at no penalty to you.

Everyone who completes and submits a survey will be entered into a drawing for 80,000 Alaska Airlines miles, enough for two round-trip tickets. Additionally, 20 random winners will be selected to receive your choice of a $15 gift certificate from either iTunes or Pampered Chef. If you are a gift certificate winner, you will be notified immediately after you submit your survey.

What is the purpose of the survey?

The purpose of the survey is to determine participants' beliefs about the importance of factors related to implementation of the Quality Schools Model and the degree to which those factors are part of regular practice in three rural Alaskan School Districts.

Who is responsible for the survey?

The survey is a collaborative effort of four University of Alaska, Fairbanks doctoral students

- *Dale Cope, fdlc2@uaf.edu*
- *Steve Atwater, fsca@uaf.edu*
- *Bob Crumley, fdrc@uaf.edu*
- *Susan McCauley, fsam@uaf.edu*

If you have questions or concerns about your rights as a research subject, you may also contact the Research Coordinator in the Office of Research Integrity at University of Alaska, Fairbanks: 907-474-7800 or 1-866-876-7800, or by e-mail: fyir@uaf.edu

CONDUCTING THE SURVEY

When will the survey take place?

The survey will be administered in spring 2007 to two different groups of participants.

How were respondents chosen?

Participants were invited from within Alaska School Districts who have implemented the QSM across the entire district for three or more years. All staff within the selected districts are invited to participate.

How is confidentiality treated in the survey?

Though your name and contact information are requested to enter you in the drawing for airline miles, all identifying information will be removed from survey data by an independent agent before the data is returned to the researchers. All surveys will be coded so that no individual participant can ever be identified.

SHARING THE FINDINGS

How will the research results be released?

Each participating School District will receive a full report of the survey findings. The University of Alaska, Fairbanks will receive four complete dissertations, each analyzing the findings of the survey through a different lens.

By clicking the "continue" button in the left sidebar, I agree that I understand the procedures described on this page. I have been fully informed about this research and its possible benefits and risks. My questions have been answered to my satisfaction. I give my permission to participate in the research by responding to this survey. You may print a copy of this consent form using the "print" feature of your web browser.

~threeNsolutions Reporting System~

Revised March 2007

The Quality Schools Model
Survey Directions

There are 72 statements in the survey. For each statement, you should mark a response in the column on the *left* of the question, and mark another response in the column on the *right* of the question.

The column on the left is to record the "*Degree to which I believe & agree that this is important*", and the column on the right is to record the "*Degree to which I see this in practice in my district*". For each statement, there are four response choices.

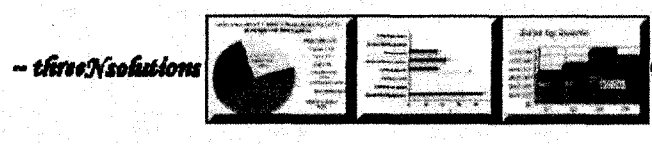
When you complete the questions on each page, click the "Next" button to continue. Each page is numbered so you can note your progress through the survey. Following the survey items, there are some questions about your job title, years of teaching, etc. (these are the survey *demographics*).

Once you've completed the survey items and the demographic section, the last step is to provide your name and contact information to be eligible for a drawing for 80,000 Alaska Airlines miles – our way of saying thanks for taking the time to provide us with your thoughtful responses.

Also, random survey participants will win your choice of either an I-Tunes or *Pampered Chef* gift card worth $15. Gift card winners will be notified immediately.

Be assured that the identifying information such as your name and address will be disassociated from your survey responses before the information is returned to the researchers.

