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Toward a construct validation of the Louisiana School Analysis Model Instructional Staff Questionnaire

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TOWARD A CONSTRUCT VALIDATION
OF THE LOUISIANA SCHOOL ANALYSIS MODEL
INSTRUCTIONAL STAFF QUESTIONNAIRE

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The School of Human Resource Education and Workforce Development

by

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LIST OF ACRONYMS

APA:	American Psychological Association
AYP:	Annual Yearly Progress
CFA:	Confirmatory Factor Analysis
CRT:	Criterion Referenced Test
DAT:	District Assistance Team
EFA:	Exploratory Factor Analysis
GLE:	Grade Level Expectation
LDE:	Louisiana Department of Education
LEAP21:	Louisiana Education Assessment Program for the Twenty-First Century
MSA:	Measure of Sampling Adequacy
NAEP:	National Assessment of Education Progress
NCATE:	National Council for Accreditation of Teacher Education
NCES:	National Center for Education Statistics
NCLB:	No Child Left Behind Act of 2001
NRT:	Norm Referenced Test
PCA:	Principal Components Analysis
SAM:	School Analysis Model
SBESE:	State Board of Elementary and Secondary Education
SIP:	School Improvement Plan
SIS:	School Information System
SISQ:	School Analysis Model Instructional Staff Questionnaire
SPS:	School Performance Score
TIMMS:	Third International Mathematics and Science Study
USDOE:	United States Department of Education

ABSTRACT

This study assessed the construct validity of the School Analysis Model (SAM) Instructional Staff Questionnaire. Construct validation was necessary for several reasons. First, it has not been possible to obtain evidence of the latent factor structure of this key component of the School Analysis Model (SAM). A factor analysis using data collected with the questionnaire was conducted to assess and identify the underlying factor structure of the instrument. Second, there is no evidence that the constructs measured by the SAM are associated with attributes of school performance further empirical analysis was done to determine if latent constructs contained within the SAM Instructional Staff Questionnaire accounted for a significant proportion of variance in school effectiveness beyond that accounted for by the control variables. The eight-factor solution of the SISQ was found to be the best representation of the data based on factor loadings, scale alpha reliability estimates, conceptual cohesiveness, and number of items retained.

Correlation analyses were conducted to assess the relationship between the SISQ latent factors and the control variables. Findings indicated a significant inverse relationship was found to exist between a school's SPS and poverty. Additionally, an inverse relationship was found to exist between a school's SPS and the size of a school. Several of the latent factors exhibited a relationship to the control variables as well as to other latent factors.

Hierarchical multiple regression analysis was conducted in order to determine whether a combination of the latent SISQ factors account for a significant proportion of variance in school effectiveness, as measured by the school SPS. Model 1 indicated that

the control variables explained approximately 56% of the variance in SPS. Model 2 indicated that the SISQ latent factors increased the proportion of variance explained by 11%.

The results of this study indicated that the SISQ scales did not account for a significant proportion of the variance in SPS scores and therefore, there is substantial room for improvement in the SISQ as a measurement instrument. Results suggest that construct validation should be of primary concern in the development of measures used to evaluate and guide school improvement efforts.

CHAPTER ONE

INTRODUCTION

Reform in education has been a major and controversial political topic nationwide for the past two decades. Louisiana plays a part in this larger movement and is cited as having made significant progress in improving student and school performance (Education Week, 2004). The progress made thus far is largely due to changes in state education policy that provided for a variety of strategies designed to improve student and school performance in the form of rigorous content standards, new criterion referenced high stakes tests, and school and district accountability measures that include sanctions and rewards as well as increased attention to teacher quality. Currently there are 800 public elementary schools, 294 middle schools, 251 high schools, and 131 combined or K-12 schools in Louisiana, including 13 charter schools and 395 parochial/private schools (Louisiana Department of Education, 2003). A continued focus on accountability measures with a renewed interest in school climate factors, in addition to teacher quality, promise a robust continuation of the reform agenda.

Future efforts to improve Louisiana's education system and provide a quality education to all of its citizens, depends on the continued commitment and resolve of stakeholders. To understand where the state reform agenda is headed, an understanding of what brought the state to this point is important. Reform is not a hermetic process, it never happens in a vacuum. Any study of education in Louisiana requires a fundamental understanding of the unique and illuminating history of education in the state. The following section provides a brief synopsis of the origins of education in Louisiana; it has been a long hard journey.

Historical Context of Education in Louisiana

Louisiana, which consists of 64 parishes and 86 public school systems, is a state with an exceedingly diverse population. Known for its rich cultural heritage and notoriously flamboyant political history, it is a state with an interesting history in education as well. Unfortunately, that history has not always been productive or without harsh criticism. Currently, Louisiana boasts one of the best accountability systems in the country (Education Week, 2004). Reform of education in Louisiana has local and state support and is a political priority. However, support of public education in Louisiana has been at its worst, non-existent and at best, controversial. This is a fundamental reason why public education in Louisiana is still a difficult and politically sensitive issue. The evolution of education in Louisiana is dependent primarily on its European heritage, the influence of outside forces, and national trends in education.

French Colonial Period

With its first European settlement in Louisiana, France determined to transplant French political and religious policies to its colonies, which introduced the French Colonial Period. From 1718 to 1762 in New Orleans, Louisiana, there were no public schools and few private schools during this period. Thus, to understand the development of education in the colony proper, it is necessary to understand its French roots (Wade, 1999).

An absolute monarchy in France, coupled with a close alliance with the Catholic Church, had tightly contained French enlightenment during the expansion of the enlightenment movement through other countries of Europe. As a result, the Catholic Church dominated education both at home and in the colonies. French colonists perceived education to be a

primary responsibility of the family and the church, a belief for many that has extended to the present. Hence, the dual system of public and parochial education that exists in Louisiana today.

Spanish Colonial Period

At the time the Spanish received Louisiana in 1762, all evidence suggests that nearly half of the population was illiterate, with two thirds of that number black (Wade, 1999). Due to the fact that not only were there few schools in operation in the colony, but most of those schools were clustered around the southern waterways, the illiteracy situation was not unusual.

Despite widespread resistance to Spanish rule, the Spanish did make an effort to improve education in the colony through the institution of free public schools for boys, but required that Spanish language and culture be taught. French speaking residents responded by refusing to send their children to schools where the children would be forced to learn Spanish law, customs, and history. The French opposition effectively closed down the system.

The transition of the colony back to French customs and language was largely uneventful in terms of education. During this period, it was not unusual to find private schools with an enrollment of over 400 students. These private schools remained the educational choice of most of the population of New Orleans (Hanger, 1996). Those who could afford to have their children taught through private schools, tutors, or education abroad, continued to prefer private education in Europe to a public education in Louisiana.

American Louisiana

The Louisiana Purchase in 1803 did little to change the educational practices of the inhabitants. The colonists of Louisiana were not overly concerned with becoming American, being accustomed to changes in ownership. Many of the colonists felt that it was incumbent

upon the Americans to adapt to traditional, French customs for the most part. William Charles Cole Claiborne, governor of the Territory of Orleans (Louisiana), believed that a universal education was the only way to move the colony towards self-rule and democracy (Wade, 1999). Governor Claiborne's convictions were shared with the country. President Jefferson reported to Congress during his term in office that the new territory of Louisiana had no colleges and only one public school in New Orleans, and that this information was on the authority of people who were the best informed on the subject (Wade, 1999). Unfortunately, Governor Claiborne's attempts to institute a formal public education system were not well received, and in some cases strongly opposed.

The first effort of the state legislature to pass an Education Act was in 1808. However, the legislative attempt was weak and provided no monetary support. However, in 1811, the legislature again passed an Act appropriating money for the establishment of the College of New Orleans, which became the first college in Louisiana (Wade, 1999). Despite repeated attempts to gain support for a public education system, private schools remained the primary means of education until well into the middle of the 19th century.

Antebellum Louisiana

In 1842, the first public education system in the state was established in New Orleans, causing that city to play a key role in instituting public education in Louisiana. The success Horace Mann had achieved with New England schools gained such popularity that news of his work in schools eventually spread to New Orleans. Joshua Baldwin, a leading political figure in New Orleans at the time, contacted Horace Mann requesting that someone be sent to New

Orleans to launch a new school system, with the caveat that the individual be safe on slavery, an indication that no abolitionist was to be sent.

Horace Mann personally recommended John A. Shaw, an associate familiar with the South, to fill the position. The New Orleans public system was to be modeled on the highly successful Boston school system, with a lower grammar school and a Latin High School. On January 3, 1842, the Second Municipality of New Orleans' first public schools opened, one for girls and another for boys. The schools proved to be successful; until the outbreak of the Civil War, New Orleans served as a model for other southern states wishing to institute public education. (Devore & Logsdone, 1991).

Civil War and Reconstruction

The outbreak of the Civil War in 1861 brought public education in Louisiana came to an abrupt end. This period in history would have a profound and lasting impact on the education of Louisiana children for the next century. With the exception of New Orleans, public education had gained little acceptance in the remainder of the state. Traditional beliefs about education and the role of the family, coupled with the hardships and deprivations of war, had reinforced the reliance of many on private education. In addition, both the influx of northerners and the participation of former slaves in politics resulted in the complete stagnation of education in Louisiana. Although the state allocated a half million dollars to education in 1862 under the auspices of a Union regime, parents refused to send their children due to state insistence that black children be allowed to attend public schools; as a result, few schools opened (Devore & Logsdone, 1991).

Early 20th Century Louisiana

Louisiana remained an impoverished state with a largely rural agrarian society for many decades after the Civil War and Reconstruction. However, with the return of political power to local authority, interest in public education began to slowly increase. Unfortunately, Louisiana did not have a strategic plan for the development of comprehensive public education, and what developed over time was a unique and at times rather disjointed and inefficient system. Public education, as with all other public institutions in Louisiana, is a direct by-product of the political motivations of the time. The rise of populism and the power of Huey P. Long as governor focused attention and subsequently, funding for public schools during the 1920s and 1930s. Although public schools had gained favor with the public, the increased attention and funding did not necessarily equate with better quality or equity. Private education remained popular with those that could afford it, and public schools were strictly segregated and remained so for another half century.

Desegregation

The National Association for the Advancement of Colored People (NAACP), through careful strategic planning, selected court cases to challenge the existing segregational mode of education. These efforts eventually led to the Supreme Court decision in *Brown vs. Board of Education* that declared segregated public schools unconstitutional (Taylor, 1955). Although the victory represented vindication for generations of children denied a quality education, it would be decades before substantive progress would be made.

Civil Rights struggles challenged public education for the next half century. The Civil Rights struggles challenged public education for the next half century. As the Civil Rights

Movement of the 1950s and 1960s came to Louisiana, the state paralleled the rest of the nation with the divisive and contentious atmosphere.

The ensuing struggles to desegregate public schools would ensnare many southern school districts in protracted and expensive court battles in an effort to delay and then to eventually decide how to best accomplish desegregation. Louisiana was no exception. Thus began a long period of slow educational decline, white flight, and the loss of a solid tax base that would have a far reaching and devastating effect on the quality of many of Louisiana's public schools. In 2003, the longest running desegregation dispute in the nation, the East Baton Rouge Parish desegregation court case, was finally resolved.

Modern Education in Louisiana

The change in attitude over the past half century toward public education in Louisiana is illustrated by the prominent position held within the state constitution and by the dedication of large sums of state monies to public education. The Constitution of the State of Louisiana (1974) presented the following goal:

“The goal of the public educational system is to provide learning environments and experiences, at all stages of human development, that are humane, just, and designed to promote excellence in order that every individual may be afforded an equal opportunity to develop to his full potential (p.1).”

The state budget for 2001 reflected an allocation of 2.4 billion dollars dedicated to K-12 education funding, which represented a substantial commitment for a relatively poor southern state (LDE, 2002). Vast progress in the past half century served to improve access and equity in education for all Louisiana school children, however, much remains to be done if Louisiana is to

move forward with a viable reform agenda to meet the challenges associated with the ever-changing dynamics of education.

Continued Need for Improvement

Although progress has been made in terms of improved student and school achievement, data collected by the Louisiana Department of Education (LDE) illustrates the continued need for a strong focus on education reform. *The 2001-2002 Louisiana State Education Progress Report* issued by LDE is a thorough compilation of pertinent data in regard to the state of Louisiana's public schools. Student level data portrays a public school population that is largely poor, representing an urban and rural mix, with ethnic diversity. These factors, coupled with slow to moderate improvements and a wide achievement gap between minority and white students, strengthens the case for perseverance in education reform.

Evolution of Standards and Assessments

In the mid 1990s, Louisiana began the process of developing and implementing content standards for the core subject areas of English Language Arts, Science, Mathematics and Social Studies. Committees composed of educators, parents, administrators, university professors, and Department of Education staff, in conjunction with national consultants, developed the standards. Local curriculum was written by individual districts and consortiums based on the new standards that precipitated the development and implementation of a new assessment system.

The new statewide assessment system is known as the Louisiana Educational Assessment Program (LEAP21). A controversial aspect of the system is a high stakes component put in place in the spring of 1999 for grades 4, 8 and 10. Students must pass the English Language Arts and Mathematics and either Science or Social Studies portions of the state exam in order to progress

to the next grade or to qualify for graduation. LEAP21 has been closely aligned to the state content standards for the core subjects and is a key component of the school accountability system.

Grade Level Expectations

With the advent of the No Child Left Behind legislation (2001), states have been required to develop Grade Level Expectations (GLEs) for mathematics and English language arts. GLEs are essentially the content a student should master at a particular grade level. The materials are designed to allow parents and educators to see the progression of content and skills through the grades. Louisiana made the decision to develop grade level expectations in the four core content areas of mathematics, English language arts, science and social studies. Additionally, local districts are responsible for having their curriculum aligned with the new GLEs for the 2004-2005 school year. State assessments will reflect alignment of the GLEs by the spring of 2006.

The Louisiana Department of Education currently works on a number of initiatives to provide districts with professional development and resources that will assist them in the alignment process. Through extension, GLEs will eventually become an integral part of the standards and accountability system currently in place. Alignment of curriculum and instructional practices has been linked to high student academic achievement (Holsinger, 1982; Mitchell, 1999). The implications for GLEs and curriculum alignment are significant. According to Cohen (1994), curriculum alignment represents an important factor that should not be overlooked when examining school improvement efforts. Curriculum alignment, in conjunction with instructional best practice that is content focused and developmentally appropriate, should permeate the classroom, in order to improve the capacity of students to achieve.

Accountability Legislative Mandate

In 1997, the Louisiana Legislature created the School and District Accountability Advisory Commission in an effort to hold schools and districts accountable for student progress and the implementation of reform at the district and school level. The Commission developed a school and district accountability system that was eventually adopted by the State Board of Elementary and Secondary Education in 2001 (see Figure 1). The Louisiana School Accountability System was structured on a 10-year time frame composed of five 2-year accountability cycles, with elementary and middle schools the first to enter the system in 1999, and high schools and combination schools to enter in 2001. The first school accountability reports were published in 1999, with schools receiving their first School Performance Scores.

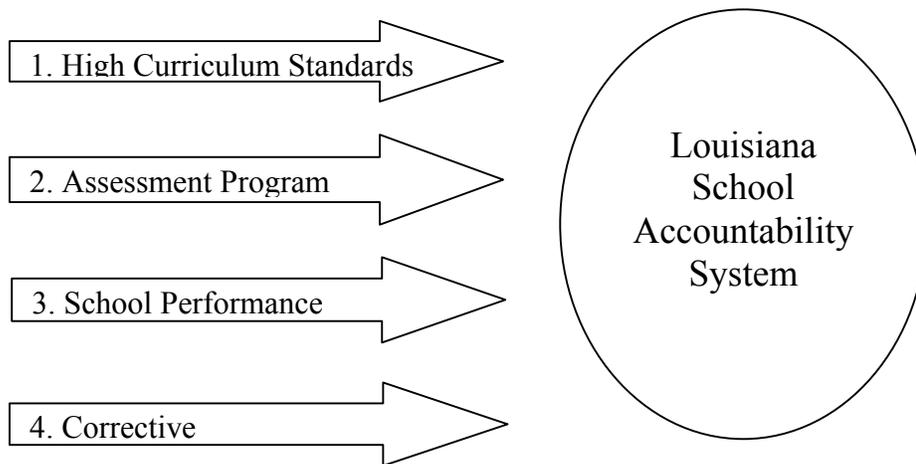


Figure 1.1

Key Components of the School Accountability System in Louisiana

Louisiana’s Original Accountability System

The original accountability system in Louisiana was based on a School Performance Score (SPS) index. The index was a weighted average of several academic indicators. Scores were composed of four indicators of a school’s performance on a percentage basis: 60% LEAP21 criterion referenced data (CRT), 30% norm referenced data (NRT), with 10% attendance for elementary and middle schools or 5% dropout, and 5% attendance rate for high schools.

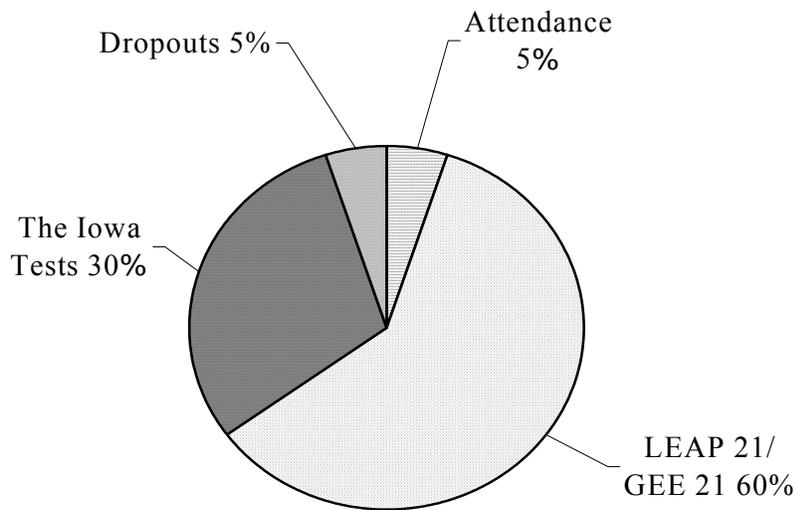


Figure 1.2

SPS Indicators with Corresponding Weighting Factors

The original accountability system provided for rewards and sanctions for schools based on their school performance score (see Table 1). Schools were required to demonstrate status and improvement for the total school, with status designated with a growth label, and all schools were to have reached a score of 100 at the end of the first 10-year period of accountability (1999-2009).

Table 1.1

1998-1999 School Performance Category Assignment

School Performance Category	SPS Range
School of Academic Excellence	150.0 or Above
School of Academic Distinction	125.0 – 149.9
School of Academic Achievement	100.0 – 124.9
Academically Above the State Average	69.4 – 99.9
Academically Below the State Average	30.1 – 69.3
Academically Unacceptable	30 or Below

Schools entered school improvement status by failing to meet the required growth target and falling below the “bar” required for the school year. Academically unacceptable began at a score of below 30 in 1999 and since has risen to a score of 60. School improvement levels have specific corresponding remedies that escalate in severity as a school progresses through the levels. School Improvement One (SI1) status prescribes a mandatory school improvement plan

and comprehensive needs assessment. The Louisiana School Analysis Model (SAM), a comprehensive evaluation tool for schools, is provided by the SDE for this purpose.

Louisiana's New Federally Approved Accountability System

The new federally approved accountability system for Louisiana is a 3-tiered model that involves a complex array of measures to determine annual progress. One of the key features of the new system is reporting on sub-group performance that was not a part of the original system. The original accountability system has been incorporated into the new federally approved system and retains many of the state policies regarding rewards and sanctions for schools, key features in maintaining public and political buy-in from state stakeholders.

The federally approved system now in place requires the state to report performance for all sub-groups, including scores for those with minority status, special education status, and English language learner status, rather than compiled as a single score. Louisiana has been nationally accepted as a leader in Standards, Assessment, and Accountability and was recently ranked number one in the country by Education Week in its annual *Quality Counts Report* (Education Week, 2004). However, the state still has considerable room for improvement in terms of school climate and teacher quality and is striving to maintain gains while continuing the reform agenda. One opportunity for further improvement rests in an examination of the measurement tools used as a part of the School Analysis Model.

School Analysis Model

The School Analysis Model (SAM) was developed by the Louisiana Department of Education (LDE) in 1999 as a comprehensive evaluation tool for schools. According to the *SAM User's Guide for District Assistance Teams*, the model is based on school effectiveness and

productivity research (LDE, 2000). The model grew out of a two-year research study (SY 1996-97 and 1997-98) conducted by the LDE as the foundation for a school assistance system that was put into place in 1999.

SAM is based on a conceptual framework that consists of four primary sources of data: (a) attitudinal, (b) behavioral, (c) cognitive, and (d) contextual. The types of data are collected in a mixed format, as the teacher survey instrument collects attitudinal information as well as site-specific (e.g., contextual) information. For example: SISQ item 36 states: Students at this school are taught in ways that allow them to relate what they are studying to their everyday lives. Furthermore, interview protocols and observation checklists provide behavioral as well as contextual information. It is the combination of tools provided within the model that is intended to secure adequate data for an effective and comprehensive needs assessment.

Development of the model was a multi-year multi-step process that involved varied divisions within the Louisiana Department of Education. No research has been done to analyze or evaluate the measurement tools of the SAM model to substantiate reliability and validity claims. Furthermore, information documenting the conceptual and theoretical foundations supporting the model is non-existent. Many of the people who worked on the project have left the LDE and were unavailable for consultation about the procedures and processes employed in development of the model.

The Louisiana School Analysis Model was designed with a variety of data collection tools that, used in tandem, were to provide multiple types of data necessary to make informed holistic judgments about a school. The complete model is comprised of sixteen instruments including:

1. archival data organizer
2. administrator interview protocol
3. administrator questionnaire
4. classroom observation summary form
5. comprehensive needs assessment-final report
6. contextual observation checklist
7. counselor interview protocol
8. exit summary report
9. faculty needs assessment
10. instructional staff interview protocol
11. instructional staff focus group protocol
12. instructional staff questionnaire
13. parent/community focus group protocol
14. parent questionnaire
15. student focus group protocol
16. student questionnaire.