[BEGIN SURVEY]



Belief: Degree to which i believe and agree that this is important				**Statement**	**Practice:** Degree to which I see this in practice in my district			
				one answer from each group is required before going on to the next page				
Strongly Disagree	Disagree	Agree	Strongly Agree	**IF YOU LOG OUT OF THE SURVEY, YOU MUST START OVER AT THE BEGINNING**	Never	Occas-ionally	Freq-uently	Always
☐	☐	☐	☐	1. Our district builds relationships with colleges, universities, vocational schools and other post-graduation training programs to help students transition from high school.	☐	☐	☐	☐
☐	☐	☐	☐	2. District leadership provides for staff and stakeholders to have input into the values, directions, and performance expectations of our school district.	☐	☐	☐	☐
☐	☐	☐	☐	3. Our district plans effectively for transitions of personnel into leadership positions.	☐	☐	☐	☐
☐	☐	☐	☐	4. Our district has an effective training program in continuous improvement as part of our new employee orientation.	☐	☐	☐	☐
☐	☐	☐	☐	5. Our personnel and human resource services operate efficiently and make a positive contribution to our school district's quality goals.	☐	☐	☐	☐
☐	☐	☐	☐	6. Our district has a set way to use information from multiple sources to achieve better performance.	☐	☐	☐	☐
☐	☐	☐	☐	7. We revise and change the types of performance data we collect as our needs and directions change.	☐	☐	☐	☐
☐	☐	☐	☐	8. District leadership requires legal and ethical behavior from themselves, staff, and students.	☐	☐	☐	☐
☐	☐	☐	☐	9. Faculty and staff are asked to identify the areas in which they would like to receive professional development.	☐	☐	☐	☐
☐	☐	☐	☐	10. Before we develop anything new, we assure that it will be of a higher quality than what we currently are doing.	☐	☐	☐	☐
☐	☐	☐	☐	11. Our schools continually evaluate how we determine the educational needs of our students.	☐	☐	☐	☐
☐	☐	☐	☐	12. Our district has steps in place to assure that instructional services are of high quality.	☐	☐	☐	☐
☐	☐	☐	☐	13. Our schools have data than enables us to monitor trends in the levels of student/family satisfaction over the past three years.	☐	☐	☐	☐

CONTINUE SURVEY

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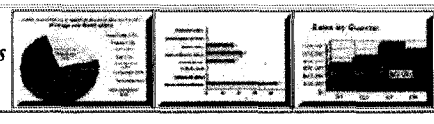

Belief: Degree to which I believe and agree that this is important				***Statement***	***Practice:*** Degree to which I see this in practice in my district			
Strongly Disagree	Disagree	Agree	Strongly Agree	****one answer from each group is required before going on to the next page*** IF YOU LOG OUT OF THE SURVEY, YOU MUST START OVER AT THE BEGINNING	Never	Occasionally	Frequently	Always
☐	☐	☐	☐	**14.** Systems are in place to train and educate faculty and staff to achieve district goals.	☐	☐	☐	☐
☐	☐	☐	☐	**15.** Our district keeps up with changing national, state, or local requirements.	☐	☐	☐	☐
☐	☐	☐	☐	**16.** information is provided to me so that I know how resources are allocated to achieve our goals.	☐	☐	☐	☐
☐	☐	☐	☐	**17.** Our district measures staff learning and development in areas such as collaboration, and knowledge/skill sharing.	☐	☐	☐	☐
☐	☐	☐	☐	**18.** Our school district uses information about student learning needs to design new instructional services.	☐	☐	☐	☐
☐	☐	☐	☐	**19.** Our district can document that our quality measurements examine the most important factors that predict gains in student learning and student/family satisfaction.	☐	☐	☐	☐
☐	☐	☐	☐	**20.** District and school staff can quickly get information they need to make improvements in their work.	☐	☐	☐	☐
☐	☐	☐	☐	**21.** Our district has a set way to gather information on our students' needs.	☐	☐	☐	☐
☐	☐	☐	☐	**22.** Our district's performance is analyzed and the data is used in the strategic plan to improve our district.	☐	☐	☐	☐
☐	☐	☐	☐	**23.** Our district gathers information from former students and/or their parents for continuous improvement.	☐	☐	☐	☐
☐	☐	☐	☐	**24.** Our school district's strategic plan is based upon an analysis of a variety of data.	☐	☐	☐	☐
☐	☐	☐	☐	**25.** Performance review results are analyzed and used to improve district leadership and staff performance.	☐	☐	☐	☐
☐	☐	☐	☐	**26.** In general, parents are increasingly supportive of the professional staff and support staff of the school district.	☐	☐	☐	☐