The SAM model uses a mixed methods approach to collecting, organizing, and reporting school level data. It is mandatory for all schools going into School Improvement One (SI1) under the School Accountability System to do a comprehensive needs assessment for use in their school improvement plans (SIP). The model includes quantitative data collected via questionnaires completed by administrators, teachers, parents, and students. In addition, the SAM model incorporates interview and focus group protocols, as well as a qualitative faculty

needs assessment. A developer's note within the guide suggests that not all elements included in the model are necessary to complete a needs analysis, but that components identified are required to produce the minimal data needed (LDE, 2000).

The mixed methods model was designed with both quantitative and qualitative data collection tools designed to provide a variety of data (LDE, 2000). However, there is a deficit in the design of the model: Users may select pieces of the model that do not independently provide adequate information relative to school needs. Due to this flaw, the model holds a potential to provide skewed, unusable, or misleading data. For example, the model is comprised of multiple questionnaires, interview protocols, data organizers, and additional elements. Each of these components (for example, the student questionnaire data) would provide the user with a modicum of the information necessary to assess the true needs of a school, if utilized independently of the others. Coupled with a lack of evidence to support the efficacy of the instruments, the data collected is of questionable quality and utility.

The SAM Instructional Staff Questionnaire

One key element of the SAM model is the SAM Teacher Questionnaire. The SAM Instructional Staff Questionnaire version available in 1999 was a scannable instrument that provided both demographic and item-specific information, implementing a five-point Likert-type response scale. Response choices for Likert-type items were: strongly disagree, disagree, agree, strongly agree, and don't know. Demographic information included: (a) teaching experience, (b) tenure at present school, (c) education level, (d) absenteeism, and (e) professional development annual leave.

The User's Guide for District Assistance Teams (LDE, 2000) identifies a School Process Construct (p. 37), consisting of school processes, that outlines a conceptual structure for the SAM Instructional Staff Questionnaire. The processes are labeled: (a) climate, (b) leadership, (c) climate, (d) leadership, (e) culture, (f) curriculum, (g) instruction, (h) parent and school relations, and (i) staff development. No information is available as to how the constructs were chosen, the dimensions of the constructs, or how items proposed to measure the constructs were developed or tested. Further, there is no evidence available supporting the construct or criterion related validity of the measures. Consequently, there are serious questions about exactly what the SAM Instructional Staff Questionnaire measures.

There is no definitive information available on the development of the SAM Instructional Staff Questionnaire. *The User's Guide for District Assistance Teams* (LDE, 2000) is the only source of information available on the School Analysis Model components. *The User's Guide* (LDE, 2000, p. 42) references the use of five questionnaire versions with internal reliability statistics being computed for each version during the development phase. However, it was not possible to obtain the five versions mentioned or the statistical information that is referenced. Furthermore, the research presented in the literature review section of the guide is sparse and does not elaborate on the inputs and processes that directly affect student learning. It is also unclear what theoretical framework serves as the foundation for the development of the model.

A conceptual framework is presented in the form of a schematic entitled the *Educational Production Process* (Rossmiller & Geske, 1977) that alludes to education production factors, but does not include or reference a research base to support the content. Pragmatism is identified as

the primary philosophical orientation (LDE, 2000b). However, nothing is available that discusses how the constructs reflected in the framework are related to one another or to school effectiveness.

Problem Statement

The investment of state and federal funds in Louisiana's accountability system has been exceptional, with the stakes for districts, schools, and students high. Public expectations for improvement in the public schools of Louisiana have supported the accountability movement. Consequently, state and federal accountability demands are driving financial, administrative, and instructional decisions that have serious repercussions for students. Therefore, it is important that the tools provided to schools for the purposes of improvement are valid, reliable, and grounded in sound research. There is no existing evidence available indicating that the SAM Instructional Staff Questionnaire survey measures what it purports to measure or that an interpretable factor structure exists. An exploratory analysis is necessary to determine if 1) an interpretable factor structure exists and 2) if an interpretable factor structure exists that it exists as proposed. Second, no evidence exists that the latent constructs measured by the SAM are associated with important school outcome-related criteria. Third, there is no existing available evidence that the SAM is aligned to current research on elements necessary for effective school improvement. Consequently, it is difficult to place a value on the data collected from the current questionnaire in terms of recommendations for school improvement.

The purpose of this study is three-fold:

1. to assess the factor structure of the (SAM) Instructional Staff Questionnaire;

2. to assess the extent to which the factors measured by the SAM are predictive of important school effectiveness measures; and
3. to evaluate the alignment of the resulting factor structure with current research related to school improvement.

Research Questions

Three research questions will be used to guide this study:

RQ₁: Will an exploratory factor analysis of the SAM result in an interpretable factor structure?

RQ₂: To what extent are scores on the latent factors measured by the SAM Instructional Staff Questionnaire associated with the control variables: poverty, teacher quality, school size, and school locale status?

RQ₃: Based on the validated SAM Instructional Staff Questionnaire, do the latent factors measured by the SAM Instructional Staff Questionnaire account for a significant proportion of variance in school effectiveness as measured by the school SPS scores beyond that accounted for by the control variables?

Based partly on answers to the research questions presented in the study in conjunction with the research presented in the literature review provided in Chapter Two, an assessment of the extent to which the SAM Instructional Staff Questionnaire measures important school effectiveness constructs will be presented in Chapter Five.

CHAPTER TWO

REVIEW OF LITERATURE

Introduction

Chapter Two provides the reader with an overview of the historical context of American education reform that informs the study, together with the professional literature used to integrate and frame the study. The overview will provide an in-depth discussion of the evolution of accountability in education its function to provide educational quality. The overview will be followed by a summary of germane frameworks that portray schools as social organizations and the school environment as a model of social interaction. The summary will include pertinent research findings that describe the impact on school effectiveness, orchestrated by teacher self-efficacy, teacher quality, school culture, change, leadership, and poverty.

Criticism and Reform

Although few people dispute the need for a public education system, public education has seen criticism and calls for reform that reverberate over the past two and a half centuries (Britell, 1980; Cubberly, 1923; Farris, 1999; Lortie, 1975; Spring, 2001). Past reforms prepared the groundwork for the present structure, policy, and practices surrounding education today. Nevertheless, reforms have not produced a system free of criticism or with no need of further improvement (Barott & Raybould, 1998; Berliner & Biddle, 1995; Britell, 1980; Cuban, 1990; Cusik, 1992; Darling-Hammond 1993; Fullan, 1993a; Fullan, 1997; Murphy, 1990; Pogrow, 1996; Rothman, 1993; Tyack & Cuban, 1995; Wagner, 1998). Education in America has not provided equity across socio-economic and cultural groups in the form of student achievement. In today's education arena, the equity issue drives current debate on the best model to achieve

school reform (Contreras, 1988; Contreras, 1992; Lucas, Henze & Donota, 1990; Mehan, Hubbard, Lintz & Villanueva, 1994; Padron & Waxman, 1999; Wang, Haertel, & Wahlberg, 1994; Winfield, 1991).

Debate in regard to the quality and purpose of education raged without respite for centuries and continues in today's education struggles. Improving American schools has represented a focal point for state and national reform efforts during the past two decades, beginning with the well-chronicled report, "A Nation At Risk: The Imperative for Educational Reform," issued by the National Commission on Excellence in Education (NCEE, 1983). The report provided an image of American schools as broken beyond repair and in need of revolutionary change. Widely covered in the media, the report appeared to have the approval of the White House. The notion of White House approval of the report lent added credibility and stature to the NCEE paper, and encouraged the mass media to broadcast the opinions of the NCEE. Although the report has been widely criticized in such notable books as *The Manufactured Crisis: Myths, Frauds, and the Attack on America's Schools* (Berliner & Biddle, 1995), and *Shaking Up The School House* (Schlechty, 2001), it served to galvanize public opinion, and continues to echo in current political interest in public education. Since the publication of this work, state and national leaders interested in improving American education have attempted to promote improvement in student achievement through a wide variety of initiatives, including rigorous content standards, standardized tests, curriculum reform, charter schools, additional funding, and various accountability systems.

The most recent criticisms of American education were based on studies that portrayed American student achievement as falling behind that of foreign counterparts. One frequently

referenced study is the Third International Mathematics and Science Study (TIMSS) (Martin, Mullis, Gregory, Hoyle, & Shen, 2000). The TIMSS study examined a large-scale, cross-national comparison of the education systems in 41 countries. The compared education systems included mathematics and science curriculum and instructional practices, as well as school and social factors. American 12th grade performance was poor in contrast to other nations and has fueled the debate on the efficacy of the American public school system. In addition, the debate served as a catalyst for federal intervention on an unprecedented scale.

Federal Intervention in Education

The Great Society initiated by President Johnson represented the first federal intervention into public education, an intervention that broke through a long-standing prohibition against federal aid to K-12 education. In conjunction with desegregation efforts, criticism of educational opportunity for indigent children increased during this period. President Johnson's "War on Poverty," a facet of the Great Society initiative, provided federal aid to public schools with the passage in 1965 of the first Title I Act. Serving children in poverty, Title I was specifically designed to avoid problems with funding bills that had lagged due to past state prohibitions against funding for both black and private schools. Title I, a compromise bill, passed largely due to the Civil Rights Act of 1964 that prohibited aid to segregated schools. Additionally, the Act provided for inclusion of private school children, a feature which encouraged the Catholic school lobby in Congress to join in working for passage of the legislation.

The introduction of Title I funding, targeting poor children, was intended to provide facilities, textbooks, the hiring of additional or special staff, and other costs associated with improving the quality of education. The premise of the program was that although schools were

fundamentally sound entities, the needs of specific groups such as (a) minorities, (b) gifted children, (c) refugees, (d) limited English speaking children, and (e) the handicapped were not being met. At the time, the program was administered by the Office of Education which was under the Department of Health, Education, and Welfare.

Title I has seen multiple reauthorizations over the past 3 decades, with subsequent changes in the requirements and stipulations set forth in the law. However, the most sweeping change in scope and purpose was the latest reauthorization, commonly referred to as the No Child Left Behind Act of 2001. With the passage of No Child Left Behind, a renewed debate has come forward concerning the government's role in education, states rights, and parental involvement (Patrinis & Ariasingam; 1997; Tooley, 2000).

No Child Left Behind Act

Never in the history of the nation has legislation regarding education had such restrictive measures, or far-reaching consequences. The No Child Left Behind legislation is firmly grounded in the educational debates of the last thirty years. This legislation requires accountability for federal spending that shows improvement in student achievement. In addition, the primary foundation for federal funding toward education is based on state accountability. A fundamental change in the premise of the program is evident in the myriad measures prescribed in the law, specifically designed to fix failing schools. No longer are schools seen as essentially sound, but conversely, in dire need of improvement.

The stricter federal demands outlined in the No Child Left Behind Act (NCLB) of 2001 have translated into larger, more directive roles on the part of states. Federal funding now pivots on strict adherence to the requirements of the law, including provisions for (a) standards, (b)

assessments, (c) choice, (d) supplemental services, (e) highly qualified teachers, (f) closing the achievement gap, and (g) a USDOE approved accountability system (No Child Left Behind, 2001). States do not have an option for participation in the federal accountability system, unless they decide to forfeit federal funds. Regardless of such a choice, several law provisions will remain to apply.

Complexity of the law, coupled with lack of flexibility, serves as a catalyst for states to rethink many of the current policies and to redirect energy and funding in order to better align state policy and programming with the law. The changes in policy, focal points for energy, and funding will enable local school districts to meet mandates designed to promote student achievement. However, guidance on interpretation and final rules and regulations for portions of the law has been delayed by as much as a year or more. The lag in initial passage of guidance materials by the United States Department of Education (USDOE), further complicated states' efforts to comply. Over two years into implementation of the new law, the evident complexity of the statute is revealed by the myriad documents produced to guide states into compliance. A review of the guidance documents produced by USDOE shows that for Title I Part A, the guidance is 231 pages in length, a testament to the detail that is provided for interpretation of the law. Guidance in some areas of the law is still forthcoming.

Louisiana is ahead of many states in the nation in its compliance with the new law. In large part, this is due to the already successful state accountability system and the commitment to school improvement by local and state education authorities, as well as hard won support from the public. The monumental accomplishment of a successful transition of Louisiana from state to federal accountability system cannot be minimized. The evolution of the Louisiana education

system from strictly privatized education and fledgling ambivalent support for public education to national leadership in education reform may be fully understood from a holistic and theoretical perspective that encompasses, politically and historically, the state's commitment to the change process.

Change and School Effectiveness

American education is essentially an epic tale of changing to meet the times. It has never been easy or unopposed, and it continues to be an endeavor that requires cognizance of the known science and a commitment to improvement (Cubberly, 1923; Darling-Hammond, 1993; 2000; Dewey, 1916; Fullan & Mies, 1992; Mann, 1848). Because change is essentially non-linear and, in the case of education, extremely complex, recent lines of research have focused on a few previously identified essential variables associated with change; most notably, these are school culture, teacher professionalism, and leadership. Furthermore, the professional literature on change in schools over the past thirty years has produced a well-developed body of knowledge focused on the efficacy of change within an institutional structure that is fundamentally opposed to reform (Fullan, 1993a).

The public education system in America is a well-defined organization equal in scale to a large Fortune 500 company. At the top of the hierarchy is a state board of education and a state superintendent, with authority to set policy that is monitored and implemented by a state department of education. The hierarchy continues with education that is locally run by a parish/county school board, local superintendent, and school administrators and staff. While the organization is deceptively simplistic at first glance, it consists of a complex array of stakeholders and constituents, both local and national, and has consistently been shown to resist

change over time (Fullan, 1992). Changing the way schools operate is a highly complex endeavor and involves multiple approaches including economic, political, technical, and social perspectives that are intertwined and that in essence, compose a product of on-going organizational development.

Change and Organizational Development

Organization development provides a framework for understanding change in complex organizations. For the purposes of this study, organizational development is defined as “a system-wide process of data collection, diagnosis, action planning, intervention, and evaluation aimed at:

1. enhancing congruence between organizational structure, process, strategy, people, and culture;
2. developing new and creative organizational solutions; and
3. developing the organization’s self-renewing capacity.

Organizational development occurs through collaboration of organizational members working with a change agent using behavioral science theory, research, and technology” (Beer, 1980 p. 21). Organization development is both a professional field of social action and an area of scientific inquiry that applies to education as an institution and offers insight into the structures and processes necessary to stabilize and institutionalize change over time. The insights of organization development represent a factor of great concern to those involved in school improvement activities, because organizational development is typically oriented towards improving the effectiveness of an organization. To that end, organizational development provides a framework for the process of change that is grounded in behavioral science research.

Important to this framework is the significance of the individual's influence over the organization's future.

Research on change in large organizations profoundly influenced the research of change in schools. Lewin (1947) suggested a change model that outlined a three-step process of unfreezing, freezing, and refreezing; the model placed a heavy emphasis on data gathering and diagnosis prior to planning and implementing change. Although much has been learned since the introduction of Lewin's change model to the business community, the model fundamentally remains viable and important. Lewin's construct contributed to the study of change for a variety of organizations, including education. Education has always been a controversial and evolving public institution, one that has shown itself to be unusually adept at self-preservation despite decades of reform. Consequently, there has been a call for research-based strategies that aid schools in meeting new criteria to reach higher standards and raise student achievement. In addition, there is a federal mandate for states to adopt United States Department of Education (USDOE) approved accountability systems that will ultimately shape school improvement efforts nationwide. According to Michael Fullan (1993a), author of *Change Forces*:

It is no exaggeration to say that dealing with change is endemic to post-modern society. On the other hand, however, we have an educational system which is fundamentally conservative. The way that teachers are trained, the way our schools are organized, the way that the educational hierarchy operates, and the way that education is treated by the political decision-makers results in a system that is more likely to retain the status quo than to change (p. 3).

Changing the status quo is the driving force behind school reform in America today. This is clearly reflected in the federal legislation titled No Child Left Behind, standards-based accountability systems, and calls for research-based initiatives that can improve student achievement (NCLB, 2001).

Research on change in schools began as a linear concept of defining a need and a desired outcome and then developing an innovation to match. Results did not live up to expectations. As a single innovation, a single classroom approach meant that much of what was passing for change lacked follow-through, and often the effort was not supported with training and the necessary resources, or else the classroom approach simply did not fit the school (Fullan, 1992). Change is generally accepted as an ongoing process, and failure to understand the change process compromises reform efforts and leaves innovations vulnerable to external pressure; often lack of understanding is responsible for the failure of new ideas and innovations to produce the desired results (Fullan, 1997). Studies have repeatedly shown that change is a difficult, slow, and tedious process that requires commitment, resources, and a certain amount of tenacity (Fullan, 1992, Fullan & Hargreaves, 1991; Hoy & Miskel, 1996).

Recent conceptions of change imply that effective change must be grounded in core beliefs, values and expectations that are self-directed rather than imposed from without (Cuban, 1990; Darling-Hamond, 1993; Pogrow, 1996). Mandated reforms that are enforced through reorganization, regulation, and sanctions for failure are often self-defeating, because they do not address the fundamental beliefs and values or anxiety associated with change. Successfully managing change must account for planning, implementing, and facilitating change using a variety of techniques. Numerous studies have shown that successful change is the result of both

personal and organizational variables (Fullan, 1993a; Fullan & Stiegelbauer, 1991; Hoy & Miskel, 1996; Lewin, 1947; Wang, Haertel & Walberg, 1993).

Change and Moral Purpose

Central to the conception of successful transformation and change in schools is the idea of moral purpose that is directly linked to effective schools. In the context of education, moral purpose can be defined as a feeling of stewardship, responsibility, and commitment to students that transcends the day-to-day work of teaching and guides educators' work with a sense of higher purpose. Contrary to the rational values of management thinking that currently dominate school administration (e.g., standards, accountability, and performance), effective schools have a combined focus on rational attributes with a sense of shared moral purpose, a sense of community, and a spirit that is collegiate (Freiberg & Stein 1999; Sergiovanni, 1992). Essentially, effective schools are an optimal mix of heart and mind. Consequently, the driving question for researchers is how to create that optimal mix in low performing schools. Some of the key factors in this mix include school culture, the professionalism of teachers, teacher self-efficacy, and the socio-economic status of students.

Over twenty years of research on change in schools has provided a plethora of information on what processes work and do not work, but the challenge remains as to (a) how to implement successful changes so that those changes become self-renewing and (b) how to address learning environments as a whole rather than focusing on individual changes. Research has consistently attributed the success or failure of innovations to individual decisions about the acceptance or rejection of change (Darling-Hammond, 1993; Fullan, 1990). Faithful implementation of proposed changes is dependent on human agency, therefore successful reform

requires a buy-in from key stakeholders. Research on change has shown that stakeholders must value proposed changes (Cuban, 1990; Darling-Hammond, 1993). Furthermore, change must be perceived as possible, teachers' perceptions of their ability to successfully implement changes requires support and time to adapt and learn. Developing the capacity to accomplish the change goals set forth by the USDOE is a monumental undertaking and one that encompasses the alignment of policy and research into a cohesive, conceptually valid, and meaningful context for schools.

Social Systems Theory

The Social Systems Theory provides a framework for understanding schools as complex social systems and incorporates various aspects of psycho-sociological research. (Getzels & Guba, 1957). The Model of Organizational Social System Functioning demonstrates an interdependent relationship between personal and normative dimensions in decision making that are dependent upon factors of (a) human personality, (b) formal and informal roles, and (c) description, formation, and expressions of both individual and group values (Sferra & Paddock, 1980). Getzel and Guba (1957) contend that performance within a social system (organization) is caused by interaction between human personality and an individual's role in the organization. Usefulness of the theory lies in the interdependent dynamic nature of the process of education implied in the ideographic (e.g., human personality) and nomothetic (e.g., individual goals, group goals, and expectations) dimensions discussed. The theory supports research that examines the functions and processes associated with organizational structure, goals, culture, political influences, and individual needs within the education system. Important to this

framework is the significance of the interconnected dynamic nature of the education organization.

Social Cognitive Theory

The Social Cognitive Theory provides a framework for understanding the socio-psychological aspects of schools through an understanding of individual and collective beliefs and how those beliefs are developed and supported through a construct known as self-efficacy (Bandura,1986). Bandura (1986, 1997) outlines an interdependent causal structure for personal agency that involves triadic reciprocal causation. The relationships between the three major classes of determinants are represented as E = External Environment, B = Behavior, and P = internal personal factors in the form of affective, cognitive, and biological events. The determinants are reciprocal, yet importantly, are not equal in strength. According to Bandura the determinants vary for different activities under different contexts and must be approached from a personal agency perspective. Important to this framework is the concept of people as both producers and products of social systems. The implications of the theory for research in education have lead to a well-established body of knowledge that can be used and built upon to improve educational outcomes.

The confluence of theoretical perspectives discussed thus far provides a foundation for the useful understanding of schools as dynamic and complex social systems. This view of schools means that systemic reform is dependent upon capacity at multiple levels within the education bureaucracy. For example, research on systemic reform has shown that (a) shared vision for reform, (b) instructional guidance for the realization of the vision, (c) adequate resources, efficient delivery of services, and accountability are necessary components for

systemic reform that results in improved student achievement (Goertz, Floden & O'Day, 1995). Absence of the capacity to achieve any one of the components has the potential to impact school effectiveness in a negative manner. Capacity can be defined as the power and ability of a local education authority and school to hold, receive, and accommodate necessary change to improve academic achievement of students. Schools are increasingly viewed as complex social systems that are dynamic and open (Ellett, 1999; Getzels & Guba, 1957; Hoy & Miskel, 1996). Change in any dynamic and complex organization demands thoughtful and informed decision making that is aligned with current research; schools are no exception

Research has also shown that school effectiveness was directly impacted by a number of factors including school culture, teacher self-efficacy, and leadership. External factors such as accountability, in addition to policy-guided school improvement efforts from federal, state, or district sources also have a direct impact on school effectiveness (Bobbett, 2001; Eccles, Midgley, Wigfield, Buchanan, C.M., Reuman, Flanagan, C., & Mac Iver, D. 1993; Ellet & Licata, 1997; Fullan 1993a; Fullan & Stiegelbauer, 1991; Glasman, 1984; Heck, 1992; Hessel & Holloway, 2002; Olivier, 2001; Podell & Soodak, 1993; Soodak & Podell 1993; Schlechty, 1997; Tshannan-Moran, Hoy, & Hoy, 1998). The research on these individual factors, taken as a whole, conveys a view of schools as individual, dynamic communities, constantly changing in ways that require on-going examination, attention, and adaptation (Bobbett, 2001; Levine & Lezotte, 1995; Olivier, 2001).

The literature on education reform is as broad as the topic implies. However, there is one primary recurring theme that focuses on accountability. The next section discusses the evolution of accountability as a catalyst for change and school effectiveness.

Accountability

It is accountability that has become the dominant driver in education reform as a significant impetus for change. Accountability is a traditional concept grounded in the belief that when people hold a responsibility, there are consequences associated with that responsibility. In the current context, accountability is usually used to describe a system put in place to ensure that states, local education systems, and students are accountable for student achievement. It is primarily a system concept, ideally designed to provide clear objectives and standards for how states and local education systems will be assessed. There are four main assumptions associated with the current accountability movement:

1. Stricter accountability requirements will lead to educational reform;
2. Meaningful educational improvement is possible through legislated mandates;
3. Schools should be the focus of accountability measures, and
4. School and district involvement are essential to success (Hansen, 1993).

Accountability and Student Achievement

Research has shown that various aspects of accountability systems link to improved student achievement. Routinely, accountability systems provide rewards for improvement and sanctions for failure to improve. Research has shown that although schools respond to incentives in accountability systems, there is a great deal of variation in the form and strength of school responses. The variations are based on the type of accountability system examined.

Hanushek and Raymond (2002) compared mathematics achievement on the National Assessment of Educational Progress (NAEP) between states with no accountability system and those with differing accountability systems. Their findings indicated:

1. growth of 0.6 percent in states with no formal accountability system in place;
2. growth of 1.2 percent in states with reporting systems only; and
3. growth of 1.6 percent in states with accountability systems that provided for sanctions and rewards as well as public reporting of performance (Hanushek & Raymond, 2002).

Researchers found that the highest gains were garnered by states with high stakes measures. Typically, accountability systems require state and local education agencies to provide assistance to individual schools that are in need of improvement. The assistance ranges in scope and complexity as school systems move from federal and state mandates to local implementation of school improvement activities.

Accountability and Public Policy

Public policy provides a direct reflection of educational, social, political, and economic trends; often, public policy becomes a catalyst for incremental as well as transformational changes in public institutions. In this instance, the current era of school accountability focuses on transformational change with the goal of improving student academic performance (Fuhrman, 1999). The education investment on the part of the federal and state governments to promote transformational change has reached into the billions of dollars with serious long-term implications for public education in America. Policy decisions at the national, state, and local level directly impact school effectiveness on multiple fronts, from rules governing such varied areas as student attendance, finances, academic programming, state licensure, certification requirements for teachers, and student promotion. Policy decision makers must determine whether the plethora of policies will or will not be incorporated into an accountability system.

Louisiana's Handbook for School Administrators: Bulletin 741 contains the state policy mandates for the operation of public schools in the state. The document is 211 pages in length and is regularly amended according to the dictates of the State Board of Elementary and Secondary Education (LDE, 2000b). There are similar documents in all 50 states that present a formidable challenge to school administrators and staff seeking flexibility and guidance in school improvement efforts. Until 2003, the Louisiana document contained the rules and regulations pertaining to the State's accountability system. In 2004, the Louisiana State Board of Elementary and Secondary Education found it necessary, due to the scope and intricacy of the new federally approved system, to codify the rules and regulations associated with accountability into a separate document, *The Louisiana Accountability System, Bulletin 111*.

Complicating the state policy mandates are new federal requirements that necessitate additional and amended policies at the state and local level. The No Child Left Behind Act has been sharply criticized for the burden it places on state and local school districts to change existing practices (Education Week, 2001, 2004). Issues requiring policy additions and changes include a myriad of school related functions including, but not limited to concerns of (a) academic performance, (b) academic growth, (c) health and safety, (d) truancy and dropout prevention, (e) teacher quality, and (f) school governance (see Table 2). NCLB ratcheted the stakes to a higher level to induce states to improve student performance in the poorest-performing schools. Consequently, schools are offered rewards for success, but stiff sanctions for failure. Although the intent of the law is aimed at closing the achievement gap and providing all children in America with a quality education, critics have pointed to the failure to fully fund the law as well as lack of flexibility for statute interpretation as serious impediments to its success.

Political battles over the intent and interpretation of the law at the state level have increased the tension and pressure felt by state departments of education and local school districts to meet compliance requirements. All 50 states have a federally approved plan for making annual yearly progress towards accountability goals. Yet, identification of goals does not guarantee that accommodations for policy and academic programming that are measurable by traditional indicators of effectiveness will translate into improved student achievement. The present demand for research-based programs shown to be effective in closing the achievement gap has been preceded by thirty-five years of increased federal spending on improving American education, that have not produced the desired gains (NCLB, 2002).

Standards based accountability within the public education system through defined criteria and measurement of achievement outcomes is a state level structural reform that is attempting to modify the system in a manner that produces results. The counter policy argument is that K-12 education as it presently exists in America is not changeable, and competition is necessary to provide more choice both within and without the system. Therefore, some states are attempting a mix of both policy arguments, orchestrated through the development of charter schools, alternative schools, and vouchers alongside development of standards based accountability systems. Although school accountability is a modern semantic term, the goal of improving student academic performance has been around for centuries (Britell, 1980; Dewey, 1926; Wade, 1999). The challenge for those working in education today is how to identify individual student needs and make appropriate and meaningful accommodations that are measurable by accepted indicators of school effectiveness. The next section provides further information on research in this area.

Accountability and Diversity

Immigration in the United States over the past thirty years has contributed to a public school student body, highly diverse racially, ethnically, religiously, and culturally across the country (O'Hare & Mather, 2003). The dramatic shift in student demographics and expected upward trends in diversity in America's public schools applies pressure to the public education system for successful ways to raise the achievement of all students. Federal mandates have ensured that accountability systems across the country account for what is termed sub-group performance (e.g., minorities, English language learners, and special education students) as part of their Annual Yearly Progress (AYP). Failure to meet AYP goals can carry harsh penalties, including loss of funds and state take-over of public schools.

The focus of raising the performance for all students challenges old conceptions about the amount of control a school should wield over the factors that contribute to the low performance of students from varied backgrounds. Past research has asserted that family background (e.g., socioeconomic status, single parent household status, and education attainment of parents) is the greatest contributor to student achievement (Coleman, Campbell, Hobson, McPharland, Mood, Weinfield, & York, 1966). However, achievement gaps have also been attributed to several other factors including: low expectations of teachers and principals, poor motivation, lack of resources, and poor teacher quality (O'Hare & Mather, 2003). Research has consistently shown that the reasons for various achievement gaps are complex, and the success of schools in closing those gaps is site specific in nature (e.g., individual identification of deficiencies), and requires a focus on specific areas of weakness (O'Hare & Mather, 2003; Roza & Hill, 2003). Results have shown that one size does not fit all, a contributing factor in past failures of a multitude of

improvement innovations. Schools are also extremely vulnerable to multiple constituencies (e.g., state boards of education, local school boards, business leaders, and parent groups). The innovations with the greatest staying power and which are least vulnerable to outside influence are those that have constituencies that support and grow around them (Tyack & Cuban, 1995). The issues surrounding school improvement activities are part of the school effectiveness research base that is discussed in the next section.

Evolution of School Effectiveness Research (SER)

School effectiveness research as a field of study has its origins in the famous Coleman study of the 1960s that concluded schools make little difference in terms of student achievement as compared to home and social class background (Coleman et al., 1966). The Coleman study quantified the variation in school inputs among schools with different racial and ethnic makeup. Additionally, the study looked at the external factors of socioeconomic status and parental involvement as uncontrollable inputs that were considered the primary determinant of student outcomes. Teachers were included as variables in the production functions, although they were not classified as a school input in the findings. Coleman et al., (1966) found that teachers had little effect on the achievements of white students, but did have a small effect on African-American students that increased with student progression through the higher grades. Subsequent review and critique of Coleman et al. (1966) has resulted in considerable academic debate regarding the difficulty of explicitly measuring components of effectiveness. Hanushek's (1986) survey of 147 published "separately estimated educational production functions" found that schools and teachers do make a difference. However, the existing measures of

characteristics of schools and teachers are seriously and fundamentally flawed, and therefore are poor indicators of the true effects of schools.

Advancements in the concept of school effectiveness during the 1970s produced research that valued school input and provided the foundation for further conceptual advancements to include correlates of effectiveness. However, defining school effectiveness has been a source of contention among researchers that is often attributed to the complex nature of schooling and the sheer volume of variables and methodological approaches associated with the line of inquiry. Improvements in research over the past thirty years have provided a better understanding of the conceptual, methodological, and technical advances (Teddlie & Reynolds, 2000).

Teddlie and Reynolds (2000) provide a thorough and tight explanation of broad, overlapping stages of research that reflect advancements in the field of inquiry since the 1960s. The research trend in the 1960s focused on school outcomes and what made schools effective or ineffective. Research in the 1970s shifted from considering what made schools effective to considering what could be done to schools to make them more effective. The continued approach of a “black box” conception of schooling, where schools are viewed as organizations that had things added or subtracted for the purpose of improvement, prefaced the initiation of the reform phase of the 1980s, and has continued to the present. The 1980s research achieved a degree of greater sophistication and provided valuable information on the correlates imbedded in effective schools with research in the 1990s shifting to a contextual examination of variables that effect the school environment (Teddlie & Reynolds, 2000). The open question of how to create effective schools requires further examination of the several contexts in which purported effective schools are created (Firestone & Seashore, 1999; Louis, Toole, & Hargreaves, 1999).

Criticisms of School Effectiveness Research

Advancements in the field notwithstanding, there is considerable criticism of school effectiveness research. For example, there are several samples of effective school research, such as the following:

1. a socially and politically de-contextualized body of literature that provides support for inequitable educational reforms (Firestone & Seashore, 1999);
2. research that has aided reformers/politicians to move education under the control of centralized government (Goldstein & Myers, 1997; Winch, 1997);
3. concentration on the cognitive outcomes of education to the exclusion of other important aspects of schooling (Goldstein & Myers, 1997); and
4. the process for moving a school from ineffective to effective—importantly silent (Louis, Toole, & Hargreaves, 1999; Wyatt, 1996).

Although school effectiveness research remains controversial, the research has provided practitioners and researchers with a foundation, for advancing the conversation on how to improve schools.

Key Components of School Effectiveness

Several mediating factors impact school effectiveness. These factors are inclusive of teacher quality, school leadership, and school culture. This section discusses the literature on these key components.

Teacher Quality

Central to any serious discussion of school effectiveness is the issue of teacher quality. Although debate may exist on the efficacy of educational innovations, there is a solid research

base for the importance and impact of qualified, competent, and caring teachers. Teacher quality refers to several key characteristics of effective teachers, which include: (a) education, (b) licensure, (c) credentials, (d) commitment, (e) successful experience, (f) retention, and (g) an active interest in self-motivated professional development. This section examines a number of pivotal areas associated with teacher effectiveness: (a) knowledge, (b) expertise, (c) support, (d) certification/licensure, (e) retention, (f) professional development, and (g) teacher self-efficacy. These areas have been shown to have effects on student achievement.

Linda Darling-Hammond presently holds the Charles E. Ducommun Professor of Education at Stanford University, as well as the position of executive director of the National Commission on Teaching and America's Future. Darling-Hammond, an imminent authority on education, stated, "The single most important determinant of student achievement is teachers' qualifications and teachers' expertise" (Darling-Hammond, 2000, p.7) asserted that currently, many if not most teachers are under-prepared for the demands placed upon them in the profession. Research demonstrated that the impact of a high-quality teacher was substantial. Hanushek (1997) found that after controlling for socio-economic status and other confounding variables, a student with a high quality teacher achieves a learning gain of 1.5 grade level equivalents, while a student with a low-quality teacher achieves a gain of only 0.5 grade level equivalents. However, differing standards of quality across the states makes a definition of the quality of teaching problematic for both researchers and policy makers

Teacher Retention

The demands on teachers were overwhelming and were often blamed for teacher attrition rates, especially among first year teachers (Darling-Hammond, 2000). Research suggested that

the practices that retain more qualified and high quality teachers in the classroom include: (a) cultivating standards of practice within schools and classrooms, (b) providing teachers with increased autonomy and power, and (c) providing for collegial growth (Thornton, 2004).

According to the National Board for Teacher Standards, the cultivation of standards for practice is of the utmost importance in promoting excellence, high quality teaching, and student performance (Goldhaber & Anthony, 2004). Additionally, the cultivation of standards would provide policy makers and researchers with a uniform means, not currently available of defining quality.

Highly talented and motivated people need to be attracted to the teaching profession; however, the induction process those individuals encounter will determine their success and retention. Numerous studies have shown that nearly 50% of teachers leave the profession within the first five years (Colbert & Wolf, 1992; Darling-Hammond, 1999). Research has shown that job satisfaction is a key factor in teacher retention (Weasmer & Woods 2002). Teacher dissatisfaction comes from multiple sources, but there are commonalities: (a) lack of resources, (b) lack of parental involvement, (c) lack of administrative support, (d) student misbehavior, (e) limited decision making authority, and (f) low pay (Gonzalez, 1995; Sewell & Abel, 1999; Shann, 1998). Addressing the issues most often cited for teacher exodus involves leadership and policy issues outside the control of teachers.

Expectations of Teachers

Expectations of teachers from parents, administrators, and politicians are complex and multifaceted. Teachers are expected to teach diverse learners with multiple learning styles. They are expected to teach students with limited English proficiency, cultural differences, and

learning disabilities while preparing them for standardized tests that do not accommodate differences. Teachers need to know how to teach students academic content, how to assess student deficiencies and weaknesses, and must possess knowledge of teaching strategies that address the same. Finally, they are expected to understand the psychology and sociology of their students and to apply this knowledge to the actions they take in their classrooms. In short, teachers must be part doctor, lawyer, social worker, counselor, and teacher. The degree of sophistication in decision-making and application of knowledge expected of teachers today demands an incredible knowledge base and level of preparation (Darling-Hammond & Sykes, 1999; Goldhaber & Anthony, 2004; Zemelman, Daniels & Hyde, 1998).

Education

In an era where teachers must demonstrate knowledge in diverse areas, advanced study provides a foundation for meeting expectations. Teachers with high levels of education have been linked to high student academic achievement (Ferguson, 1991; Darling-Hammond & Sykes, 1999; Sanders & Rivers, 1996). Higher education provides a level of quality not found in lower level professional development and demonstrates a level of commitment by teachers to improve their knowledge base associated with teaching and learning. Ferguson (1991), in his study of Texas schools, found that teachers who hold a masters degrees account for approximately five percent of variation in student scores across districts for grades one through seven. Finally, research has shown that after controlling for socio-economic status of students, the gap between black and white students' achievement is explained almost entirely by differences in their teachers' qualifications. In addition, factors in teacher expertise include education, licensing exam scores, and experience (Darling-Hammond & Loewenberg-Ball, 1997).

Licensure/Credentials

Research has shown that teachers who possess current valid teaching credentials and who are teach in their field of expertise have been linked to high student achievement (Darling-Hammond & Sykes, 1999). Shortages have compelled many states to examine alternative means of recruiting teachers, especially in key shortage areas such as high school science and mathematics. Research has shown that the students of fully prepared and certificated teachers produce higher academic achievement than students with under-certified (e.g., temporary, emergency, and provisional certification) teachers (Berliner, & Laczko-Kerr, 2002, 2003). Success of teachers who enter the profession through alternative routes is highly dependent on the amount, rigor, and quality of training teachers receive prior to entering the classroom. While regular certification requirements vary in rigor and complexity across the country, most do set standards for teaching that assure at least a minimal knowledge in key areas including: child/adolescent psychology, academic methods, classroom management, and content.

Alternative Certification and Licensure

Although highly debated, teacher shortages across the country have precipitated the growth of alternative routes into teaching that circumvent the traditional certification and licensure process typical in many states (Darling-Hammond, 2000). Entry into teaching through traditional channels usually means a teacher has successfully completed a teacher education program in a college of education and has acquired the necessary state certification and licensure required for employment. However, with teacher shortages in many areas, lateral routes into teaching have been established in some states that allow college graduates in other fields to enter teaching with minimal preparation. Alternative programs commonly require a bachelor's degree,

possessing a major in a content area, and passing a criminal background check. Although this route provides more teachers for the system, it doesn't ensure a qualified, competent, and caring teacher.

Successful Teaching Experience

Teachers with successful teaching experience have been linked to high student academic achievement (Darling-Hammond, 1997, 2000; Darling-Hammond & Sykes, 1999; McElroy & Pai, 2003; Stronge, 2002). Schools with staff members who have substantial, successful, teaching experiences, provide structure and focused learning experiences for students and are more likely to hold high expectations for student learning that are rooted in personal self-efficacy judgments about their ability to effectively teach. McElroy and Pai (2003), in their Texas study, found a significant and positive effect on pass rates for state standardized tests of students in relation to teacher experience levels. Research on effective schools has consistently shown that effective schools possess faculty members who are highly educated, credentialed, and assigned to an area of expertise, all essential factors that need to be seriously considered when addressing school reform.

Self-Efficacy and Teacher Commitment

Teacher effectiveness is largely dependent on personal agency, or how teachers define tasks, employ strategies, view the possibility of success, and ultimately solve the problems and challenges they face. It is this concept of personal agency, the capacity of teachers to be self-organizing, self-reflective, self-regulating, and proactive in their behavior that underlies the importance of self-efficacy as a critical component in teacher effectiveness. The link between personal agency and a teacher's efficacy beliefs lies in personal experience and a teacher's

ability to reflect on that experience and make decisions about future courses of action (Bray-Clark & Bates, 2003).

Teacher self-efficacy studies began over twenty years ago with the 1976 (RAND) researcher's evaluation of whether teachers believed they could control the reinforcement of their actions (Armor, Conry-Oseguera, Cox, King, McDonnell, Pascal, Pauly, & Zellman, 1976). The study of teacher self-efficacy has evolved over the years and has revealed a wealth of information indicating that self-efficacy may contribute to teacher effectiveness in a number of ways. First, evidence suggests that positive self-efficacy beliefs can increase the extent to which teachers are willing to transfer skills learned during in-service training to the classroom. For example, research on employee training has demonstrated that interventions aimed at raising self-efficacy with regard to specific future behaviors significantly increased the likelihood individuals will exhibit those behaviors on the job (Eden & Kinnar, 1991). Research with teachers has shown that those high in teaching self-efficacy tend to explore more alternative methods of instruction, seek improved teaching methods, and experiment more extensively with instructional materials (Allinder, 1994).

Self-Efficacy and Stress Management

Research also suggests that self-efficacy beliefs can enhance a teacher's ability to respond effectively to stressful and challenging situations. For example, research has indicated that teachers with strong, positive efficacy beliefs about their teaching ability are more likely to take risks and use new techniques (Guskey, 1988; Stein & Wang, 1988), and to experiment and persist with challenging strategies that may have a positive effect on student achievement (Hani, Czerniak, & Lumpe, 1996; Ross, 1992). These findings are consistent with research that has

shown that individuals who have high, positive efficacy beliefs feel more challenged but less threatened by stressful conditions than those with low self-efficacy (Jerusalem & Mittag, 1995).

There are also indications that efficacy beliefs can influence how hard and how long an individual will persevere at a particular task, how resilient people will be when faced with obstacles, and the amount of stress or anxiety they will experience in a given situation (Pintrich & Schunk, 1995).

Self-Efficacy and Professional Development Effectiveness

There is evidence that self-efficacy beliefs can influence the extent to which a teacher in-service training program is ultimately effective in terms of the acquisition of knowledge and skills. For example, increases in self-efficacy have been linked to improved post-training performance for cognitive tasks and interpersonal skills (Gist, Bavetta, & Stevens, 1990), both critical factors in teacher effectiveness. Research has also shown that individuals with higher levels of self-efficacy perform better in training (Gist, 1986), and that pre-training interventions aimed at raising task-specific self-efficacy can significantly improve performance during training (Gist, Schwoerer, & Rosen, 1989). In addition, teachers high in self-efficacy have been found to exhibit higher levels of professional commitment (Coladarci, 1992), another factor suggesting there may be more motivation to attend, participate in, and learn in professional development activities.

Self-Efficacy and Teaching Effectiveness

A number of studies have demonstrated that teachers with high levels of self-efficacy regarding their ability to teach can produce superior student achievement across a range of academic subjects. For example, Ross, Hogaboam-Gray, and Hannay (2001) demonstrated that

students taking a computer skills course with a teacher who had high self-efficacy for computer skills instruction performed better academically than students with a teacher who had low self-efficacy for the same instruction. A study of middle school mathematics students found that students who had a teacher with low self-efficacy in the seventh grade performed at lower levels when compared to students in the same grade who had a teacher with high self-efficacy (Eccles, Midgley, Wigfield, Buchanan, Reuman, Flanagan, MacIver et al., 1993). High self-efficacy teachers are also more apt to produce better student outcomes because they are more persistent in helping students who are having difficulty (Podell & Soodak, 1993; Soodak, & Podell, 1993) and are less likely to be critical of students who make errors (Ashton & Webb, 1986). Teachers with strong self-efficacy beliefs have also been shown to be better organized, to engage in more effective planning (Allinder, 1994), and are more likely to set high performance standards for themselves as well for their students (Ross, 1992).

Finally, research suggests teacher self-efficacy has important implications for overall school effectiveness. Not only do teachers with high self-efficacy appear to be more prevalent in higher performing schools (Olivier, 2001), but there is evidence that teacher self-efficacy may be a key mediating factor between a school's climate and professional culture and its educational effectiveness (Bobbett, 2001; Tschannen-Moran, Hoy, & Hoy, 1998). This raises interesting questions about the possibility of important and substantial cross-level efficacy-performance relationships in which individual self-efficacy levels of teachers may both influence and be affected by the collective efficacy of departments or schools as a whole.

Professional Development

High-quality, sustained, professional development of teachers has been linked to high student academic achievement (Edmonds & Frederickson, 1979; Guskey & Passaro, 1994; Guskey & Sparks, 2002). Effective professional development for teachers fosters confidence and a belief that they will be successful in teaching and promotes collaboration within schools that provides a foundation for improved instructional practice leading to improved student outcomes.

Accountability systems typically strive for common outcomes (e.g., high performance of students on standardized tests). However, to achieve common outcomes, teachers must be able to employ multiple and diverse teaching strategies that accommodate the vast differences in students. Research has shown that teachers who have deep content knowledge possess the necessary background in a subject. Deep content knowledge allows a teacher to customize the delivery of that knowledge to meet the needs of students and improve their performance. Enhancing teachers' content knowledge and pedagogy associated with a particular field through quality-sustained professional development has been linked to improved student academic performance (Edmonds & Frederickson, 1979; Guskey & Passaro, 1994; Guskey & Sparks, 2002). Effective professional development for teachers not only fosters confidence and a belief that the teacher will be successful in teaching, but it also promotes a collaboration within schools, providing a foundation for improved instructional practice.