CONTINUE SURVEY

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Belief: Degree to which I believe and agree that this is important				***Statement***	***Practice:*** Degree to which I see this in practice in my district			
				*****one answer from each group is required before going on to the next page***				
Strongly Disagree	Disagree	Agree	Strongly Agree	IF YOU LOG OUT OF THE SURVEY, YOU MUST START OVER AT THE BEGINNING	Never	Occasionally	Frequently	Always
☐	☐	☐	☐	**27.** Our district ensures that software and hardware systems (computers, internet, networks) are current with our district's needs.	☐	☐	☐	☐
☐	☐	☐	☐	**28.** I know how well our students are performing compared to similar schools.	☐	☐	☐	☐
☐	☐	☐	☐	**29.** Our district provides a computerized data management system for staff to utilize.	☐	☐	☐	☐
☐	☐	☐	☐	**30.** Our district regularly reviews and analyzes student learning and then creates processes that improves student success.	☐	☐	☐	☐
☐	☐	☐	☐	**31.** District leadership works to ensure that everyone knows what is going on.	☐	☐	☐	☐
☐	☐	☐	☐	**32.** District leadership regularly communicates to the staff and community about the importance of student/family satisfaction.	☐	☐	☐	☐
☐	☐	☐	☐	**33.** Students and staff provide input for key non-instructional services.	☐	☐	☐	☐
☐	☐	☐	☐	**34.** Our district involves staff and other stakeholders in improving the strategic planning process.	☐	☐	☐	☐
☐	☐	☐	☐	**35.** Our schools have procedures in place to assure that student/family complaints are resolved effectively and promptly.	☐	☐	☐	☐
☐	☐	☐	☐	**36.** Our district makes it easy for students, parents, and stakeholders to comment on the school district programs or services.	☐	☐	☐	☐
☐	☐	☐	☐	**37.** Our schools regularly initiate contact with parents and students to assess the levels of satisfaction with the schools.	☐	☐	☐	☐
☐	☐	☐	☐	**38.** Our school district's strategic plan addresses ways to significantly improve student learning and a student/family focus.	☐	☐	☐	☐
☐	☐	☐	☐	**39.** Stable and consistent district leadership helps lead toward successful QSM implementation.	☐	☐	☐	☐

CONTINUE SURVEY

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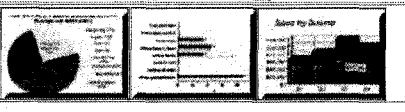

Belief: Degree to which I believe and agree that this is important				**Statement**	**Practice:** Degree to which I see this in practice in my district			
Strongly Disagree	Disagree	Agree	Strongly Agree		Never	Occasionally	Frequently	Always
				40. This district has effective ways to communicate important information to students.				
				41. Our district will change or redesign programs and offerings in order to improve student achievement.				
				42. District leadership does more than just talk about quality; they are very much involved in making it happen.				
				43. Our district tracks staff well-being, satisfaction, and development and continuously improves these areas.				
				44. Information about best practices is collected and shared among staff members.				
				45. Our district has a written shared vision which is communicated with all staff and students.				
				46. School staff are adequately prepared to handle disasters and emergencies.				
				47. District leadership guides the district to practice good citizenship.				
				48. District leadership regularly communicates to the staff and community about the importance of quality in our system.				
				49. District leadership is trusted by students, staff, and community.				
				50. Our district encourages faculty and staff to be involved in district-level decision making.				
				51. Staff members are given prompt positive feedback when they make contributions to school district quality.				
				52. The quality data our district gathers covers a broad scope and comes from a variety of sources.				

CONTINUE SURVEY

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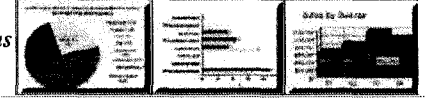

Belief: Degree to which I believe and agree that this is important				**Statement**	**Practice:** Degree to which I see this in practice in my district			
				one answer from each group is required before going on to the next page **IF YOU LOG OUT OF THE SURVEY, YOU MUST START OVER AT THE BEGINNING**				
Strongly Disagree	Disagree	Agree	Strongly Agree		Never	Occa-sionally	Freq-uently	Always
☐	☐	☐	☐	**53.** Our district has a realistic timeline for achieving important goals and objectives.	☐	☐	☐	☐
☐	☐	☐	☐	**54.** Our district explains the overall strategic planning process to staff and students so that everyone knows the performance requirements.	☐	☐	☐	☐
☐	☐	☐	☐	**55.** Our district recruits, hires, and retains the best possible faculty and staff.	☐	☐	☐	☐
☐	☐	☐	☐	**56.** Our district's strategic plan is reviewed on a continuous basis by various levels of staff and translated into individual performance plans.	☐	☐	☐	☐
☐	☐	☐	☐	**57.** The student/family data we collect is translated into solutions to student/family problems.	☐	☐	☐	☐
☐	☐	☐	☐	**58.** Our district uses information gathered from our students to improve instructional services.	☐	☐	☐	☐
☐	☐	☐	☐	**59.** Our district use comparisons with similar school districts to guide the improvement of quality and to improve instructional services.	☐	☐	☐	☐
☐	☐	☐	☐	**60.** Our district regularly assesses the satisfaction levels of staff members.	☐	☐	☐	☐
☐	☐	☐	☐	**61.** Our district uses information from multiple sources when designing non-instructional services.	☐	☐	☐	☐
☐	☐	☐	☐	**62.** Our non-instructional services have performance measures that are analyzed to improve these services.	☐	☐	☐	☐
☐	☐	☐	☐	**63.** District leadership creates conditions for ongoing staff learning.	☐	☐	☐	☐
☐	☐	☐	☐	**64.** Our business/finance services operate efficiently and make a positive contribution to the district's quality goals.	☐	☐	☐	☐
☐	☐	☐	☐	**65.** Our district assesses the effectiveness of our training programs for staff members.	☐	☐	☐	☐

CONTINUE SURVEY

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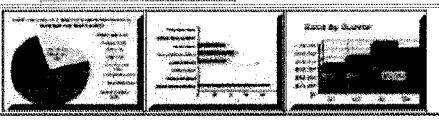
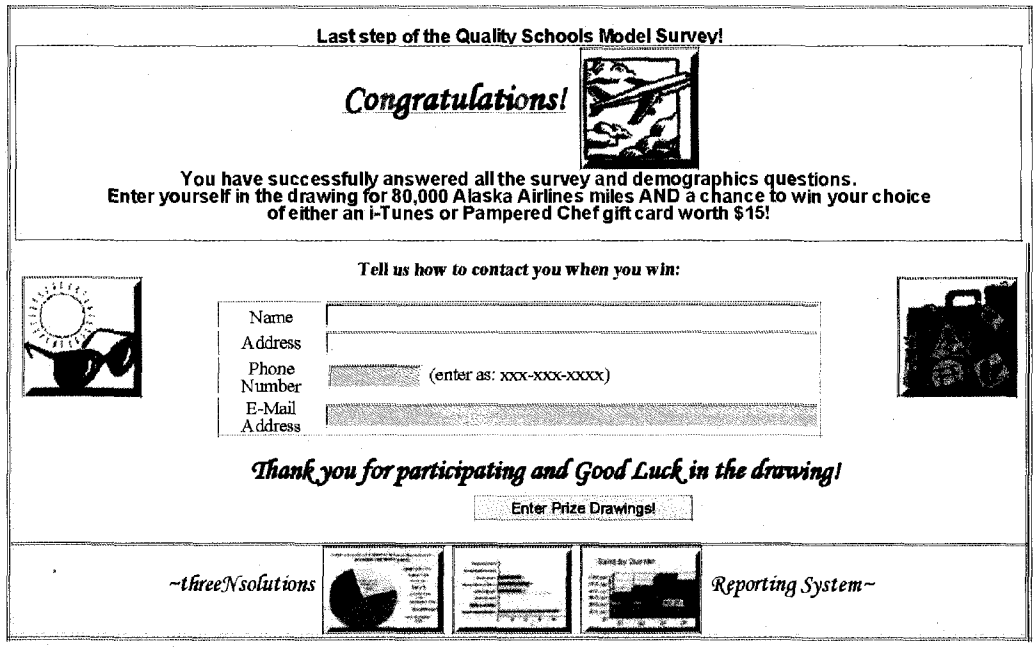