The National Awards Program for Model Professional Development identified eight schools in the first two years of the competitions for 1996-1997 and 1997-1998 as winners based

on improved student performance. USDOE subsequently commissioned a study of those schools to determine what factors lead to their success (WestEd, 2000). Findings include:

1. use of clear, agreed-upon student achievement goals to focus and shape teacher learning;
2. use of an expanded array of professional development opportunities;
3. embedded, ongoing, informal learning as part of the school culture;
4. development of a highly collaborative school environment where working together to solve problems and learn is part of the norm;
5. finding and use of time to allow for teacher learning to happen; and
6. on-going use of student performance data.

Researchers concluded that teachers wanted to understand their students and how the students learned, and were therefore willing to participate actively in inquiry, collaborative activities, and to accept responsibility for their own performance as well as the performance of their students (WestEd, 2000).

Leadership

School effectiveness is mediated by the quality of leadership. Strong school leadership that focuses on learning and guides curriculum and instruction modeled on effective teaching practices has been linked to high student academic achievement (Good & Brophy, 1986; Hallinger, 1992; Hallinger & Heck, 1996; Kaplan & Owings, 2000). School leadership that continually strives to improve instructional effectiveness and eliminates barriers to improved instruction is believed to permeate the classroom and thus improves academic instruction and the capacity of students to achieve.

Additionally, schools with experienced administrators have been linked to high student academic achievement (Eberts & Stone, 1988; Glasman, Glasman & Gonzalez, 2002; Heck & Hallinger, 1998). Schools with administrators who believe all children can learn, who provide instructional leadership via vision, mission, and goals create a shared responsibility for academic achievement. Finally, shared high expectations of teachers and administrators for student academic achievement have been linked to high student academic achievement (Ellett & Licata, 1997; Glasman, 1984; Heck, 1992; Hessel & Holloway, 2002; Levine & Lezotte 1995; Murphy, 1990).

School Culture

School culture has been shown to be a primary mediating factor in effective schools and a strong predictor of student achievement (Bobbett, 2001; Bruner & Greenlee, 2000; Corallo & McDonald, 2001; Zigarelli, 1996). Schools with a collaborative culture that is achievement-oriented, are where teachers share a common vision, mission, values, and core beliefs about teaching and learning. These researchers feel that a collaborative school culture carries the potential required to permeate the classroom and thereby improve academic instruction and the capacity of students to achieve. In addition, school cultures that promote high expectations of teachers and administrators have been linked to high student academic achievement (Ellett & Licata, 1997; Glasman, 1984; Heck, 1992; Hessel & Holloway, 2002 Levine & Lezotte 1995; Murphy, 1990).

School cultures that support high expectations through shared beliefs about student's abilities to learn, coupled with a shared belief that the school makes the difference between success and failure, improve academic instruction. Effective schools exhibit a school culture that

is collaborative, focused on instruction, and supportive of high expectations for both educators and students.

Studies have consistently shown that schools with collaborative school cultures, high expectations for students, uniform goals, a common vision, mission, and values have students with higher academic achievement (Bobbett, 2001; Bruner & Greenlee, 2000; Corallo & McDonald, 2001; Zigarelli, 1996). The implications for school culture on school effectiveness are tremendous. Since schools have been found to be resistant to change over time (Tyack & Cuban, 1995), it is important to examine the properties of school cultures and how they typically maintain the status quo.

School culture research, firmly rooted in organizational research, is conceptually a holistic approach to understanding action within schools. Edgar Schein (1992) defines culture as:

A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore to be taught to new members as the correct way to perceived, think and feel in relation to those problems. (p. 12)

This is an optimistic view that stresses the shared nature of culture; this view represents the current conception used in education administration. The model is divided into three basic levels founded on the ease of observation and their impact on an organization:

1. artifacts (what is observable);
2. espoused values (statements about the correct way to do something); and
3. basic assumptions (communally agreed upon guidelines for behavior).

A more complete explanation of the levels within the model of Figure 4 provides insight into the complexity of culture.

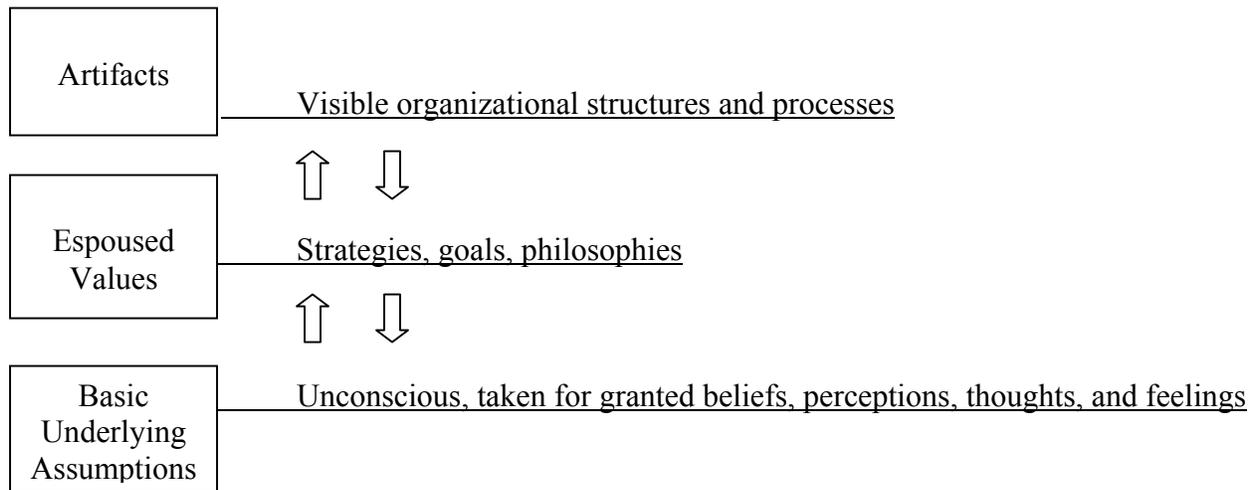


Figure 2.1

Schein's Levels of Culture

First, artifacts may be defined as those items considered observable about an organization, its language, and products. Second, espoused values may be defined as the statements that organizational members relate about how things are and how things should be done. Espoused values represent a deeper level than artifacts, and are subject to rational thought, because what is espoused may not be what is believed. Third, basic assumptions may be defined as deeply embedded beliefs that may be difficult to articulate. These three levels in totality provide strong communal guidelines for how members should behave in differing circumstances. Schein (p. 39) reasons that cultures may serve as collective defense mechanisms to help reduce anxiety and make sense of uncertain situations. If this is true, the capacity required for changing

cultures in schools during a period of high uncertainty is dependent upon a significant understanding of how cultures are constructed and how they may be changed.

Another important conception of culture reflects the interpersonal perceptions and interactions that comprise the values, norms, beliefs, and attitudes held by individuals within an organization (Cavanagh, 1997). This conception importantly relates to research that suggests that personal and group interactions, perceptions, and expectations are linked to student learning (Cavanagh, 1997). Traditionally, culture was viewed as an organizational attribute or behavior. The researcher's conception of culture as a combination of personal and collective elements is closely aligned with school effectiveness research. Effective school cultures reflect professionalism and, most importantly, that teacher and student interactions are formed to facilitate teaching and learning (Cavanagh, 1997; Dellar, Cavanagh & Ellet, 1998). The implications of this conception are important to school reform efforts. The professional culture of a school may provide practitioners and researchers with useful information in assessing the needs of a school, who may then model a possible means of meeting those needs.

Schools are typically open to incremental changes that do not affect deep-seated beliefs and attitudes associated with organizational culture (Wehlage, Smith, & Lipman, 1992). However, school reform, as presently practiced, requires transformational change that cannot be accomplished without addressing beliefs and assumptions held by the staff members of a school. Research indicates that the restructuring of schools without a fundamental change to the culture has little effect on student outcomes, because the restructuring is largely adaptive to ongoing practice and interpreted to fit existing assumptions (Fullen, 1993a; Wehlage et al., 1992).

School cultures are essentially divided between teachers/adult staff members and students, an inherently unequal power structure that in itself lends to conflict. The manner in which the adults overcome possible conflict establishes a culture that differs across schools, based on varying answers to fundamental questions concerning how a school operates:

1. How do teachers maintain control?
2. How much respect is given to students?
3. How much interaction should there be between staff and students?
4. How much collaboration among staff is accepted and expected?

Schools in inner cities that experience poor facilities, gang-related incidents, and a lack of parental involvement respond to the questions in markedly different ways than suburban schools with more affluent students.

Secondly, the manner in which schools approach academics and expectations for student performance provides yet another perspective on how conflicts are resolved within schools:

1. Are academics used to maintain order?
2. Are academics used to mask social problems within a school?
3. Are academics the sole focus of the school to the exclusion of all other aspects of schooling?

Expectations of students importantly sets standards in terms of behavior and academic achievement and defines how students are expected to act and perform in school (Teddlie & Stringfield, 1993).

Research suggests that schools that maintain professional cultures that value academic achievement and foster a common understanding of the instructional process collectively

increase teachers' sense of responsibility for student achievement (Louis, Kruse & Marks, 1996). A cautionary note in the effort to achieve collaborative cultures in schools is to avoid the error of superimposing a team-oriented structure without initially addressing teacher norms (Hargreaves, 1992). Contrived collegiality fails to fundamentally address collegial practices, such as the day-to-day instruction in schools that creates strong norms for teacher isolation and autonomy (Sergiovanni, 1992). Collegiality is not an abstract concept, but one that is grounded in common understandings, shared professional beliefs, attitudes, and sense of community based on a common educational heritage. Sergiovanni (1992) states:

professional socialization, purposing, and shared values, and collegiality and natural interdependence are unique in that they can solve the control paradox under loosely structured conditions by providing the kind of normative power needed to get people to meet commitments." The "power to" as opposed to the "power over" is descriptive of collegial cultures and depicts an acceptance of change based on accepted norms and sense of professional community (p. 96).

Poverty and School Effectiveness

School effectiveness is impacted most severely by the socio-economic conditions of students. Research over the last several decades has provided important information on the problems associated with poverty in schools and some possible remedies. This section examines the research on poverty and school effectiveness.

Poverty and Student Achievement

The poverty rate was found to be the most important predictor of academic success (Bobbett, 2001; Corallo & McDonald, 2001; Eisner, 2001; Fullan, Leithwood & Watson, 2003;

Nyhan & Alkadry, 1999). Eisner (2001), in her Great City Schools study, found that the greater the concentration of poverty in the school district, the lower the student achievement. Poverty is often a variable that is disproportionate among immigrant and minority students and is an indicator of inequity within the public school system. Schools with high levels of poverty are less likely to have the parental support, the necessary resources, and the qualified teaching staff necessary to produce high performance in students—all significant factors that need to be considered when planning for school improvement. Concurrently, research has consistently shown that children living in highly distressed neighborhoods are at high risk of failure in school (Jencks & Mayer, 1989; Koven, Muonz, & Clavino, 1999; Levine & Meyer, 1978).

The recent Census 2000 study by O'Hare & Mather (2003) focuses on the burgeoning numbers of children living in what are termed *highly distressed neighborhoods*. A highly distressed neighborhood is defined as a census tract that contains at least three of the four following characteristics:

1. high poverty rate (27.4 percent or more);
2. high percentage of female-headed families (37.1 percent or more); and
3. high percentage of high school dropouts (23.0 percent or more); and
4. high percentage of working-age males unattached to the labor force (34.0 percent or more).

The implications emanating from the extant research on poverty and student achievement, coupled with the growth in numbers of children living in highly distressed neighborhoods, remains ominous for those seeking to improve education. Research indicates a compounding effect among the criteria for meeting the highly distressed neighborhood classification. The

result reveals an environment that is worse than a single criterion might indicate (O'Hare & Mather, 2003). Among the 100 largest metropolitan areas, New Orleans presents the highest proportion of children living in highly distressed neighborhoods at 24 percent—outranking New York, Los Angeles, and Chicago. An equally alarming statistic reflects that 22 percent of the total population of children in Louisiana currently live in a severely distressed neighborhood (O'Hare & Mather, 2003).

Poverty and High Performance

Effective schools that are demographically disproportionate in the number of students with a poverty background have identified how to make schooling responsive to the needs of children from deprived circumstances. Studies have consistently demonstrated that there are a number of high poverty schools that are also high performing in varied locations across the country (Bobbett, 2001; Caplan, & Gal, 1996; Corallo & McDonald, 2001; Lee & Peng, 1993). The question is not if high performance is possible in high poverty schools, but how high poverty schools overcome obstacles. Essentially, the conversation on school effectiveness research may be distilled by making informed decisions relative to what is known about effective schools (e.g., collaborative school cultures, shared values and norms, teacher professionalism) and how to replicate the attributes of those schools in environments that are distinctly disadvantaged.

Although socioeconomic disparities profoundly influence student behaviors, attitudes, and academic achievement, successful improvement in those schools with a concentration of high poverty students may be attainable with focused intervention (Brandon, Carter, & Mandell, 2002). High poverty schools that have demonstrated high student academic achievement have common characteristics; these include: (a) strong school leadership, (b) collaborative school

cultures, (c) focused instructional programs, (d) strong home and community relations, and (e) equitable resources (Brandon et al., 2002; Caplan & Gal, 1996; Corallo & McDonald, 2001; Lee & Peng, 1993). Nyhan and Alkadry (1999), in their Florida study, found that poverty was the primary determinant of student achievement, yet those effects may be offset by smaller class size. Although no single characteristic accounts for successful school improvement, equity is a key concern associated with all of the fundamental decisions made relative to effective schools. Equity among schools should including: (a) restructuring, (b) funding, (c) staff assignments, and (d) capacity of building.

Poverty and Equity

Poverty in schools cannot be adequately evaluated without addressing issues of equity. Equity may be defined as fair and reasonable allocation of resources to schools in distressed neighborhoods as compared to schools in non-distressed neighborhoods. Although school effectiveness research has become firmly imbedded in the lexicon of educational improvement dialogue, a central challenge to the successful implementation of improvement strategies grounded in school effectiveness research is the failure to address rampant socioeconomic disparities that exist in American schools (Jamieson & Wikeley, 2000; Knapp & Wolverton, 1995).

Poverty and Resources

Equity continues to be a controversial issue in the governance of schools within severely distressed neighborhoods. Research has shown that African American children make up 55 percent of the 5.6 million children living in severely distressed neighborhoods, and that 28 percent of all black children live in a severely distressed neighborhood (O'Hare & Mather,

2003). Overcoming the obstacles associated with severely distressed neighborhoods and student achievement demands equity of resources that will allow for the adoption of school improvement models and strategies to address the unique needs of the at risk population.

Numerous studies have shown that children in high poverty schools are more likely to have teachers that are inexperienced and less qualified than teachers in more affluent schools; high poverty schools with inexperienced, less qualified teachers tend to encounter high teacher absenteeism and turnover (Corallo & McDonald, 2001; Ferguson, 1991; Zemelman, Daniels & Hyde; 1998). A key component in improving high poverty schools is the acquiring and retaining of experienced and well-qualified teachers, especially teachers with positive attitudes towards students (Knapp, 1996; Lee & Peng, 1993). Multiple studies have consistently linked teachers with successful teaching experience to high student academic achievement (Darling-Hammond, 1997, 2000; Stronge, 2002). Schools with staff who have substantial successful teaching experience provide structure and focused learning experiences for students and are more likely to hold high expectations for student learning that are rooted in personal self-efficacy judgments about their ability to teach effectively, especially in high stress environments associated with high poverty schools. Consequently, the implications for school effectiveness as it relates to teacher professionalism cannot be minimized.

Students in high poverty schools are more likely to attend schools that are in poor physical condition and that possess less equipment, materials, and supplies than in more affluent schools (Jamieson & Wikeley, 2000). Efficient and focused financial management at the state and local level of both state and federal funding can help to ensure parity of resources and delivery of goods and services that support school improvement. However, school level

decisions regarding specific funding (e.g., grants and outside fund raising) are often seen as necessary to targeted initiatives and expanded services associated with school improvement (Caplan & Gal, 1996). Finally, money does matter. Research has shown that increased resource allocation may have a significant positive effect on student achievement (Greenwald, Hedges & Laine, 1996; Jameison & Wikeley, 2000).

Poverty and School/District Size

Smaller seems to be better for students in poverty. Research has consistently shown student achievement for students in poverty to be higher in schools that are small in size; in many cases, student achievement for students in poverty in small schools was remarkably higher (Grissmer, 2000; Howley, 1996; Rural School and Community Trust, 2000; 2003). A recent study sponsored by the Rural School and Community Trust (2000) across the four states (Georgia, Ohio, Montana, and Texas) found that small schools cut poverty's power over achievement by 10 to 56 percentage points, depending on the state, grade level, and subject area tested and in some instances, brought it down to zero. The correlation between poverty and low achievement was found to be much stronger in the larger schools than in smaller ones in all four states. Additionally, the Rural School and Community Trust found in a 2003 study of small schools and school districts in Arkansas that small schools in small districts were more effective than small schools in large districts. The Rural School and Community Trust reports recommend that the less affluent the community, the smaller the schools should be (Rural and Community Trust, 2000, 2003).

Poverty and Parental Involvement

Students in high poverty schools experience less parental and community involvement than more affluent schools for a variety of reasons; these include: (a) language barriers, (b) lack of transportation, c) lack of parent education, and d) safety concerns (Franklin & Jones, 1997; Hood & Lovette 2002). Important to school improvement efforts was the link between parental involvement and high student academic achievement (Epstein, 1987; Griffith, 1996; Peterson, 1997). Students whose parents were involved in their schoolwork and who provided adequate structure and support were better prepared to learn. Producing reliable gains in student achievement required addressing parental and community issues, coupled with a movement away from categorical program structures that supported a status quo within the school (Goertz, Floden & O'Day, 1995; Hood & Lovette, 2002).

Poverty and Site Autonomy

High poverty schools need flexibility to make programming decisions that are site-specific and targeted to the individual needs of their student population. Top-down bureaucratic structures are often responsible for lack of flexibility and for lack of responsiveness to site based challenges that effectively constrain school improvement efforts. Schools now make comprehensive need assessments a part of their overall strategy to improve school effectiveness, especially in low performing schools that have a high percentage of students living in poverty. The value of those need assessments largely determines the quality and scope of the models that are employed. Therefore, it is important for schools to have measurement tools that are both valid and reliable upon which to base important decisions.

Although poverty is a key mediator in school effectiveness, this does not imply that school improvement is hopeless in schools with a high concentration of students from economically deprived circumstances. Research has shown that there are effective strategies to combat the effects of poverty on student achievement. Furthermore, it provides an opportunity for continued research on mediating factors other than poverty that may provide clarification and support for improving school effectiveness, regardless of socio-economic status of students.

Summary

Chapter Two presented an overview of the related literature and research that included multiple perspectives. These perspectives demonstrated that understanding school reform required knowledge of the history of American education, that schools are complex and dynamic social systems, that change is an on-going non-linear process, and that school improvement requires a synergistic process inclusive of theoretical, philosophical, and pragmatic approaches. Research focused on key elements of school effectiveness. The elements discussed were teacher quality, teacher self-efficacy, poverty, school culture, and leadership. Chapter Three will describe the exploratory, quantitative approach that will be used to examine the synergistic process described in Chapter Two.

CHAPTER THREE

RESEARCH METHODOLOGY

Chapter Three describes the exploratory quantitative approach that was utilized in this study. The research design, inclusive of sampling, instrumentation, data collection, and specific research procedures for each research question is provided.

Research Design Overview

The primary focus of this study was to assess the construct validity of the School Analysis Model (SAM) Instructional Staff Questionnaire. Construct validity refers to the degree to which a researcher can make legitimate inferences from the operationalizations in a study to the theoretical constructs upon which those operationalizations were made (Trochim, 2000). For the SAM Instructional Staff Questionnaire, this is important for several reasons. First, it has not been possible to obtain evidence of the latent factor structure of this key component of the School Analysis Model (SAM). Consequently, it is difficult to discern exactly what the instrument measures. Therefore, data collected with the questionnaire was factor analyzed to assess and identify the underlying factor structure of the instrument. Second, there is no evidence that the constructs measured by the SAM are associated with attributes of school performance. Therefore, further empirical analysis was done to determine if latent constructs contained within the SAM Instructional Staff Questionnaire accounted for a significant proportion of variance in school effectiveness beyond that accounted for by the control variables.

State investment in the development and implementation of the Louisiana School Analysis Model has been significant. However, the minimal evidence available to substantiate reliability and validity claims associated with the SAM Instructional Staff Questionnaire

contained within the School Analysis Model (SAM) necessitates an investigation of the psychometric properties of the instrument.

Construct Validation

The general principles of construct validity suggest that the validity argument will typically involve different kinds of evidence. For construct validity to be effective in improving a measurement procedure, it will identify the weak points in the interpretive argument. Construct validity is established through multiple sources of evidence (e.g., content, substantive, structural, external, generalizability, and consequential aspects) associated with the interpretive argument (Messick, 1989).

The literature on validity studies has grown in sophistication and scope over the past four decades. Cronbach and Meehl (1955) in their classic article, “Construct Validity in Psychological Tests,” discuss four types of validity studies: predictive, concurrent, content, and construct. It is one of the first discussions of construct validity, a type of research proposed by the APA Committee on Psychological Tests (1950-1955), to specify what qualities should be investigated before a test is published. They make important distinctions between the different types of validity and argue that construct validity “must be investigated whenever no criterion or universe of content is accepted as entirely adequate to define the quality to be measured” (Cronbach & Meehl, 1955).

Cronbach and Meehl (1955) described the relationships among the primary constructs and other constructs in the formulation of a theory. This set of relationships is considered a nomological network. In short, construct validity becomes critically important in the

development and use of measurement tools, because it is the fundamental means of assigning meaning to the scores obtained.