Belief: Degree to which I believe and agree that this is important				***Statement***	***Practice:*** Degree to which I see this in practice in my district			
Strongly Disagree	Disagree	Agree	Strongly Agree	*****one answer from each group is required before going on to the next page*** IF YOU LOG OUT OF THE SURVEY, YOU MUST START OVER AT THE BEGINNING	Never	Occa-sionally	Frequently	Always
☐	☐	☐	☐	**66.** District leadership works to develop the future leaders of our district.	☐	☐	☐	☐
☐	☐	☐	☐	**67.** Our district has a way to determine basic student needs based on their career interests, learning styles, family needs, etc.	☐	☐	☐	☐
☐	☐	☐	☐	**68.** Our staff effectively communicates and shares knowledge and skills across our departments, jobs, and locations.	☐	☐	☐	☐
☐	☐	☐	☐	**69.** Our student/family support services (e.g. counseling services, health services) operate efficiently and make a positive contribution to our school district's quality goals.	☐	☐	☐	☐
☐	☐	☐	☐	**70.** Our district leadership works ethically, transparently, and is trusted by students, staff, and communities.	☐	☐	☐	☐
☐	☐	☐	☐	**71.** When our schools review our student/family satisfaction results, they are able to break the data into appropriate groups.	☐	☐	☐	☐
☐	☐	☐	☐	**72.** Our district leadership consistently emphasizes a focus on student learning when communicating to staff members.	☐	☐	☐	☐

Demographic Questions

1. School District	Lake & Peninsula Kuspuk Bering Strait Chugach
2. Gender	Male Female
3. What is your job classification	Classified-classroom based Classified-non-instructional Teacher Administrator
4. Total years of Education Work Experience	First Year 1 to 3 Years 4 to 7 Years 7 to 10 Years 11 to 15 years more than 15 years
5. Years of Experience in your current district	First Year 1 to 3 Years 4 to 7 Years 7 to 10 Years 11 to 15 years more than 15 years
6. Years of Experience with the Quality School Model	First Year 1 to 3 Years 4 to 7 Years 7 to 10 Years
7. Have you participated in a school reform effort in another district	Yes No
7a) If so, how successful did you consider it to be	Not Applicable Very Successful Partially Successful Not Successful

ENTER DRAWING!


Last step of the Quality Schools Model Survey!
Congratulations!
You have successfully answered all the survey and demographics questions.
Enter yourself in the drawing for 80,000 Alaska Airlines miles AND a chance to win your choice of either an i-Tunes or Pampered Chef gift card worth $15!
Tell us how to contact you when you win:
Name
Address
Phone Number
(enter as: xxx-xxx-xxxx)
E-Mail Address
Thank you for participating and Good Luck in the drawing!
Enter Prize Drawings!
~threeNsolutions
Reporting System~

DrawingConfirmation

Survey Completion Confirmation

Congratulations!

You have successfully completed the Quality Schools Model Survey and your name has been entered in the Alaska Airlines miles drawing.

The winner will be drawn on May 15, 2007 and will be notified by June 1, 2007.

Thank-you!

Click here to exit this survey.

APPENDIX D: INTERVIEW INFORMED CONSENT AND PROTOCOL

Informed Consent Form for Interview

IRB #: 07-16 **Date: Approved: April 22, 2007**

Description of the Study:

You are being asked to take part in a research study about the school in your community. We are conducting this study as part of our college work at University of Alaska Fairbanks. As part of that study, we are interviewing some staff and community members. You are being asked to participate because the principal in your village said that you are someone who knows about the school. Please read this form and ask any questions you may have before you agree to be in the study.

If you decide to take part, you will be asked some questions about the school in your community. The interview should take about 45 minutes.

Risks and Benefits of Being in the Study:

There are no known risks to you for participating. We hope that what is learned in this study will help your school or district to improve.

Confidentiality:

Your answers to the questions will be kept anonymous. We will not ask for your name.

Voluntary Participation:

It is up to you to decide if you want to participate in the interview. You may say that you don't want to, or you may stop taking part at any time.

Contact Information:

If you have questions about the interview, please contact one of the researchers listed below.

Steve Atwater ftsga@uaf.edu	Susan McCauley ftsam@uaf.edu
Bob Crumley ftrlc@uaf.edu	Dale Cope ftdlc2@uaf.edu

If you have questions or concerns about your rights as a research subject, please contact the Research Coordinator in the Office of Research Integrity at University of Alaska, Fairbanks: (907) 474-7800 or (1-800) 876-7800, or by e-mail: fyirb@uaf.edu

SIGNATURE AND CONSENT TO PARTICIPATE:

Federal law and University regulations require that we obtain signed consent for participation in research projects involving human subjects. After you have read this project's purpose, procedures, benefits, and risks, please indicate your consent by signing the attached statement.

I have been fully informed of the above described research and its possible benefits and risks. My questions have been answered to my satisfaction. I have been provided with a copy of this consent form, and I give my permission to participate in the research by responding to this survey.

Name: _____

(please print)

Signature:_____

Date:_____

Implementation of the Quality Schools Model

Interview Protocol

Interviewer Name _____Interview Date _____

Name of Person Interviewed _____ District: LPSD KSD BSSD

Introduction: "I am studying how education and your school district may have changed in the last few years since starting to implement the Quality Schools Model. The questions I'm asking you today all have to do with education and the Quality Schools Model. I'm interested in your beliefs and opinions and really appreciate your time today. Everything you tell me today will be kept confidential, and you will not be identified personally in the results of this research. This interview should take approximately 45 minutes. I would like to record notes while we are talking. Is that alright with you?"

1. What do you know about the Quality Schools Model?
2. Is the Quality Schools Model important to you?
3. What is working best with the Quality Schools Model?
4. What could be improved with the Quality Schools Model in your district?
5. What recommendations or suggestions do you have for improving the Quality Schools Model?

APPENDIX E: CFA RESULTS FOR INDIVIDUAL FACTORS

Table E.1 Maximum-Likelihood Parameter Estimates for the Leadership Factor

Variable			B	*SE*	*p*	β	R^2
66	<---	Leadership	.530	.049	***	.679	.461
72	<---	Leadership	.468	.045	***	.660	.436
63	<---	Leadership	.583	.048	***	.745	.555
47	<---	Leadership	-.606	.033	***	.679	.462
49	<---	Leadership	.561	.052	***	.668	.447
42	<---	Leadership	.537	.051	***	.779	.575
39	<---	Leadership	.627	.048	***	.775	.606
31	<---	Leadership	.605	.047	***	.758	.601
8	<---	Leadership	.633	.050	***	.519	.269