This study aimed to initiate the process of construct validation of the SAM Instructional Staff Questionnaire in two ways. First, factor analysis was used to identify the latent factor structure. Factor analysis is a multivariate statistical technique that is used to examine the inter-correlations among a large set of variables. It is a useful data reduction tool that can distill data into an economical description without loss of important information. Exploratory and confirmatory factor analysis are completely internally driven and do not, on their own, provide information about what exactly is being measured. They do provide the researcher with information relative to the dimensionality of a construct as guided by the theoretical definition (Benson, 1998). Essentially, factor analysis may reveal that some number of factors sufficiently explains the covariance among variables and thus aids in the interpretation of a score. Second, this study attempted to link the latent factors identified in the SAM Instructional Staff Questionnaire to key measures of school effectiveness (e.g., school performance scores, poverty and teacher quality) used by the Louisiana State Department of Education.

Sample

The sample of schools used in this study constituted the entire population of schools ($n = 294$) with a middle level grade component (grades 4 through 9) that submitted SAM Instructional Staff Questionnaire data to the Louisiana Department of Education. School level data was used to answer research questions two and three. Individual level data was used (teacher responses to the SAM questionnaire) in the factor analysis addressing research question one.

Instrumentation

The instrumentation used for this study was the Louisiana School Analysis Model 2000 (SAM) Instructional Staff Questionnaire. The SAM Instructional Staff Questionnaire, as a key component of the SAM model, provided decision makers with information on a school from the teachers' perspective. Specifically, it is a data collection instrument used for needs assessment purposes in school improvement activities. The SAM Instructional Staff Questionnaire was one of the minimum nine components required for the model to be considered adequate for a complete needs analysis of a school. Subsequent to the development of the model, the title of the instrument was changed to SAM (2000) Instructional Staff Questionnaire.

The SAM Instructional Staff Questionnaire (SISQ) is an instrument made up of 45 Likert-type items with the following response choices: 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree, and don't know. For the purposes of factor analysis, all *don't know* responses were deleted from the sample. A small amount of demographic information is also provided: total teaching experience, experience specific to present school assignment, formal education attained, and days absent annually for professional development.

The SISQ items were presumed to be linked to one of the six named domains referenced in the SAM User's Guide. The domains were: climate, culture, administrator leadership, curriculum and instruction, staff development, and parent and school relations. Although there is no domain titled system controls, there were two items that were assigned to this category, according to user notes in the SAM User's Guide. A school process construct diagram is provided in the SAM User's Guide; however, it does not define the constructs/domain being measured, and sparingly outlines dimensions or sub-constructs of the domain.

The following tables provide a breakdown of the items assigned to each category.

Unfortunately, no further information regarding the selection/inclusion of the conceptual frames used in the development of the SISQ is available (see Tables 3.1-3.7).

Table 3.1

SAM Instructional Staff Questionnaire Item/Category System Controls

SYSTEM CONTROLS

-
- | | |
|----|---|
| 29 | I understand most aspects of Louisiana’s School Accountability System that affect my school |
| 40 | I understand most aspects of Louisiana’s High Stakes Testing Policy that affect my students |
-

Table 3.2

SAM Instructional Staff Questionnaire Item/Category Climate

CLIMATE

-
- | | |
|----|--|
| 8 | Classroom rules are enforced fairly by most teachers |
| 9 | This school provides students with a safe learning environment |
| 17 | The classroom discipline policies at this school promote an effective learning environment |
| 24 | I feel safe at this school |
| 32 | Student fights are not frequent at school |
| 41 | I consistently enforce the discipline policy at this school |
-

Table 3.3

SAM Instructional Staff Questionnaire Item/Category Culture

CULTURE

10	Most students at this school will eventually graduate from high school
18	Students at this school can do better school work than other students.
25	The academic ability of students at this school is higher than that of other students.
33	Most students at this school can achieve at or about the level of other students in the nation.
34	Students at this school will attend some form of higher education after graduating from high school (college, junior college, technical school)
42	Students at this school can achieve at or above the level of other students in Louisiana

Table 3.4

SAM Instructional Staff Questionnaire Item/Category Parent and School Relations

PARENT AND SCHOOL RELATIONS

5	Most parents provide help to their child with his/her school work
14	Most parents at this school care about what grades their children earn
15	Most parents at this school express a belief that their child needs a good education for success as an adult
22	Most parents are involved in school-supported activities
30	Most parents want feedback from teachers about their child's grades and behavior at school
38	I recognize nearly all of my students' parents.

Table 3.5

SAM Instructional Staff Questionnaire Item/Category Curriculum and Instruction

CURRICULUM AND INSTRUCTION	
11	Students at this school are provided hands-on, activity-based instructional experiences
12	This school does a good job in teaching students to read well
19	Most of the teachers in our school encourage students to do extra work to improve their grades
20	This school does a good job teaching students science
27	This school does a good job teaching students to write well
35	Teachers use a variety of teaching strategies and learning activities to help their students learn
36	This school does a good job in teaching mathematics.
43	Students at this school are taught in ways that allow them to relate what they are studying to their everyday lives
44	This school does a good job teaching students social studies

Table 3.6

SAM Instructional Staff Questionnaire Item/Category Staff Development

STAFF DEVELOPMENT	
13	Most staff development activities enable us to improve classroom practices at this school
21	Staff development activities at this school are focused on instructional needs in the Classroom

Table 3.6 Continued

28	The staff development program at this school is evaluated regularly by the faculty
37	During the past two years, staff development activities have addressed areas that help students achieve
45	Staff development activities continue to focus on school improvement efforts as determined by school data

Table 3.7

SAM Instructional Staff Questionnaire Item/Category Administrator Leadership

ADMINISTRATOR LEADERSHIP	
6	Administrators encourage active faculty involvement in this school's improvement process
7	Teachers participate in developing this school's improvement activities.
16	Administrators are often seen throughout the school making informal contacts with students
23	Administrators emphasize faculty participation in decision-making activities at this school
31	Teachers participate in developing this school's policies
39	Administrators willingly provide assistance to improve my instructional practice

The Louisiana Department of Education has invested a significant amount of money on school improvement totaling millions of dollars. One of the primary and, in some cases, mandated means of self-evaluation for a school was the Louisiana School Analysis Model including the SAM Instructional Staff Questionnaire. The initial research procedure was to identify the latent factor structure of the SAM Instructional Staff Questionnaire in order to link

the structure to research-based educational components shown to have an impact on student achievement.

Conceptual /Operational Definitions

Conceptual and operational definitions of the dependent variable and independent variables in this study are presented in this section. The conceptual definition precedes discussion of the operational definition of the study variables.

Dependent Variable

School Effectiveness

For the purposes of this study school effectiveness is conceptually viewed as the holistic process of personal and organizational inputs that produce student achievement. Furthermore, school productivity is a function of the quality and quantity of outcomes valued by the school. In Louisiana school effectiveness is operationally identified by the School Performance Score (SPS). An individual school's School Performance Score was determined using a weighted composite index derived from four indicators: criterion-referenced tests (CRT), norm-referenced tests (NRT), and attendance rates for grades K-12, and dropout rates for grades 7-12. Schools with a K-9 grade structure followed K-8 Accountability Policy. K-8 Accountability Policy (Notice of Intent, August, 2001) uses the following indicators and weighting for calculation of an individual school's SPS. SPS INDEX

The SPS Index consists of the following data:

1. 60% LEAP21 (CRT) criterion referenced data,
2. 30% (NRT) norm referenced data,
3. 10% attendance for grade k-6 schools; 5% grades 7-8
4. 5% dropout rate, grades 7-8.

Each school receives one School Performance Score under one site code, regardless of its grade structure. SPS scores will be used as the dependent variable in this study. The scores were taken from the 2000-2001 Accountability Summary Report/Detailed School Table for All Schools published by the Louisiana Department of Education.

Independent Variables

This study examined the following independent variables: poverty, school size, and teacher quality. These variables were used as control variables in a hierarchical regression, so that the variance in school effectiveness (SPS scores) attributable to the latent SAM constructs might be distributed.

Poverty

For the purposes of this study, poverty was defined as the percentage of the total student population in a school eligible for Title 1 free and reduced price lunch services, as reported by the Louisiana Department of Education to the National Center on Education Statistics (NCES). Free and reduced lunch counts are used for Title I eligibility purposes as a risk indicator and are submitted to the Louisiana Department of Education as part of the Consolidated Application for Federal Funds on an annual basis. Title I, Part A provides revenue for programs to meet the needs of educationally and economically deprived children. These resources are intended to supplement rather than supplant activities for such children. Louisiana has a disproportionately high number of Title I eligible schools in comparison to the rest of the southeast region, with a preliminary total Title I allocation for the year 2003 of \$149,065,460.

School Size

For the purposes of this study, school size is defined as the total number of students enrolled in a school including both regular and special education students. School population counts are derived by the Louisiana Department of Education and published in the Annual Report for Student Enrollment, October 1, 2001. All counts are of public school students enrolled on October 1, as reported to the Student Information System (SIS) database each year by the city/parish school districts and other public local education agencies. The Louisiana Department of Education classifies schools into the following size categories; these same categories will be used as coding variables for school size in this study:

1. 1 = Small School: total student population of 300 or less.
2. 2 = Medium School: total student population of 301 to 600.
3. 3 = Large School: total student population of 601 or more.

Teacher Quality

For the purposes of this study, teacher quality is measured as the percentage of teachers in each school who are reported as deficient. Deficient teachers are those who are uncertified, teaching out of area, or teaching on a temporary certificate. Teacher quality data derived for this study was reported on the Annual School Report for each school that was submitted to the Louisiana Department of Education. SAM scores for all the teachers in a school will be summed and divided by the number of teachers responding to the SAM to produce the scale score.

Additional Independent Variables

Additional independent variables were the latent factors that emerged from a factor analysis of the SAM teacher questionnaire.

Data Collection

This study used extant data derived by the Louisiana Department of Education in the form of School Analysis Model (SAM) Instructional Staff Questionnaire response data, School Performance Scores (SPS), and Free Reduced Lunch counts (e.g., poverty measure) used for Title I eligibility purposes for all schools that contain a middle school grade component for the years 1999-2001, as well as teacher quality data from the Annual School Report for 2000-2001.

SAM Data

Collection of data for the School Analysis Model is typically done in the fall or spring semester as part of a District Assistance Team (DAT) needs assessment required of schools identified through the state accountability system as having failed to make their prescribed annual yearly progress (AYP). All public schools may voluntarily select to do a SAM, regardless of AYP status. The SDE maintains only quantitative data from the teacher and administrator questionnaires in its official databank for schools, all other data collected as part of a comprehensive SAM is housed and archived at the individual school level.

Procedures for SAM data collection were designed to ensure confidentiality for respondents and to increase the timeliness wherein data were reported back to the DAT members and the school improvement team. The DAT team leader submitted a request for scannable documents to the SDE, approximately two weeks in advance of a DAT visit. Questionnaires were anonymous and usually returned via a drop box at the school. Questionnaires were completed at school and collected by the DAT Team Leader, who then forwarded the scannable documents to Louisiana State University (LSU) for analysis. The quantitative data sent to LSU

was aggregated at the school-level and reported as frequency distributions and averages, and then forwarded to the school and SDE.

Data Analysis Procedures

The research questions in this study were examined using the Statistical Package in Social Science (SPSS) software. Summary descriptive statistics were computed for the demographic portions of the instrument as well as the dependent and independent variables examined in this study. Means, standard deviations, and ranges of scores on the factored subscales were reported for the total sample of schools.

Analysis: Research Question One

Research Question One

The first research question is “Will exploratory factor analysis of the SAM Instructional Staff Questionnaire (SAM) result in an interpretable factor structure?” The unit of analysis for this question was individual teacher responses to the SAM. Factor analysis provided researchers with information that helped answer a number of important questions:

1. How many different factors are needed to explain the pattern of relationships among the variables?
2. What is the nature of the factors?
3. How well do the hypothesized factors explain observed data?
4. How much unique variance does each observed variable include?

(Ferguson & Takane, 1989; Grimm & Yarnold, 1995).

Exploratory Factor Analysis

There are two basic types of factor analysis: exploratory and confirmatory analysis. Exploratory factor analysis (EFA) is usually employed in the initial development stage of an instrument when the researcher is trying to identify the latent factor structure of an instrument. Confirmatory factor analysis (CFA) is used to confirm the structure of an instrument previously developed. It was not possible to obtain evidence of the validity or reliability of the SAM Instructional Staff Questionnaire used in this study. Therefore, exploratory factor analysis was a necessary component in the determination of construct validity of the instrument.

This study conducted an exploratory factor analysis using principle axis factoring. The purpose of EFA was to uncover or reveal the underlying conceptual structure of a measurement instrument by examining the correlations between each variable in a data set with every other variable in the set. The choice of EFA over CFA was based on several key factors. First, since there was no existing evidence – either research or conceptual – that suggested an underlying structure to the data, it was reasonable to assume that the SAM was in the early stages of instrument development.

Exploratory factor analytic techniques (EFA) were considered more appropriate early in instrument and scale development, because unlike Principal Components Factor Analysis, the EFA displayed item cross-loadings on other factors (Kelloway, 1995) that allowed for a more complete evaluation of scale content and dimensionality. Second, EFA procedures were also seen as more appropriate when the purpose of the research was to identify latent factors rather than for pure prediction (Nunally & Bernstein, 1994). Third, CFA typically required a strong theoretical base, absent in this case, whereas EFA assumed no such presumption – even though

the data might be based on conceptual framework. Finally, some researchers suggested that the two techniques are best used in an ordered progression with the measurement models in CFA based on sound EFA results (Bentler & Chou, 1987).

Factor Analysis Decision Rules

Effective factor analysis is comprised of several important sequential steps including: data collection and generation of the correlation matrix, factor extraction, decision-making on factor retention and rotating factors to an interpretable, meaningful solution, and construction of scales or factor scores to use in further analyses (Coolidge, 2000; Ferguson & Takane, 1989; Grimm & Yarnold, 1995). For this study, multiple criteria was examined to determine the most appropriate number of latent factors to extract including: a common criterion with latent root (eigenvalue) greater than one (Gravetter & Walnau, 2000), scree plot, and percent of variance. Hair, Anderson, Tatham, and Black (1998) state, "... if the ultimate goal of a factor analysis is to obtain several theoretically meaningful factors or constructs, an oblique solution is appropriate" (p. 110). An oblique rotation method was employed, because it is the most appropriate for latent variable investigation when latent variables are expected to have some correlation and it identifies the extent to which each of the factors is correlated and is appropriate for the investigation of latent variables when latent variables may or may not be orthogonal (Hair et al., 1998). A factor pattern matrix was used to aid in interpreting the oblique rotation. The matrix has loadings that represent the unique contribution of each variable to the factor. Factor loading is the correlation of the variable and the factor, the squared loading is the amount of the variable's total variance accounted for by the factor. A cutoff of .40 was used to determine the number of items to retain in a specific factor (Nunnally, 1978).

Kaiser's measure of sampling adequacy (MSA) was used to determine the factorability of the dataset. MSA is an index with a range of 0 to 1. One indicates perfect prediction of each variable without error by the other variables. Hair et al. (1998) suggests MSA scores of .80 or above is meritorious for the data set as a whole. MSA scores for individual items should also be examined. Hair et al. (1998), suggest deleting items .50 or less. For the purposes of this study, MSA of .50 or less were deleted.

Sample Size Requirements

Sample size requirements are also a key consideration in factor analysis. Some authors suggest examining item-to-respondent ratios. For example, Hair et al. (1998) suggest a general rule of a minimum of at least 5 times as many observations as there are variables to be analyzed with a more acceptable size of a ten-to-one ratio. Others offer guidance based on total sample size. Comrey and Lee (1992), for example, suggest the following guidelines: 50 as very poor, 100 as poor, 200 as fair, 300 as very good, and 1000 as excellent. In this study, a very large sample of SAM responses, were available for analysis ($n = 18,585$). Since this number far exceeds both the item-to-respondent and sample size guidelines noted above, and to reduce the sheer bulk of data involved this study selected for factor analysis a random sample of 2000 responses from the 1999-2001 SAM data for this factor analysis.

Analysis: Research Question Two

Research Question Two

The second research question is "To what extent are scores on the latent factors measured by the SAM Instructional Staff Questionnaire associated with the study control variables?" Schools were the unit of analysis for this question as for question 3. Pearson's correlation

coefficient was used to examine the association between the latent constructs identified in the SAM and poverty, teacher quality, school size, and SPS scores. Pearson's r measures the degree and direction of linear relationships between two variables.

Analysis: Research Question Three

Research Question Three

The third research question is “Do the latent factors measured by the SAM Instructional Staff Questionnaire, account for a significant proportion of variance in school effectiveness beyond that accounted for by the control variables (poverty, teacher quality, and school size)?”

Hierarchical Multiple Regression

Hierarchical multiple regression analysis was used to answer this question. Hierarchical regression allows the researcher to choose the entry order of predictor variables into the regression analysis, and to parcel out the variance explained by individual or groups of variables. The order of entry of variables was typically dictated by the logical or theoretical foundation of a study (Coolidge, 2000). For this study, the independent variables were entered according to their relative importance as predictors of school effectiveness (from most important to least important): a) poverty, b) teacher quality, and c) school size. The latent variables identified in the SAM were entered last, to assess the extent to which these factors may account for variance in SPS scores beyond that accounted by the control variables.

Sample size requirements for regression analysis suggested that the ratio of total number of participants to independent variables should be at least 5:1 (Hair et al., 1998). With 297 schools in the sample, the dataset available for this study meets this threshold.

Multicollinearity

Multiple regression analysis was greatly affected by the degree to which predictor variables correlated with one another. In general, the greater the multicollinearity, the more problems that existed in terms of statistical inference, prediction and theoretical interpretation (Bates, 1997; Coolidge, 2000). “Multicollinearity indicates a larger portion of shared variance and lower levels of unique variance” (Bates, 1997).

Assessment of multicollinearity in the present study followed the methodology developed by Belsley, Kuh and Welsch (1980). The assessment process consisted of: (a) examining the condition index that represents the co-linearity combinations of the predictor variables; and (b) the regression coefficient variance decomposition matrix that described the proportion of variance for each regression coefficient attributable to each condition index. “A condition index greater than 15 indicates a possible problem and an index greater than 30 suggest a serious problem with co-linearity” (SPSS, Base 10.0, p. 230, 1999).

Multicollinearity Assessment Rules

Multicollinearity was assessed using a threshold index of 30. Additionally, the regression coefficient variance-decomposition matrix that described the proportion of the variance (.90 or greater) for two or more coefficients was used. Variables that exhibited a condition index greater than 30 and that account for .90 or greater of the variance between two or more coefficients were considered to exhibit multicollinearity.

Summary

The study provides important information relative to exactly what was measured by the SAM Instructional Staff Questionnaire. Furthermore, this study allows the researcher to make

informed decisions as to how the School Analysis Model may be improved. Finally, this study allows the researcher to suggest how SAM data may be used for future school improvement activities. An explanation of the results of the statistical analyses is provided in Chapter Four. Based partly on answers to these research questions and partly on the research presented in the literature review presented in Chapter Two, an assessment of the extent to which the SAM Instructional Staff Questionnaire measures important school effectiveness constructs is presented in Chapter Five.

CHAPTER FOUR

QUANTITATIVE RESULTS

Chapter four presents the results of the quantitative study. Presented are the following:

1. descriptive statistics for the sample,
2. factor analyses for the *Louisiana School Analysis Model (SAM) Instructional Staff Questionnaire (SISQ)*,
3. intercorrelations of the SISQ measure,
4. reliability analyses,
5. correlation analyses, and
6. hierarchical multiple regression analysis.

The independent variables included student poverty, teacher quality, and eight scales of the factor analyzed SISQ. Scales for the SISQ identified through the exploratory factor analysis were labeled: teacher participation in school decision-making, teacher involvement in school improvement activities, teacher perceptions of student ability, parent concern about child achievement, school teaching effectiveness, school safety, effectiveness of staff development activities, and instructional effectiveness. The School Performance Score (SPSs) was used as the dependent variable.

Descriptive Statistics

Demographic information for respondents is provided in Tables 4.1–4.4 and includes total teaching experience, tenure (teaching experience) at present school, education, and staff development related absenteeism. Data (n=2000) includes frequencies for individual middle school teacher responses and total valid percent of respondents per response.

Table 4.1

Profile of Teacher Sample – Louisiana Middle School Teachers Teaching Experience
(n=2000 teachers)

Characteristic	Frequency ^a	Percent
1 This is my first year	138	7.1
2 2-4 years	352	18.0
3 5-9 years	373	19.1
4 10 years or more	1089	55.8
Total	1952	100

Note. The percentage values represented do not include missing data.

^aNumber of teachers out of 2000 in each group who completed the item.

Table 4.2

Profile of Teacher Sample – Teaching Experience at Present School (n=2000 teachers)

Characteristic	Frequency ^a	Percent
1 This is my first year	396	20.3
2 2-4 years	538	27.7
3 5-9 years	391	20.0
4 10 years or more	621	32.0
Total	1946	100

Note. The percentage values represented do not include missing data.

^aNumber of teachers out of 2000 in each group who completed the item.

Table 4.3

Profile of Teacher Sample – Louisiana Middle School Teachers Highest Education Level Attained (n=2000 teachers)

Characteristic	Frequency ^a	Percent
1 Less than bachelor's degree	136	7.1
2 Bachelor's degree	1220	63.2
3 Master's Degree	342	17.7
4 Master's Degree +30	210	10.9
5 Educational Specialist Degree	14	.7
6 Doctorate	8	.4
Total	1720	100

Note. The percentage values represented do not include missing data.

^aNumber of teachers out of 2000 in each group who completed the item.

Table 4.4

Profile of Teacher Sample – Louisiana Middle School Teachers Days Absent for Professional Development (n=2000 teachers)

Characteristic	Frequency ^a	Percent
1 0 days	1340	71.0
2 1 or 2 days	350	18.5
3 3 or 4 days	119	6.3
4 5 or 6 days	33	1.8
5 7 or 8 days	21	1.1
6 9 or more days	25	1.3
Total	1888	100

Note. The percentage values represented do not include missing data.

^aNumber of teachers out of 2000 in each group who completed the item.

A slight majority of the respondents 55.8% have been teaching 10 or more years. A smaller portion of teachers, 32.0% have been teaching at their present school for ten or more years. Teacher's missing school for professional development purposes is limited with 89.5% of teachers missing two or less classroom instruction days for this purpose. Education levels vary with the majority of teachers: 92.9% holding at least a bachelors degree and 17.7% holding a masters degree. Slightly more than seven percent of teachers hold less than a bachelors degree. Demographic information is extremely limited for school improvement purposes indicating the need to refine this portion of the SISQ.