$\chi^2/df = 1.476$
RMR = .020
RMSEA = .047
CFI = .984
GFI = .964

Table E.2 Standardized Residual Covariances for the Leadership Factor

	8	39	42	31	49	47	63	72	66
8	.000								
39	-.705	.000							
42	.413	.348	.000						
31	.421	.098	-.219	.000					
49	-.140	-.019	-.425	.749	.000				
47	.807	-.235	-.526	-.876	1.263	.000			
63	-.260	.254	.080	.050	-.898	.193	.000		
72	-.057	-.142	.431	.019	-.181	-.364	.169	.000	
66	-.428	-.289	-.032	.050	-.176	.918	.045	-.155	.000

Table E.3 Maximum-Likelihood Parameter Estimates for the Staff Focus Factor

Variable			B	*SE*	*p*	β	R^2
51	<---	Staff Focus	.554	.055	***	.663	.439
55	<---	Staff Focus	.410	.051	***	.550	.302
14	<---	Staff Focus	.500	.050	***	.657	.432
4	<---	Staff Focus	.516	.057	***	.606	.368
9	<---	Staff Focus	.565	.055	***	.666	.443
50	<---	Staff Focus	.600	.055	***	.705	.500
65	<---	Staff Focus	.591	.053	***	.707	.497
68	<---	Staff Focus	.467	.055	***	.578	.334

$\chi^2/df = 2.026$
RMR = .028
RMSEA = .070
CFI = .961
GFI = .954

Table E.4 Standardized Residual Covariances for the Staff Focus Factor

	68	50	65	9	4	14	55	51
68	.000							
50	-.619	.000						
65	.067	-.116	.000					
9	-.098	.029	.643	.000				
4	-.196	-.700	-.346	.671	.000			
14	.360	-.286	.509	-.664	1.757	.000		
55	.245	.975	-.299	-.862	-.770	-.695	.000	
51	.404	.763	-.585	-.072	-.497	-.816	1.188	.000

Table E.5 Maximum-Likelihood Parameter Estimates for the Knowledge Management Factor

Variable			B	*SE*	*p*	β	R^2
25	<---	Knowledge Management	.588	.055	***	.683	.466
22	<---	Knowledge Management	.512	.047	***	.688	.473
59	<---	Knowledge Management	.489	.049	***	.648	.420
57	<---	Knowledge Management	.638	.052	***	.748	.559
52	<---	Knowledge Management	.614	.047	***	.789	.623
59	<---	Knowledge Management	.525	.050	***	.675	.489
20	<---	Knowledge Management	.578	.052	***	.700	.456
7	<---	Knowledge Management	.433	.048	***	.578	.358

$\chi^2/df = 2.066$
RMR = .023
RMSEA = .071
CFI = .969
GFI = .955

Table E.6 Standardized Residual Covariances for the Knowledge Management Factor

	7	59	20	52	57	40	22	25
7	.000							
59	.647	.000						
20	-.519	-.010	.000					
52	.301	-.069	-.531	.000				
57	.055	.616	.132	.024	.000			
40	-.627	-.916	.661	.361	.754	.000		
22	.295	.146	.478	.134	-1.403	-.533	.000	
25	-.406	-.523	.036	-.057	-.036	-.453	1.266	.000

Table E.7 Maximum-Likelihood Parameter Estimates for the Process Management Factor

Variable			B	*SE*	*p*	β	R^2
21	<---	Process Management	.468	.050	***	.608	.370
12	<---	Process Management	.516	.048	***	.685	.470
18	<---	Process Management	.668	.048	***	.813	.661
61	<---	Process Management	.562	.051	***	.698	.487
41	<---	Process Management	.578	.050	***	.719	.517
58	<---	Process Management	.600	.050	***	.741	.425
10	<---	Process Management	.518	.051	***	.652	.549
6	<---	Process Management	.496	.049	***	.648	.420

$\chi^2/df = 2.485$
RMR = .026
RMSEA = .084
CFI = .958
GFI = .947

Table E.8 Standardized Residual Covariances for the Process Management Factor

	6	58	10	41	61	18	12	21
6	.000							
58	-.489	.000						
10	.876	-.362	.000					
41	-.350	.291	.464	.000				
61	.479	.545	-.485	.231	.000			
18	.239	.296	-.809	.024	-.317	.000		
12	.402	-.725	1.697	-.878	-.335	.011	.000	
21	-1.488	-.035	-.622	.146	-.020	.564	.640	.000

Table E.9 Maximum-Likelihood Parameter Estimates for the Results Factor

Variable			B	*SE*	*p*	β	R^2
43	<---	Results	.650	.055	***	.324	.578
26	<---	Results	.448	.054	***	.418	.331
64	<---	Results	.356	.051	***	.406	.246
70	<---	Results	.489	.052	***	.408	.408
69	<---	Results	.557	.059	***	.246	.406
19	<---	Results	.532	.055	***	.331	.418
5	<---	Results	.437	.053	***	.578	.324

$\chi^2/df = 1.715$
RMR = .024
RMSEA = .058
CFI = .973
GFI = .970

Table E.10 Standardized Residual Covariances for the Results Factor

	5	19	69	70	64	26	43
5	.000						
19	.574	.000					
69	-.031	-.527	.000				
70	-1.258	-.389	.264	.000			
64	2.049	-.376	-.181	.227	.000		
26	-.296	.360	-.342	.799	.012	.000	
43	-.169	.239	.394	.200	-.736	-.356	.000

Table E.11 Maximum-Likelihood Parameter Estimates for the Strategic Planning Factor

Variable			B	*SE*	*p*	β	R^2
45	<---	Strategic Planning	.428	.055	***	.535	.286
38	<---	Strategic Planning	.567	.051	***	.713	.508
53	<---	Strategic Planning	.565	.048	***	.735	.540
56	<---	Strategic Planning	.612	.054	***	.722	.521
54	<---	Strategic Planning	.551	.054	***	.664	.441
34	<---	Strategic Planning	.501	.047	***	.684	.468
16	<---	Strategic Planning	.583	.056	***	.674	.455

$\chi^2/df = 2.50$
RMR = .027
RMSEA = .084
CFI = .960
GFI = .956

Table E.12 Standardized Residual Covariances for the Strategic Planning Factor

	16	34	54	56	53	38	45
16	.000						
34	-.431	.000					
54	-.828	-.522	.000				
56	-.750	.251	.596	.000			
53	.513	.192	.518	.203	.000		
38	1.371	.243	-.198	-.663	-.635	.000	
45	-.227	.138	.327	.747	-1.213	.370	.000

Table E.13 Maximum-Likelihood Parameter Estimates for the Student, Stakeholder and Market Focus Factor

Variable			B	*SE*	*p*	β	R^2
15	<---	Student, Stakeholder, and Market Focus	.374	.048	***	.531	.282
13	<---	Student, Stakeholder, and Market Focus	.526	.060	***	.594	.353
23	<---	Student, Stakeholder, and Market Focus	.579	.059	***	.649	.421
36	<---	Student, Stakeholder, and Market Focus	.665	.053	***	.622	.613
35	<---	Student, Stakeholder, and Market Focus	.545	.053	***	.783	.451
37	<---	Student, Stakeholder, and Market Focus	.536	.051	***	.671	.462
1	<---	Student, Stakeholder, and Market Focus	.321	.050	***	.680	.203
67	<---	Student, Stakeholder, and Market Focus	.473	.053	***	.451	.362

$\chi^2/df = 2.199$
RMR = .030
RMSEA = .075
CFI = .951
GFI = .947

Table E.14 Standardized Residual Covariances for the Student, Stakeholder and Market Focus Factor

	67	1	37	35	36	23	13	15
67	.000							
1	.877	.000						
37	-.388	-1.351	.000					
35	-.326	-.226	-.040	.000				
36	-.457	-.204	.930	.883	.000			
23	.307	.559	-.330	-.434	-.407	.000		
13	.692	.830	.263	-1.335	-.593	.550	.000	
15	.543	.277	-.936	.451	-1.046	.988	1.135	.000