Results of the Factor Analyses

RQ₁: Will exploratory factor analysis of the SAM result in an interpretable factor structure?

Initial screening of the data to determine the factorability of the data set was conducted. The Kaiser-Meyer-Olkin measure of sampling adequacy (MSA) quantifies the level of intercorrelations among variables and provides information about the factorability of the dataset. Individual MSA and overall MSA for the dataset were examined. Initial examination of MSA values for individual items revealed several values that fell below the .50 cut off point established for this study. Since the deletion of one item can affect the MSA values of other items (as well as the overall MSA value) the deletion of these items proceeded one at a time starting with the lowest individual MSA value. The lowest individual MSA of .20 for item 41 was deleted (see Appendix A). Deletion of item 41 raised the overall MSA from .61 to .71. The second lowest individual MSA of .42 for item 38 was deleted. Deletion of item 38 raised the overall

MSA from .71 to .72. Finally, item number 9 with an individual MSA of .48 was deleted. The final MSA for the dataset is .72. Although, Hair et al. (1998) suggest .80 or above as meritorious for the data set as a whole, .72 fell within the acceptable range and therefore, the dataset was considered acceptable for factor analysis.

Exploratory factor analyses were conducted to identify the existence of latent constructs in the SAM. A random sample of responses from 2000 teachers was taken from the original 1999-2002 sample of 5753. Principal axis factoring (common factor analysis) and direct oblimin (oblique) rotation was used. Rules for item retention established were (a) a minimum factor loading equal to or greater than .40, and (b) no cross loadings greater than .30.

Initial Solution

Factor analyses began on the SISQ with an unconstrained solution resulting in a twelve-factor structure with 26 items that met the factor retention rules set for this study. An unconstrained solution was the first step in determining a viable latent factor solution capable of meeting the studies decision rules for factor analysis. The twelve-factor solution accounted for 66.7% of the total variance. Careful examination of the factors revealed a variety of problems with the initial solution. First, two of the scales contained a single item. Single item scales constitute a less reliable test of the construct of interest than do multi-item scales. In addition, reliability estimates cannot be calculated for single item scales. Second, seven of the scales contained two items. Several of the two item scales contained items that were in large part conceptually inconsistent. For example, scale five consists of two items with seemingly unrelated content. Scale five,

item 8 states: classroom rules are enforced fairly by most teachers and scale five item 29 states: I understand most aspects of Louisiana's school accountability system that affect my school. Due to the small number of items in most of the factors, single item scales, and conceptual issues with other scales it was decided the unconstrained twelve-factor solution was not the best representation of the data.

Constrained Solutions

Examination of the unconstrained twelve-factor solution, the scree plot, the percent of variance explained and the eigen values resulted in the decision to force several solutions to assist in the identification of the factor structure that best represented the data. The data were forced into an 11, 10, 9, 8, and 7-factor solutions. The results of these different solutions were evaluated and compared to determine which one best represented the data. The following section describes the decision-making process for rejection of factor solutions below the twelve-factor solution, and acceptance of the eight-factor solution as the best representation of the data.

Eleven and Ten Factor Solution

The 11 and 10 factor solutions exhibited many of the same problems associated with the twelve-factor solution. The 11 factor solution produced 27 items that met the criteria for retention established for this study and accounted for 64.09% of the total variance explained. The 11 factor solution produced three single item scales and three two item scales. In addition, several scales contained items that were not conceptually cohesive. For example, scale seven, item 45 states: staff development activities continue

to focus on school improvement efforts as determined by school data; item 43 states: Students at this school are taught in ways that allow them to relate what they are studying to their everyday lives; and item 42 states: students at this school can achieve at or above the level of other students in Louisiana. Again, problems with single item scales and conceptual consistency among scale items led to the exploration of other latent factor structures that might better represent the data.

The 10 factor solution did not improve upon the eleven-factor solution appreciably. The 11 factor solution produced 27 items that met the criteria for retention established for this study and accounted for 61.05% of the total variance explained. Three of the scales contained a single item and two of the scales had two items. Additionally, the conceptually inconsistent scale that emerged in the 11 factor solution again emerged. Finally, item 21 loaded on factor one at .43 and on factor seven at .49. Because of the single item scales, the lack of conceptual cohesion, and the cross-loading issue it was decided the ten and eleven-factor solution was not the best representation of the data.

Nine-Factor Solution

The nine-factor solution produced 27 items that met the criteria for retention established for this study. The nine-factor solution accounted for 57.76% of the total variance explained. This solution eliminated the single item scales. However, cross-loadings were a significant issue for the nine-factor solution. Three items cross-loaded: item 22 loaded on factor one at .39 and factor four at .40, item 21 loaded on factor one at .39 and on factor seven at .57, item 44 loaded on factor five at .42 and on factor eight at

.57 (see Table 4.10). In addition, reliability estimates for two scales were quite low: scale 5, (.26), and scale 9, (.36).

Careful examination of the scales revealed scale five to be somewhat problematic conceptually. For example, item 42 states: students at this school can achieve at or above the level of other students in Louisiana, item 40 states: I understand most aspects of Louisiana's high stakes testing policy that affect my students. It is unclear what this scale is measuring. Due to the small number of items in several factors, the lack of conceptual cohesion of factor five, low reliability estimates for scales 5 and 9, and the cross-loading issues it was decided the nine-factor solution may not be the best representation of the data. Additional latent structures were explored.

Eight-Factor Solution

Table 4.5 shows the factor pattern structure for the eight-factor solution for the SISQ. The eight-factor solution retained 27 items based on the factor retention rules for this study, and accounted for 54.32% of the variance. Eighteen items failed to meet the minimum criteria for retention. The eight-factor solution somewhat reduced the cross-loading problem evident in the nine factor solution with item 22 loaded on factor one at .43 and factor four at .38, item 42 loaded on factor three at .32 and factor five at .58, item 44 loaded on factor five at .58 and factor eight at .38, and item 21 loaded on factor one at .39 and factor seven at .59 (see Table 4.5). Although reliability estimates were marginally improved, two scales had alpha coefficients below .60: scale 5 at .45 and scale 6 at .53.

Seven-Factor Solution

In an effort to further improve the solution, a seven-factor solution was explored. However, the seven-factor solution did not provide any significant improvement over the eight-factor solution, and in some respects diminished the interpretability of the latent structure. For example, factor 1 (teacher participation in decision-making) on the eight-factor solution disappears. The loss of the teacher participation in decision-making scale in conjunction with the cross loading issues and the failure of the other factors to increase items per scale contributed to the belief that a seven-factor solution is not the best representation of the data.

Although scale five was conceptually mixed to some extent, the improvement in the number of items retained in the eight-factor solution, the improvement in the number of items retained per scale, the diminished number of cross-loadings, the overall acceptable scale reliability coefficients, and overall conceptual cohesion of the majority of factors all contributed to the eight-factor solution being chosen as the best representation of the data. Table 4.5 shows the factor pattern structure for the eight-factor solution for the SISQ. All 28 items retained had factor loadings greater than .40 ranging from -.80 to .72. Table 4.6 shows the descriptive statistics for the eight-factor solution for the SISQ.

The eight factors that were identified included: Factor 1, teacher participation in school decision-making. This scale contained four items and reflected the extent to which teachers felt they were able to actively participate in decisions affecting school functioning. Factor 2, teacher involvement in school improvement activities, reflected

Table 4.5

Factor Loadings for the Eight-Factor Oblique Solution for the SAM School Analysis
Instructional Staff Questionnaire (SISQ)

SISQ Item Number	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Reliability Estimates	.75	.74	.76	.71	.45	.53	.66	.67
31	.56	.00	.00	.00	.00	-.29	.13	.16
23	.56	.00	.00	.00	.00	-.17	.11	.15
16	.43	-.13	.00	.00	.00	.00	.10	.00
22	.43	-.16	.24	.38	.14	.00	-.26	-.24
7	.00	-.80	.00	.00	.00	-.12	.00	-.19
6	.11	-.75	.00	-.16	.00	.00	.00	.00
25	.00	.00	.71	.00	.00	.00	.00	-.10
18	.00	.00	.70	.00	.00	.00	.00	.00
33	.00	.00	.58	-.12	.10	-.28	.00	.14
34	.00	.27	.56	.19	.00	.00	.00	.00
14	-.13	.00	.00	.72	.00	-.12	.00	.00
30	.00	.00	.00	.58	.00	.00	.00	.00
15	.00	.00	.00	.49	.15	.00	.00	.12
10	.00	.00	.17	.41	-.10	.12	.00	.00
42	-.15	.00	.32	.00	.58	.00	.17	-.16
44	.00	.00	.00	.00	.54	.00	-.11	.39
40	.00	.00	.00	.00	.46	.00	.00	.00
24	.00	.00	.00	.00	.00	-.71	.00	.00
32	.00	.00	.00	.00	.00	-.60	-.11	-.11
37	.00	.00	.21	.00	-.26	-.12	.61	.00
21	.39	-.16	.00	.00	.00	.00	.59	.00
13	.23	-.11	.00	.00	.00	.00	.57	.00
45	.00	.00	.00	.00	.35	.00	.43	.17
36	.00	.00	.00	.12	.00	-.11	.00	.61
35	.00	.00	.00	.00	-.16	.00	.27	.52
27	.19	.17	.00	.11	.17	.00	.00	.51
26	.15	-.13	.26	.00	.00	.00	.00	.43
Average Loading	.49	-.77	.63	.55	.52	-.65	.55	.51
Eigenvalues	7.4	2.6	2.1	2.0	1.7	1.6	1.5	1.3

the extent to which teachers felt they were able to actively participate in school improvement activities. Factor 3, teacher perceptions of student ability, reflected the extent to which teachers felt students were capable of learning. Factor 4, parent concern about child achievement, reflected the extent to which teachers felt parents cared about student learning. Factor 5, school teaching effectiveness, reflected the extent to which teachers felt state and district policy affected student learning as well as how well their school did in teaching specific subjects: social studies and science, and how their students achievement ability compared in relation to other students in Louisiana. Factor 6, school safety, reflected the extent to which teachers felt safety was a concern at their school. Factor 7, effectiveness of staff development activities, reflected the extent to which teachers felt professional development activities focused on school improvement, and their improvement in the classroom. Factor 8, instructional effectiveness, reflected the extent to which teachers felt instruction strategies and learning activities promoted student learning as well as holistic judgments about the effective teaching of specific subjects: mathematics and writing (see Table 4.7).

Table 4.6

Descriptive Statistics for the SAM Instructional Staff Questionnaire eight-factor solution

	N	Mean	Std. Deviation
Teacher Participation in School Decision Making	120	3.17	.49
Teacher Involvement in School Improvement Activities	116	2.86	.73
Teacher Perceptions of Student Ability	121	2.83	.51
Parental Concern About Child Achievement	120	3.26	.54
School Teaching Effectiveness	120	3.37	.41
School Safety	118	3.81	.45
Effectiveness of Staff Development Activities	120	3.41	.41
Instructional Effectiveness	119	3.46	.38

Table 4.7

SAM Instructional Staff Questionnaire Item Distribution for the Eight-Factor Solution

<u>FACTOR 1</u> <u>Teacher Participation in</u> <u>School Decision Making</u>		<u>FACTOR 2</u> <u>Teacher Involvement in</u> <u>School Improvement</u> <u>Activities</u>		<u>FACTOR 3</u> <u>Teacher Perceptions of Student</u> <u>Ability</u>		<u>FACTOR 4</u> <u>Parental Concern About</u> <u>Child Achievement</u>	
31	Teachers participate in developing this school's policies	7	Teachers participate in developing this school's improvement activities	25	The academic ability of students at this school is higher than that of other students	14	Most parents at this school care about what grades their children earn
23	Administrators emphasize faculty participation in decision-making activities at this school	6	Administrators encourage active faculty involvement in this school's improvement process	18	Students at this school can do better school work than other students	30	Most parents want feedback from teachers about their child's grades and behavior at school
16	Administrators are often seen throughout the school making informal contacts with students			33	Most students at this school can achieve at or about the level of other students in the nation	15	Most parents at this school express a belief that their child needs a good education for success as an adult
28	The staff development program at this school is evaluated regularly by the faculty			34	Students at this school will attend some form of higher education after graduating from high school (college, junior college, technical school)	10	Most students at this school will eventually graduate from high school

Table 4.7 Continued

<u>FACTOR 5</u> <u>School Teaching Effectiveness</u>		<u>FACTOR 6</u> <u>School Safety</u>		<u>FACTOR 7</u> <u>Effectiveness of Staff Development Activities</u>		<u>FACTOR 8</u> <u>Instructional Effectiveness</u>	
44	This school does a good job teaching students social studies	24	I feel safe at this school	37	During the past two years, staff development activities have addressed areas that help students achieve	36	This school does a good job in teaching mathematics
42	Students at this school can achieve at or above the level of other students in Louisiana	32	Student fights are not frequent at school	13	Most staff development activities enable us to improve classroom practices at this school	35	Teachers use a variety of teaching strategies and learning activities to help their students learn
40	I understand most aspects of Louisiana's High Stakes Testing Policy that affect my students			45	Staff development activities continue to focus on school improvement efforts as determined by school data	27	This school does a good job teaching students to write well
20	This school does a good job teaching students science			39	Administrators willingly provide assistance to improve my instructional practice	26	Students are assessed in a variety of ways at this school, which gives them opportunities to demonstrate what they know

Results of the Correlation Analyses

RQ₂: To what extent are the scores on the latent factors measured by the SAM Instructional Staff Questionnaire (SISQ) associated with the control variables: poverty, teacher quality, and school size?

Items on the SISQ were rated by teachers using a four point Likert-type scale with values that ranged from 1= “Strongly Disagree” to 4= “Strongly Agree.” Mean scores for the items on the SISQ, range from a low of 1.47 to a high of 3.78 with standard deviations ranging from .58 to 1.14. Item means and standard deviations are presented in Appendix B.

Correlation analyses were conducted to assess the relationship among the variables examined in this study. Pearson correlation coefficients were computed using schools as the unit of analysis. Schools were used as the unit of analysis for the purpose of answering the research questions in this portion of the study. School level data provides a meaningful basis for interpreting the overall/school level teacher perceptions contained on the latent factors within the SISQ. SISQ scores for all the teachers in a school were summed and divided by the number of teachers responding to the SISQ to produce the scale score. Table 4.8 presents the summary of the correlation coefficients. The magnitude of the intercorrelations for study variables ranged from $-.19$ to $.64$.

School Performance Scores (SPS)

SPS scores were positively related to teacher participation in decision-making ($r = .30, p < .05$), teacher perceptions of student ability ($r = .31, p < .05$), parental concern about child achievement ($r = .34, p < .05$), and instructional effectiveness ($r = .30, p <$

.05). SPS scores were negatively related to poverty ($r = -.64, p < .05$), and school size (school size $r = -.35, p < .05$).

Poverty

Poverty scores were positively related to teacher quality deficiencies ($r = -.24, p < .05$). Poverty scores were negatively related to teacher perceptions of student ability ($r = -.19, p < .05$), parental concern about child achievement ($r = -.28, p < .05$), and school teaching effectiveness ($r = -.20, p < .05$).

Size of School

School size scores was negatively related to teacher participation in decision-making ($r = -.25, p < .05$) and showed no other correlations.

Teacher Participation in School Decision Making

Teacher participation in decision-making scores was positively related to parental concern about child achievement ($r = .44, p < .05$), effectiveness of staff development ($r = .36, p < .05$), and instructional effectiveness ($r = .42, p < .05$). Teacher participation in school decision-making scores was negatively related to teacher involvement in school improvement activities ($r = -.29, p < .05$), and teacher perception of student ability ($r = -.20, p < .05$).

Teachers Perceptions of Student Ability

Teacher perception of student ability scores, were positively related to effectiveness of staff development activities ($r = .22, p < .05$).

Table 4.8
Summary of the Pearson Correlation Coefficients for the SAM School Analysis Instructional Staff Questionnaire (SISQ) scales and the control variables

	1	2	3	4	5	6	7	8	9	10	11	12
1 SPS												
2 Poverty	-.64**											
3 Teacher Quality Deficiencies	-.17	.24**										
4 Size of School	-.35**	-.04	-.15									
5 Teacher Participation in School Decision Making	.30**	-.05	.04	-.25**								
6 Teacher Involvement in School Improvement Activities	-.06	.01	-.05	.10	-.29**							
7 Teacher Perceptions of Student Ability	.31**	-.19**	-.05	-.09	.20*	-.13						
8 Parental Concern About Child Achievement	.34**	-.28**	-.02	-.01	.44**	-.13	.41**					
9 School Teaching Effectiveness	.32**	-.20*	-.06	.02	.00	-.04	.09	.21*				
10 School Safety	-.04	.12	-.04	-.14	.02	-.02	-.03	.11	-.05			
11 Effectiveness of Staff Development Activities	.13	-.002	.15	-.08	.36**	-.13	.22*	.26**	.32**	.13		
12 Instructional Effectiveness	.30**	-.17	-.06	-.11	.42**	-.09	.10	.38**	.29**	.02	.34**	

** Correlation is significant at the 0.01 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Parental Concern About Child Achievement

Parental engagement scores were positively related to school teaching effectiveness ($r = .44, p < .05$), effectiveness of staff development activities ($r = .26, p < .05$), and instructional effectiveness ($r = .38, p < .05$).

School Teaching Effectiveness

School teaching effectiveness scores were positively related to SPS ($r = .32, p < .05$), and instructional effectiveness ($r = .29, p < .05$).

Effectiveness of Staff Development Activities

Effectiveness of staff development activities scores, were positively related to instructional effectiveness ($r = .34, p < .05$).

Summary of Correlation Analysis

Although, the correlations were low to moderate, several noteworthy relationships emerged. For example, school safety did not show a significant association with any of the other variables. This is interesting given the research suggesting school safety is an important part of school effectiveness. School safety is a dimension of school climate and directly affects the school learning environment and it is a variable also closely associated with school culture.

In addition, the results of the correlation analysis were generally in line with the relationships suggested by earlier school improvement research. For example, the correlation analysis for this study affirms prior research that suggests there is a negative

relationship between poverty and school performance as well as a negative relationship between poverty and teacher quality deficiencies. This study affirms prior research that suggests there is a negative relationship between the school performance and parental concern about child achievement as well as school performance and size of school. In addition, several interesting relationships not clearly present in earlier research emerged. For example, a significant negative relationship was found to exist between teacher participation in decision-making and size of school ($r = -.25, p < .05$), and a significant negative relationship was found to exist between teacher participation in decision-making and teacher perceptions of student ability ($r = -.20, p < .05$). In the most recent edition of *The Handbook on Education Leadership* (1999), there is no reference to a link between these variables, although there are several lengthy articles on teacher decision-making, school size and teacher perceptions of student ability in relation to student achievement and other variables.

Results of the Regression Analyses

RQ₃: Do the latent factors measured by the SAM Instructional Staff Questionnaire (SISQ), account for a significant proportion of variance in school effectiveness as measured by the school SPS scores beyond that accounted for by the control variables?

The rationale for this question was the expectation that valid SISQ scales, if they are to be used as part of a program of school improvement, should be able to account for some significant level of variance in SPS scores.

In order to determine whether a combination of the latent factors account for a

significant proportion of variance in school effectiveness as measured by the school SPS hierarchical multiple regression analysis was completed using schools as the unit of analysis ($n=120$).

Diagnostic Analysis

Regression analysis in this study was used to test the ability of a number of independent variables (e.g., latent factors on the SISQ, teacher participation in school decision-making, teacher involvement in school improvement activities, teacher perceptions of student ability, parent concern about child achievement, policy and instruction, school safety, effectiveness of staff development activities and instructional effectiveness) to explain the variance in a single dependent variable (e.g., School Performance Scores). Four basic assumptions need to be addressed in multiple regression (a) linearity of the relationship between the dependent and independent variable(s); (b) constant variance of the error terms (homoscedasticity); (c) normality of the error term distribution; and (d) the independence of the residuals (Hair et al., 1995). The data in this study were examined to assess the extent to which the assumptions were met. The assumption was examined using plots of studentized residuals against the predicted dependent variable values (see Appendix C). Comparison of the studentized residual plots with a null plot show a consistent pattern (e.g., increasing or decreasing residuals) if variance is not common (Bates, Holton & Burnett, 1999).

The assumption of equal variance or homoscedasticity of the dependent variable across the range of independent variables is desirable in multiple regression analysis because the variance of the dependent variable being explained should not be restricted to a limited range of independent values (Hair et al., 1995). The assumption was examined

using plots of studentized residuals against the predicted dependent variable values (see Appendix C) Comparison of the studentized residual plots with a null plot would show a consistent pattern (e.g., increasing or decreasing residuals) if variance is not common (Bates, 1997). No consistent pattern emerged indicating that the equal variance assumption was not violated.

The assumption of normality of the error term distribution was examined using a normal probability plot (see Appendix C) that compared studentized residuals to the normal distribution. The residuals fell along the diagonal with no systematic or substantial departures indicating that the assumption of the normality of the error term distribution was not violated.

The assumption of independence of the observations requires that each predicted value be independent of the other predicted values. When the predicted values are not independent, the result is a carry-over effect from one observation to another (e.g. the residuals are not independent). The assumption of independence was examined using the residual plots. The plots indicated a random and inconsistent display of the data indicating that the assumption of independence of the observations was not violated. Examination of the data using multiple means to assess the basic assumptions indicates that violations of the basic assumptions of the multiple regression analysis did not occur. It is important to satisfy the basic assumptions to ensure that the research findings are representative of the sample and the best results possible have been obtained (Hair et al, 1995).

Multicollinearity

Multicollinearity of the present data was assessed using the approach suggested by Belsley et al. (1980). The regression coefficient variance decomposition matrix was examined to determine if the data exhibited multicollinearity. Multicollinearity was determined not to exist among the variables. Conditions for multicollinearity did not meet the criteria of exhibiting both a condition index at or above 30 and that met the .90 or greater variance rule.

Hierarchical Multiple Regression

Entry of variables in the hierarchical regression analysis was as follows: Step 1 entered the control variables of poverty, teacher quality deficiencies and school size first; Step 2 entered the SISQ scales (teacher participation in school decision-making, teacher involvement in school improvement activities, teacher perceptions of student ability, parent concern about child achievement, school teaching effectiveness, school safety, effectiveness of staff development activities and instructional effectiveness). The rationale for the order of entry of the variables is grounded in school effectiveness research. The control variables of poverty, teacher quality deficiencies and school size are all known correlates of school effectiveness. Therefore, they would be expected to explain a significant portion of the variance. Step 2 entered the latent variables identified in the SISQ last so as to assess the extent to which these factors could account for variance in SPS scores beyond that accounted for by the control variables. The following section discusses the results of the hierarchical multiple regression analysis.

Model Analysis

Step one of the hierarchical regression entered poverty, teacher quality, and school size into the regression equation as a group. The results indicated that these variables explained approximately 56% of the variance in SPS ($F=49.65$, $p<.05$) (see Table 4.9).

Table 4.9

Summary of Hierarchical Multiple Regression of the School Performance Score (SPS) on Independent Control Variables for Model 1 (n=120)

Variables	Step 1				
	β	R^2	Adjusted R^2	ΔR^2	F
Poverty	-.65	.57	.56	.57	49.65
Teacher Quality Deficiencies	-.07				
School Size	-.37				

Step two of the regression entered the SISQ latent factors together as a group to determine if these factors could explain any variance in SPS beyond that accounted for by the variables entered in step one. Results indicated that the SISQ variables increased the proportion of variance explained by 10% ($F= 19.87$, $p<.05$).

Examination of Beta values to determine the relative importance of the variables in explaining variance in SPS, indicated three significant coefficients: factor 1, teacher participation in decision making ($\beta =.21$, $p<.05$), factor 4, parental concern for child achievement ($\beta =.21$, $p<.05$), and factor 5, school teaching effectiveness ($\beta =.23$, $p<.05$).

Table 4.10

Summary of Hierarchical Multiple Regression of the School Performance Score (SPS) on Independent Control Variables for Model 2 (n=120)

Variables	Step 2				
	β	R^2	Adjusted R^2	ΔR^2	F
Poverty	-.54	.68	.64	.10	19.87
Teacher Quality Deficiencies	-.04				
School Size	-.27				
Teacher Participation in school decision-making	.21				
Teacher Involvement in School Improvement Activities	-.05				
Teacher Perceptions of Student Ability	.10				
Parental Concern About Child Achievement	.21				
School Teaching Effectiveness	.23				
School Safety	-.01				
Effectiveness of Staff Development Activities	-.07				
Instructional Effectiveness	.07				

Chapter Four presented the quantitative data analyses completed. Factor analyses began with an initial solution that resulted in a twelve-factor structure that exhibited a high number of factors with only one or two items, and low alpha coefficients. Due to the small number of items in several factors, the absence of reliability coefficients for several factors and the wide dispersion of content across factors it was decided the unconstrained twelve-factor solution was not the best representation of the data.

Subsequent factor analyses forced the SISQ items into an 11, 10, 9, 8 and 7, factor solution. Although the forced solutions resulted in a larger number of items per factor, several of the solutions had serious deficiencies (e.g., cross-loadings, unacceptable reliability estimates, and conceptual problems). The eight-factor solution of the SISQ was found to be the best representation of the data based on factor loadings, scale alpha reliability estimates, conceptual cohesiveness, and number of items retained.

Correlation analyses were conducted to assess the relationship between the SISQ latent factors: teacher participation in (a) school decision-making, (b) teacher involvement in school improvement activities, (c) teacher perceptions of student ability, (d) parent concern about child achievement, (e) policy and instruction, (f) school safety, (g) effectiveness of staff development activities, (h) instructional effectiveness, and (i) the control variables of poverty, teacher quality deficiencies, and school size. Pearson correlation coefficients were computed using schools as the unit of analysis.

Findings indicated a significant inverse relationship was found to exist between a school's SPS and poverty. Additionally, an inverse relationship was found to exist

between a school's SPS and the size of a school. Analyses affirmed the findings of research cited in the literature review for this study indicating that school performance is negatively impacted by poverty, and large school size. Several of the latent factors exhibited a relationship to the control variables as well as to other latent factors.

Hierarchical multiple regression analysis was completed using schools as the unit of analysis ($n=120$). The regression analyses was conducted in order to determine whether a combination of the latent SISQ factors account for a significant proportion of variance in school effectiveness, as measured by the school SPS. Model 1 indicated that the control variables explained approximately 56% of the variance in SPS. Model 2 indicated that the SISQ latent factors increased the proportion of variance explained by 10%.

Chapter five provides a summary of the (a) major findings and conclusions pertinent to the research questions, (b) research methodology and design concerns, (c) implications for theory, research, practice, and (d) recommendations for future research.

CHAPTER FIVE

FINDINGS, CONCLUSIONS, AND IMPLICATIONS

Introduction

Chapter Five begins with an overview of the study. The second section presents major findings and conclusions pertinent to the research questions followed by discussion of several issues regarding the methodology and research design. The chapter ends with a discussion of the theoretical, research, and practical implications of the findings followed by recommendations for future research.

This study was prompted by the increasing demand of federal and state accountability measures to improve student and school performance. The high stakes consequences of school reform drove financial, administrative and instructional decisions and were the impetus for the development of numerous school improvement tools. Of particular interest in this study is the *Louisiana School Analysis Model (SAM) Instructional Staff Questionnaire (SISQ)*, and its validity and reliability. This study focused on how correlates of school effectiveness (e.g., poverty, teacher quality deficiencies, and school size) are related to the SISQ. Finally, this study examined how the scales of the SISQ, as well as the previously identified correlates of school effectiveness, would predict School Performance Scores, a central measure used to gauge school improvement in Louisiana.

Restatement of the Research Problem

The present level of knowledge with regard to correlates of school effectiveness is well established. To date, theory and research have provided a large body of data about which correlates of school effectiveness influence school improvement. The goal of the present study was to contribute to an understanding of school effectiveness through an examination of a school improvement tool and its relationship to school performance. This study examined the validity

and reliability of a state sponsored school improvement measure (the SISQ) and how the latent factors in the SISQ correlated with known correlates of school effectiveness (e.g., poverty, teacher quality deficiencies, and school size) were associated with and explained the variance in School Performance Scores.

Summary of the Methodology

This study aimed to initiate the process of construct validation of the SAM Instructional Staff Questionnaire in two ways. First, exploratory factor analysis with oblique rotation was used to identify the latent factor structure. Second, this study attempted to link the latent factors identified in the SAM Instructional Staff Questionnaire to key measures of school effectiveness (e.g., school performance scores, poverty and teacher quality) used by the Louisiana State Department of Education.

The sample of schools used in this study constituted the entire population of schools (n = 294) with a middle level grade component (grades 4 through 9) that submitted SAM Instructional Staff Questionnaire data to the Louisiana Department of Education. School level data was used to answer research questions two and three. Individual level data was used (teacher responses to the SAM questionnaire) in the factor analysis addressing research question one.

The instrumentation used for this study was the Louisiana School Analysis Model 2000 (SAM) Instructional Staff Questionnaire. Specifically, it is a data collection instrument used for needs assessment purposes in school improvement activities.

An individual school's School Performance Score was determined using a weighted composite index derived from four indicators: criterion-referenced tests (CRT), norm-referenced tests (NRT), and attendance rates for grades K-12, and dropout rates for grades 7-12.

SPS INDEX

The SPS Index consists of the following data:

1. 60% LEAP21 (CRT) criterion referenced data,
2. 30% (NRT) norm referenced data,
3. 10% attendance for grade k-6 schools; 5% grades 7-8

This study examined the following independent variables: poverty, school size, and teacher quality. These variables were used as control variables in a hierarchical regression, so that the variance in school effectiveness (SPS scores) attributable to the latent SAM constructs might be distributed. Additional independent variables were the latent factors that emerged from a factor analysis of the SAM teacher questionnaire.

This study used extant data derived by the Louisiana Department of Education in the form of School Analysis Model (SAM) Instructional Staff Questionnaire response data, School Performance Scores (SPS), and Free Reduced Lunch counts (e.g., poverty measure) used for Title I eligibility purposes for all schools that contain a middle school grade component for the years 1999-2001, as well as teacher quality data from the Annual School Report for 2000-2001.

Summary of Findings

Factor Analysis

Exploratory factor analysis using principal axis factoring with oblique rotation was used to determine the factor structure of the SAM Instructional Staff Questionnaire (SISQ). These

analyses indicated that the SISQ is made up of eight factors:

1. teacher participation in school decision making,
2. teacher involvement in school improvement activities,
3. teacher's perceptions of student ability,
4. parental concern for child achievement,
5. school teaching effectiveness,
6. school safety,
7. effectiveness of staff development activities, and
8. instructional effectiveness.

Comparison of the SISQ with the Originally Proposed Structure

The results of this study suggested that the SISQ, an integral part of the Louisiana School Analysis Model measures, does not in large part measure what it has been purported to measure. The eight latent factors that emerged in this analysis showed a limited correspondence to the original conceptual framework as described in the SISQ User's Guide. That framework indicated that the SISQ was built around six school process constructs:

1. climate,
2. leadership,
3. culture,
4. curriculum and instruction,
5. parent and school relations, and
6. staff development.

Because these constructs were very broad in nature, largely undefined in the User's Guide, and lacked evidence of construct validity, it is difficult to evaluate their content. It is equally hard to detail the specific differences in the conceptual and psychometric properties between those constructs and the eight that emerged in this analysis. Perhaps the best that can be said is that, in some limited respects, several of the original constructs bore a loose correspondence to one or more of the eight factors in this analysis. For example, the construct of school safety identified in the current analysis is a limited dimension of the larger original climate construct cited in the SAM User's Guide, as well as the instructional effectiveness construct identified in the current analysis, as a dimension of the original curriculum and instruction construct.

On the other hand, the present analysis also produced substantial and important differences. The present analysis failed to produce a leadership scale and many of the scales contain items that were not well developed. For example, a number of the items were ambiguous. SISQ item 18 stated: "Students at this school can do better than other students," and item 25 stated: "The academic ability of students at this school is higher than that of other students." Several items are double-barreled. For example, SISQ item 30 states: "Most parents want feedback from teachers about their child's grades and behavior at school." Unfortunately, many parents only want feedback about grades. The item does not allow the respondent to differentiate between the two reasons for feedback, thus the item provides convoluted data. Finally, it is not clear that the items included in the eight constructs identified in this study were sufficient to capture all of the critical dimensions of those constructs. For example, the parental concern for child achievement construct that emerged does not contain items that address

parental involvement in the child=s education, such as helping with homework, volunteering at school, or supporting teachers instructional decisions, all dimensions that are vital to student achievement. Many of the items are written in vague terms that make it difficult to interpret how they would be useful for school improvement purposes. For example, the original curriculum and instruction framework contains several items that address specific content areas, but the items have no focus that would render them useful. SISQ item 36 states: “This school does a good job in teaching mathematics.” SISQ item 44 states: “This school does a good job teaching students social studies.”

If a school is using the SISQ, there is a good probability that the school is in school improvement due to poor School Performance Scores that are based on student achievement. If a majority of students at a school are doing poorly on the high stakes tests in mathematics or social studies, the perception of whether teachers are doing a good job teaching a subject doesn’t provide information that is useful for improvement. For instance, teachers may be doing a good job teaching the content of the textbook, but not necessarily the content and skills tested on LEAP21 or GEE21. Curriculum alignment is an important dimension to consider in a measurement scale devoted to curriculum and instruction.

A further shortcoming of the SISQ is the paucity of items that provide useful demographic information (e.g., lack of gender identification, age, and location , rural or urban, as well as Title I status). Additional demographic data would be useful to state and district policy makers when reviewing SISQ data in the future.

In short, the factor analytic results of this study suggest further development work along several dimensions is needed to enable the SISQ to be used as a meaningful tool in school

improvement. The following sections address this issue by describing the scales that emerged in the eight-factor solution (see Table 5.2), their relationship to the original framework (see Table 5.1) and providing suggestions and guidelines grounded in current school effectiveness research for future improvement of the SISQ.

Table 5.1

Original Construct Configuration of the SISQ

<u>Original Construct Configuration of the SISQ</u>
Climate
Culture
Parent and School Relations
Systems Controls
Staff Development
Curriculum and Instruction
Leadership

The SISQ scales identified in the current analyses: teacher participation in school decision making, teacher involvement in school improvement activities, teacher perceptions of student ability, parental concern for child achievement, school teaching effectiveness, school safety, effectiveness of staff development activities and instructional effectiveness all have dimensions that are addressed in current school effectiveness literature. Optimally, the SISQ should address the relevant dimensions of school effectiveness that will

provide information useful for school improvement purposes.

Table 5.2

Latent Construct Configuration of the SISQ

Latent Construct Configuration of the SISQ

Teacher Participation in School Decision Making

Teacher Involvement in School Improvement Activities

Teacher Perceptions of Student Ability

Parental Concern for Child Achievement

School Teaching Effectiveness

School Safety

Effectiveness of Staff Development Activities

Instructional Effectiveness

Improving the SISQ

Although the eight latent factors that emerged in this study were judged to be the best representation of the data, there are a number of ways in which these factors and the SISQ in general can and should be improved. The following section details improvements that, when made, would enhance the ability of the SISQ to provide meaningful information for the purpose of school improvement.

Teacher Participation in School Decision Making

Three of the items in this scale were originally designed as part of the administrator leadership construct, and one item was part of the staff development construct. Examination of the items reveals that all four items were related to teacher's participation in school decision-making. One recent study of school effectiveness suggested a strong relationship between teacher participation in school decision-making and school performance (Bobbett, 2000). Bobbett's survey of 555 Louisiana teachers utilized a commonly used decision-making instrument called the Teacher Decision-Making Scale (TDMS). The TDMS addresses several dimensions of teacher decision-making, including direct teacher involvement in the selection of resources, development of policy, and implementation of programs. Findings suggest that a key element linked to district student performance was teacher involvement in textbook selection. The ramifications of the finding are extensive. If teacher involvement in decision-making is related to selection of resources is linked to student performance, it stands to reason that teacher decision-making associated with other aspects of schooling, such as development of policy, scheduling, and program/course selection, is appropriate for inclusion in a decision-making scale intended for school improvement.

Teacher involvement in the development of school policies has the potential to affect change in schools in ways that directly affect student performance. For example, teachers are in the best position to evaluate the seriousness of a classroom offense by a student and to determine if a student requires a severe punishment that would affect achievement, such as a suspension or expulsion from school. Therefore, teacher participation in decision-making as it relates to discipline policy and the implementation of policy is important. Teacher decision-making in

relation to scheduling of students is often closely associated with classroom discipline, in that teachers have knowledge of the group dynamics of certain pairs or groups of children (e.g., not to put Jane with John because they fight). Decision-making of teachers at the high school level often involves the choice of a type of schedule (e.g., block scheduling versus traditional schedules) that directly affects not only style and approach to classroom instruction, but also the opportunity to teach a class in something teachers feel passionate about (e.g., specialized electives, AP courses, remediation courses). Improvement of the SISQ should include a more fully developed teacher decision-making scale that includes professional elements related to school improvement such as these.

Teacher Participation in School Improvement Activities

The two questions that emerged in the scale were related to school improvement activities and originally were part of the administrator leadership construct. Although teacher participation in school improvement activities is important, an improved SISQ should contain a more holistic construct, focused on teacher involvement in school improvement that encompasses the dimensions of policy, interventions and activities.

School improvement is a term that has become synonymous with school reform and one that encompasses such diverse dimensions of effective schooling as curriculum, instruction, assessment, and teacher quality. School improvement involves more than participation in school improvement activities. The SISQ should center on the central elements of school effectiveness, including teachers' knowledge of school improvement policy and knowledge of school improvement interventions in addition to participation in school improvement activities.

Teachers currently operate in a highly complex and technical environment that requires a

sophisticated mix of knowledge that directly impacts instruction and subsequently, student achievement. It is important to consider that participation in school improvement activities alone does not promote school improvement and therefore, the current items do not address key elements of school improvement necessary to provide enough specific information to be useful for school improvement purposes.

It is critically important for the effective implementation of statewide school improvement initiatives that all teachers know and understand policy that affects their classroom. The vision of state education leaders is demonstrated in policy. Policy cannot become a part of individual school and classroom practice if teachers are not cognizant of how policy affects the operation of their school, as well as their individual classroom practice. Many state and district improvement initiatives have gone by the wayside, because teachers were unaware of how the initiatives were to be implemented and the manner in which teachers were a key part of the plan. A central criticism of many reform/improvement initiatives in the past has been the failure of state education leaders to clearly articulate what is expected of teachers and of students. That has led to Louisiana having clear policy objectives for all statewide reform initiatives including: state standards, assessments and accountability.

As mentioned earlier, school improvement policy encompasses a variety of initiatives that have a direct effect on classroom instruction including: (a) mandated state standards, (b) grade level expectations, and (c) statewide assessments. School improvement interventions encompass a variety of programs, and techniques including: research based instructional programs (e.g., Reading First), as well as after school tutoring, mentoring for parents and parental outreach. All of these interventions have a direct impact on school functioning that, in

many instances, reflect a direct result of state policy. School improvement activities encompass a wide array of initiatives that directly relate to policy, including: (a) data based decision-making, (b) local textbook adoption and resource selection, as well as (c) classroom based professional development. In short, the implementation of interventions and participation in school improvement activities remains interwoven with policy.

Recent research suggested that teachers who have deep content knowledge and expertise in specific teaching strategies relative to their content instruction can produce high student achievement (Darling-Hammond & Sykes, 1999; Ferguson, 1991; Sanders & Rivers, 1996;). This is especially relevant in light of mandated school improvement interventions such as Reading First, and mandated policy initiatives that currently drive the content prescribed at every grade level. Current research suggested that schools with high levels of poverty may have high levels of student achievement attributable to specific interventions (Bobbett, 2000; Brandon et al., 2002; Carollo & McDonald, 2001; Caplan & Gal, 1996; Lee & Peng, 1993). It would prove beneficial to teachers and administrators if the SISQ could incorporate items within teacher involvement on a school improvement scale to address the presence or absence of interventions such as tutoring, mentoring for parents, and parental outreach as a means of improvement.

An additional improvement to the SISQ through a teacher involvement in school improvement scale would be refinement of the items contained within the original systems controls category that reflect teachers' perceptions of important policy initiatives. For example, item 40 states: "I understand most aspects of Louisiana High Stakes Testing Policy that affect my students." Inclusion of two items in the original framework infers that knowledge of Louisiana's school accountability system and high stakes testing policy was considered

important for school improvement by the developers of the SISQ.

However, the degree of sophistication in decision-making and application of knowledge expected of teachers today demands an incredible knowledge base and level of preparation (Darling-Hammond & Sykes, 1999; Zemelman, Daniels & Hyde, 1998; Goldhaber, 2002). Knowledge of school improvement structures, policies, and their implementation could be helpful to teachers' understanding of school and district initiatives focused on the classroom. Such knowledge could possibly promote buy-in for key school improvement strategies. Therefore, information relative to teachers' perceptions of these important elements of school effectiveness would be valuable for school improvement purposes. As stated earlier, teacher involvement in a school improvement construct more holistic in its approach would be more appropriate for an improved SISQ than solely teacher participation in school improvement activities.

Teacher Perceptions of Student Ability

Perception of student ability is a dimension of the broader construct of school culture, and is a critical correlate of school effectiveness. Prior school effectiveness research has suggested a strong relationship between school performance and school culture (Bobbett, 2000; Olivier, 2000). Therefore, any improved SISQ measure should more fully address key dimensions of school culture. School culture would include: (a) academics, (b) school size, (c) collegial relationships, (d) teachers' professional commitment, (e) shared leadership, and (f) shared vision. Although some of the dimensions seem disparate, they are all in fact related to the components of effective teaching. A scale devoted to the larger construct of school culture grounded in the components of effective teaching is recommended.

The suggestions for the development of a school culture scale are supported by prior research on culture and school effectiveness as it relates to effective teaching. This is important, because assessing school culture for the purposes of school improvement requires a link to actual classroom practice and more than mere generic beliefs or values associated with schools to be an effective improvement scale. Use of the components of effective teaching as a guide for the development of school culture measures was well established (Cavanaugh, 1997; Bobbett, 2000; Olivier, 2000).

Defining culture in a manner that clearly identifies what is being discussed is essential to an understanding of how it relates to school effectiveness. School culture research borrows heavily from organizational behavior studies that are now a staple of management thinking. However, management and organizational behavior studies often focus on how to alter organizational structures to increase efficiency, institute improvements, or address organizational culture from a structural perspective. Schools are notoriously resistant to structural changes, and therefore approaching culture in schools requires a conceptual frame that focuses on specific dimensions of culture that are common to schools. In particular, the values, norms, and beliefs relative to specific aspects of schooling (e.g., collegiality, attitudes about academics, discipline, student responsibility, moral purpose, and student well being) are vital to an understanding of school culture and have a foundation in the components of effective teaching.

A school culture scale is essential for assessing a school for the purposes of improvement. Current literature suggests that two sub-scales may be appropriate: one that is focused on collegial interaction of staff and the purposes and common understandings of schooling, and another that focuses on academics related to the components of effective

teaching. Collegial interaction of staff, together with the purposes and common understandings of the schooling scale should ideally encompass previously discussed elements such as: (a) collegial relationships, (b) collaborative atmosphere, and (c) shared moral purpose of schooling. Academics are central to school improvement and a scale devoted to key elements of academics should encompass instructional values of students, teachers, and administrators as well as parents.

Effective schools research suggests that school cultures that promote a focus on academics, coupled with collegial relationships, moral purpose and common understandings about school policy improved student performance (Bobbett, 2000; Olivier, 2000). Additional research on school effectiveness suggested that schools with high levels of poverty and minority enrollment would benefit from smaller school size, and that large schools tend to maintain teacher isolation. Bobbett's (2000) study suggests that elements of culture of particular interest and directly related to school size include: teacher professional commitment, shared leadership, and shared vision. It is more difficult to create and maintain shared vision with larger faculties, and it is difficult to reach a consensus on shared decisions. The SISQ does not currently contain any items relative to teacher's perceptions of isolation related to large school size, difficulties associated with school size or school type (e.g., elementary versus high school) that may directly impact their instructional ability. It would be beneficial for school improvement purposes if the SISQ addressed school size issues through a fully developed culture scale.

The Louisiana Teaching Standards, also known as the Louisiana Components of Effective Teaching, provide a starting point for specific elements of effective teaching that are useful for the development of a culture scale on the SISQ. For example, the Louisiana

components of effective teaching reference the following aspects of effective teaching:

1. the teacher maintains an environment conducive to learning;
2. the teacher presents appropriate content; and
3. the teacher creates partnerships with parents/caregivers and colleagues.

The list is far from exhaustive, but it illustrates the scope of the components and their relationship to previously mentioned school effectiveness literature. As mentioned earlier, and specifically, the SISQ should address the following: academics, school size, collegial relationships, teacher professional commitment, shared leadership, and shared vision, all of which are dimensions of school culture tied to the components of effective teaching; these culture dimensions are the most closely associated and are tied to school performance.

Parental Concern About Child Achievement

Parental concern about child achievement is an important dimension of parental involvement, but it falls short of the parental involvement construct associated with school effectiveness. A revised parental involvement scale that encompasses parental concern for child achievement, as well as additional elements of parental involvement, should represent the following concerns for development: parental support for teaching and learning, parental support for student attendance at school, and parental engagement in school activities.

Effective schools research currently uses the term *parental involvement* and suggests parent and school relations are a highly site-specific factor in school improvement. Additionally, parental involvement comprises a sophisticated mix of elements (e.g., parental expectations, parent/staff relationships, and community mores) that are influenced by diversity, parental education attainment, and socio-economic status. It is important to note that parental

involvement has been found to have an influence on academic achievement and school climate (Ames, 1993). School improvement is highly dependent on parental involvement and should be considered a priority in improving the SISQ.

School Teaching Effectiveness

Unfortunately, this scale addresses a diverse mix: curriculum and instruction, school policy, and student ability. Two of the items: (e.g., 20 and 44) focus on the teaching of science and social studies. Item 40 focuses on Louisiana's high stakes testing policy, and item 42 focuses on student's ability to achieve. Improvement of this scale should begin with a cohesive focus, either policy or instruction, not both. Policy items are better suited to a scale devoted to school improvement rather than instruction; therefore, it is recommended that a fully developed scale focused on instructional effectiveness be included in an improved SISQ. This scale is difficult to interpret and has no provision for usable information for school improvement purposes. The scale requires additional items focused more specifically on the perceptions of teachers about the effectiveness of instruction in their school.

School Safety

The school safety latent construct that emerged is extremely limited and should be part of the larger construct of school climate. Louisiana received a D+ in school climate on the Education Week Quality Counts Report (2004), based in some part to school safety issues. Recent school effectiveness research suggests a strong relationship between school performance and school climate (Bobbett, 2000; Olivier, 2000). Given the link between school performance and school climate, it is critical to school improvement that a climate scale addressing that link be part of an improved SISQ.

School safety is one important dimension of school climate that should continue to be included in the SISQ. However, research also suggests there are other dimensions of climate that are important for school improvement and which would make meaningful additions to the SISQ. For example, high staff morale, positive staff interaction, and positive staff/student interaction, are all important to a measure of school climate. A more holistic construct of climate would encompass these key dimensions: (a) safety, (b) high staff morale, (c) positive staff interaction, (d) positive staff/student interaction; these dimensions are suggested for an improved SISQ.

Dimension A: Student Safety

Although safety is a prevalent problem in urban districts, it is not restricted to the urban environment. Safety as a dimension of school climate has serious implications for school improvement and should be included in an improved SISQ. For example, students who are unable to stay after school for tutoring (because they have to walk home after dark through gang infested areas of a large urban center), represent direct consequences for school improvement interventions. Schools that have a problem with bullying of students have attendance problems and in some cases, severe violence associated with such activities. Information relative to school safety is essential for effective school improvement decisions.

Dimension B: High Staff Morale

High staff morale as a dimension reveals much about the operation of a school. Teachers feel successful, and are in agreement on the fundamental operation of a school, tend to exhibit high staff morale, often in the face of extreme obstacles. As teachers, these individuals exhibit a willingness to work together to solve problems, sharing in the belief that changes can be positive. Effective schools research suggested that effective schools had environments that were open to

change, and in particular provided role structures, values, and collaborative atmospheres that were conducive to successful change (Rothman, 1993).

Dimension C: Staff Interaction

Positive staff interaction is closely associated with high staff morale. Schools that have positive interaction between staff members tend to have cooperative attitudes towards a variety of school activities including: staff assignments, discipline, and implementation of improvement interventions. Teachers are more likely to engage in mentoring activities and less likely to engage in isolationist behaviors (Louis, Kruse, & Marks, 1996).

Dimension D: Student Staff Interaction

Positive staff/student interaction was closely associated with student achievement. Schools that had respect between teachers and students were an indication that a positive school environment conducive to learning can exist. Teachers are viewed by students as important to their learning and valued as mentors in schools where teachers are seen as positive role models (Bobbett, 2000; Olivier, 2000).

The term *school climate* has been used interchangeably with *school environment* in school effectiveness research. It is important to note that the conceptual definition of school environment is an important factor in discussing how school environment is to be addressed. Environment evokes thoughts of how a school feels. However, school environment reflects a technical aspect that involves staff and student interaction and is closely related to school performance. School effectiveness research suggests that effective schools exhibit high staff morale, positive staff interaction, and positive staff/student interaction, all dimensions related to

a positive school environment that is conducive to student achievement (Louis, Kruse, & Marks, 1996).

Currently, the SISQ is used to gauge teacher perceptions about elements related to school effectiveness and that information is then used to guide school improvement planning. However, as currently constructed, the SISQ does not address several important dimensions of school effectiveness, including all the dimensions of climate. Climate is critically important to school performance and should be included on an improved SISQ as a key construct. Dimensions of climate that affect school improvement include: safety, high staff morale, positive staff interaction, and positive staff/student interaction. The dimensions should be used to guide development of items that would provide useful information for school improvement purposes.

Staff Development Effectiveness

Staff development is a term that is interchangeable in school effectiveness literature with professional development. A considerable body of knowledge exists that supports the importance of professional development to school improvement and student achievement. Although conceptually, the staff development factor is one of the most cohesive of the latent constructs, it is still missing important dimensions related to current best practice in professional development. School effectiveness literature suggests that professional development be sustained and job imbedded, as well as focused on improvement (Edmonds & Frederickson, 1979; Guskey & Passaro, 1994; Guskey & Sparks, 2002). Therefore, items should be developed that address all of these dimensions. A single scale that is fully developed is recommended for improvement of the SISQ.

School Teaching Effectiveness

The school teaching effectiveness scale addresses a very broad conception of quality of instruction with a mix of assessment related items. It is imperative that any discussion of curriculum and instruction be anchored to specific elements related to school effectiveness in order to have value and meaning. Effective schools research suggests that curriculum and instruction become pivotal factors in school improvement (Allinder, 1994; Hani, Czernial & Lumpe, 1996; Ross, 1992). However, curriculum and instruction are factors with multiple dimensions influenced by teacher self-efficacy, teacher content knowledge, and teacher quality. These dimensions include the following: curriculum content, curriculum alignment, content specific teaching strategies, scope and sequence of curriculum, instructional resources and ability or willingness to follow mandated curriculum practices. The instructional effectiveness scale must be expanded due to the complexity of issues. Specifically, it is recommended that items be developed that address teachers' perceptions of classroom instruction, curriculum and resources and student achievement.

Administrator Leadership

Administrator leadership is of primary importance in school improvement. School leaders are instrumental in providing the support necessary for teachers to be effective, due to the direct impact on a school's academic program. Additionally, administrators set the tone for school climate and culture and as discussed earlier, both climate and culture affect student achievement. Additionally, effective administrative leadership in a school requires knowledge of curriculum, instructional best practice, school finance, school safety, law, and many other variables not addressed in the original domain. Most importantly, school effectiveness research has

consistently demonstrated the importance of administrative leadership in schools to student achievement (Good & Brophy, 1986; Hallinger, 1992; Hallinger & Heck, 1996; Kaplan & Owings, 2000). A school leadership scale is essential for assessing a school for the purpose of improvement. Current literature suggests that two scales may be appropriate, one that focuses on academic leadership, and another that focuses on more general leadership attributes associated with schooling.

Teacher Self-Efficacy

Current research suggests that teacher self-efficacy is an important predictor of student academic achievement. However, there are no items on the SISQ that focus on teacher self-efficacy. A self-efficacy scale would be beneficial to teachers and administrators in determining if teachers perceive their ability to teach in a positive or negative way. Such information would allow for school improvement activities to be focused (as part of their overall improvement plan) on developing the positive teaching self-efficacy associated with high student academic achievement. It is recommended that teacher self-efficacy be incorporated into an expanded instructional effectiveness scale.

Summary of the SISQ and its Improvement Needs

The results of the study, together with the absence of information about how the original scales were developed, data about their relationships with other variables, or ability to predict other variables makes it difficult to infer that the original SISQ framework possesses an acceptable level of validity as a measurement tool for school improvement. Although the SISQ may have suffered from oversights in its original development or flaws resulting from its lack of theoretical grounding, it is interesting to note that the scales that emerged in this study do share

some overlap with current school effectiveness research. Furthermore, the need for comprehensive assessment tools that are valid and reliable provides motivation for the improvement of the SISQ.

Table 5.3 provides a construct map outlining a proposed structure for an improved SISQ based on the findings of this study and current school effectiveness research. It is suggested that the SISQ be improved in the following ways. First, the SISQ is a tool used for school improvement purposes. Therefore, the SISQ needs to be augmented with scales that address key variables of school effectiveness not present in the eight-factor analysis: culture, climate, and leadership. Additionally, the more holistic constructs must address the key dimensions of the construct that are associated with school performance. Second, the remaining scales that emerged in this study do not address all of the key dimensions of necessary constructs for school improvement purposes. The scales need to be refined by the addition of items that address the missing dimensions. Third, many of the present items that are ambiguous, double-barreled, and vague, need to be rewritten in order to eliminate these deficiencies.

All of the suggestions for improvement of the SISQ are firmly grounded in school effectiveness research and if implemented, will provide a sound theoretical and conceptual foundation for the refinement of such an important school improvement tool. The importance of this measure cannot be overstated. School improvement tools provide data with far reaching consequences that are directly tied to decision-making in schools. These tools should be based on the latest research and the best survey development procedures available.

Additional Construct Validation Steps

Construct validity was established through multiple sources of evidence (e.g., content,

substantive, structural, external, generalizability, and consequential aspects) associated with the interpretive argument (Messick, 1989). The present study initiated the construct validation process, but has not exhausted all of the steps necessary to assure the SISQ becomes a fully validated and reliable measurement tool capable of providing critical information necessary for school improvement purposes. It is suggested that the SISQ be refined through additional item development that addresses constructs related to school effectiveness as discussed in this chapter. Furthermore, the SISQ should be augmented with additional constructs, such as leadership, that are important to school effectiveness. A refined SISQ should be field tested and then re-evaluated both in terms of conceptual content and psychometric properties.

Correlation Analysis

Bivariate correlation analysis was used to determine if a relationship existed between the latent factors of the SISQ: teacher decision-making in school activities, teacher participation in school improvement activities, teachers' perceptions of student ability, parental concern for child achievement, school teaching effectiveness, teachers' perceptions of school safety, effectiveness of staff development activities and instructional effectiveness, and the control variables known as correlates of school effectiveness (e.g., poverty, teacher quality deficiencies, and school size). These analyses indicated several low to moderate correlations between the control variables and the latent factors in the SISQ.

Several interesting correlations were found to exist between the control variables and the latent factors, with the exception of school safety. The findings of this portion of the study are important in terms of the relation to what is known about effective schools and currently accepted strategies for school improvement. The following discussion is based on

current school effectiveness research, and how that research may be affirmed and used to bolster the findings and recommendations in the present study.

School Performance Score

A significant inverse relationship was found to exist between a School Performance Score (SPS) and poverty. This affirmed prior school effectiveness research on the relationship between school performance and poverty. SPS was correlated to a lesser degree with several other variables, including: school size, teacher participation in school decision-making, teacher's perceptions of student ability, parental concern for child achievement, and instructional effectiveness. All of the correlations between SPS and the latent factors have a foundation in school effectiveness literature discussed earlier.

Poverty

A negative relationship was found to exist between poverty and parental concern for child achievement, teachers' perceptions of student ability, and school teaching effectiveness. A significant positive relationship was found to exist between poverty and teacher quality deficiencies. There was a foundation for these correlations in school effectiveness literature. School effectiveness research has consistently shown that schools with high levels of poverty have less parental involvement, less qualified teachers, fewer resources, and were less likely to be engaged in best practices for school improvement (Corallo & McDonald, 2001; Ferguson, 1991; Zemelman, Daniels & Hyde; 1998). The present study affirms prior school effectiveness research in this area.

Table 5.3
Improvement Recommendations to the SISQ

SISQ Constructs	Improvement Recommendations to the SISQ
Teacher Participation in School Decision Making	Develop items to address the following dimensions of teacher participation in school decision-making: <ul style="list-style-type: none"> ➤ teacher involvement in specific school improvement decision-making activities such as scheduling, and discipline
Teacher Involvement in School Improvement Activities	Develop items to address the following dimensions of teacher involvement: teacher knowledge of <ul style="list-style-type: none"> ➤ policy and ➤ intervention strategies and ➤ improvement activities.
Teacher Perceptions of Student Ability	Develop items to address the following dimensions of teacher perceptions. Develop two additional scales to measure the following constructs: <ul style="list-style-type: none"> ➤ collegial interaction of staff ➤ academics.
Parental Concern for Child Achievement	Develop a more holistic scale: Parental Involvement Develop items to address the following dimensions: <ul style="list-style-type: none"> ➤ parental support for teaching and learning ➤ parental support for student attendance at school and ➤ parental engagement in school activities.
School Teaching Effectiveness	Develop items to expand the current measure to better measure teacher’s perceptions of instructional effectiveness in schools
School Safety	Develop additional items to improve the psychometrics of the scale. Develop two additional scales to measure the following school climate constructs: <ul style="list-style-type: none"> ➤ Positive learning environment ➤ Positive professional work environment.
Effectiveness of Staff Development Activities	Develop items to address the following dimensions of effectiveness: <ul style="list-style-type: none"> ➤ job imbedded staff development ➤ sustained staff development.
Instructional Effectiveness	Develop items to address the following dimensions of instructional effectiveness: <ul style="list-style-type: none"> ➤ classroom instructional practices ➤ curriculum and resources ➤ teacher self-efficacy
Leadership	Development items to measure the following dimensions of a new Leadership scale: <ul style="list-style-type: none"> ➤ academic leadership and, ➤ general leadership attributes.

School Safety

School safety was not correlated with the control variables or to the latent factors. This was an interesting finding, given that prior research suggests school safety is a dimension of school climate that is closely related to school performance. The failure of the construct to correlate would not be an expected finding. It appears that the perception of safety was something the teachers who responded to this survey were somewhat neutral about, in that they did not feel strongly disagree or strongly agree were appropriate response choices. This would make some sense, given the fact that violence in public schools in Louisiana is not a systemic problem. The largest urban school district in the state (e.g., Orleans Public School System) experiences a serious incident, such as a school shooting, only periodically. Louisiana public schools have adopted a Zero Tolerance policy for fighting, guns, and drugs on school campuses that may help to explain the neutral stance found in this study.

Teacher Participation in Decision Making

This scale was correlated with several other scales in this analysis. A significant positive relationship was found to exist between teacher participation in decision-making and parental concern about child achievement, and to a lesser degree, with instructional effectiveness. Additionally, a positive relationship was found to exist between teacher participation in school decision-making and effectiveness of staff development activities. These findings are interesting because they reveal a relationship between a scale on the SISQ, that accounts for a large proportion of the variance (e.g., teacher participation in school decision-making) explained on the eight-factor solution and other factors that reflect dimensions of several key correlates of school effectiveness. The existence of correlations between teacher participation in school

decision-making and other latent factors is further evidence of the importance of key correlates of school effectiveness to the SISQ. The present study affirms recent school effectiveness research, suggesting teacher participation in school decision-making is an important correlate of school effectiveness (Bobbett, 2000). Therefore, it is an important construct to consider in the refinement of the SISQ.

Another interesting correlation was found to exist between effectiveness of staff development activities and instructional effectiveness. These are two scales where a relationship would be expected to exist. School effectiveness research has consistently shown that staff development has a significant effect on instructional effectiveness (Edmonds & Frederickson, 1979; Guskey & Passaro, 1994). A significant positive relationship was found to exist between effectiveness of staff development activities and instructional effectiveness. Additionally, a similar relationship was found to exist between parental concern about child achievement and instructional effectiveness. School effectiveness research has consistently shown that students whose parents are involved in their schooling have better school achievement (Guskey & Sparks, 2002).

The affirmation of prior research that addresses the relationship of known variables of school effectiveness is important to the improvement of the SISQ. The SISQ is intended for school improvement purposes, and therefore, serious consideration should be given to the improvement and or inclusion of scales that address research-based variables critical to student achievement.

Hierarchical Regression Analysis

Hierarchical regression analysis was used to determine how the variance in School Performance Scores (SPS) was partitioned among the predictor variables. The analysis entered these variables as a first step in the regression: poverty, school size and teacher quality deficiencies. Results indicated that these variables approximately 56% of the variance in SPS.

Step two of the regression entered the SISQ latent factors together as a group to determine if these factors could explain any variance in SPS beyond that accounted for by the variables entered in step one. Results indicated that the SISQ variables increased the proportion of variance explained by 11% with. Examination of Beta values to determine the relative importance of the independent variables indicated three significant coefficients.

These findings along with the correlations help establish the construct validity of the latent factors that emerged from the SISQ. The two significant coefficients: teacher participation in decision-making, and school teaching effectiveness reveal that the SISQ measures several dimensions of larger constructs important to school effectiveness, at least as it was measured in this study. The predictive ability of these scales in conjunction with the correlation of SPS to several of the latent factors is compelling. This is important to the refinement of the SISQ in that it provides further foundation for the improvement of the SISQ as a fully validated school improvement tool.

The findings of this portion of the study are important in terms of their relation to what is known about effective schools and currently accepted strategies for school improvement and

how that knowledge may aid in the refinement of the SISQ. The SISQ scales teacher participation in school decision-making and school teaching effectiveness were found to be predictive of school performance scores. This is important to the refinement of the SISQ, because it indicates that these scales do measure something valuable for school improvement purposes. Although the scales need further refinement, this analysis provides evidence of their significance to school improvement and the SISQ and provides some evidence of the construct validity of the SISQ scales.

The control variables of poverty and school size were found to be predictive of school performance scores. As discussed earlier, poverty and school size are known correlates of school effectiveness. This study affirms that relationship and also provides evidence that they are significant predictors of school performance and should therefore be considered when developing school improvement activities, including the refinement of the SISQ.

General Implications and Recommendations

The findings of this study suggest that construct validation should be of primary concern in the development of measures used to evaluate and guide school improvement efforts. The results of this study indicated that the SISQ scales did not account for a significant proportion of the variance in SPS scores and therefore, there is substantial room for improvement in the SISQ as a measurement instrument. This study has attempted to provide guidance for the inclusion of additional scales in the SISQ that have the potential to increase its value as a school improvement tool. The 1990's school improvement research centered around systemic reform and policy related initiatives revealing that systemic reform has resulted in mandated structural changes with little effect on a schools status quo (Louis, Toole, & Hargreaves, 1999). Failure of

numerous urban school districts to make gains in student achievement comparable to their suburban and rural counterparts is evidence that the fundamental and most critical elements associated with successful restructuring are not being effectively addressed (e.g., poverty, equity, and quality). Wide achievement gaps exist despite the development of sophisticated and expensive accountability, assessment and professional development systems. This underscores the critical importance of school improvement tools such as the SISQ. Ultimately, the development and refinement of such measures needs to follow best practices in survey development including theory and research based development of items, field-testing, focus groups, and psychometric testing to assure the results are useful for school improvement purposes.

Change in schools is enormously difficult, a fact that has been recognized by education experts for decades. As far back as 1926, Dewey observed “It is demonstrable that many of the obstacles for change which have been attributed to human nature are in fact due to the inertia of institutions” (Dewey, 1926). Schools are infamous for their ability to maintain the status quo despite federal, state and local efforts to mandate change. Therefore, it is of the utmost importance that attempts at school improvement take into account the resilient nature of schools and the complexities associated with change in a difficult environment. Certainly valid measurement tools can help in this effort to the extent they can paint an accurate and actionable picture of school improvement needs. The findings of this study suggest that school effectiveness is highly dependent on addressing known correlates of school effectiveness that are associated with school performance (e.g., poverty, school size and teacher quality) all elements that are difficult and resistant to change. Additionally, the findings of this study suggest that

school improvement is a highly complex endeavor and measurement tools such as the SISQ need to incorporate and be sensitive to the diverse dimensions of correlates of school effectiveness. School effectiveness research suggests that failure of systemic reform to change the status quo should not be surprising, because it often doesn't reach the school/classroom level, the true engine of change. Therefore, a new paradigm of school improvement may be needed that focuses on school improvement as school development rather than systemic reform as school change. The development paradigm would take into consideration the highly individualized context of schools and allow for a case specific process for improvement that can account for important factors associated with school effectiveness (e.g., poverty, school size, teacher quality) and unplanned as well as planned efforts, autonomous developmental processes (e.g., staff, cultural and technological change, and community/parental involvement), and anomalies. Although highly site-specific data collection is most appropriate using qualitative techniques, inclusion of this type of data collection would be appropriate for use in an improved school improvement model and will be discussed further in the recommendations for future research section of this chapter.

Study Limitations

There are several potential limiting factors with regard to the findings of the present study. All data used in this study was extant data from government sources. Thus there was no opportunity to follow up on missing data, or to check original survey forms. However, the sample size for this study was large enough to compensate for missing data, therefore it is not considered a serious deficiency.

Self-report data were the only source of data in this study for the independent variables and therefore, method bias is a possible issue. However, responses to the survey were primarily teacher perceptions and therefore may not be a serious impediment (Clark, Dobbins, & Ladd, 1993). Although a number of limitations exist that could potentially limit the results of the study, it is not believed that they significantly undermined the validity of the findings and implications.

Future Research

First, the results of this study provided evidence that establishing construct validity and reliability is critically important in the development and use of school improvement tools. Second, this study provides evidence that two of the scales that emerged from the validated SISQ, decision-making and parental engagement did have some predictive ability on school performance scores. Finally, this study provides evidence that poverty, school size and teacher quality are significant correlates of school performance.

The present study provides support for the development of school improvement tools that are sensitive to local context (e.g., poverty) and that are aligned with current literature on school effectiveness. The findings of this study suggest that a more comprehensive data collection instrument needs to be developed. This and other research strongly suggest that school improvement in high poverty schools is dependent on multiple factors (e.g., school size, teacher quality, quality of instruction) as well as local context and implies that emphasis should be placed on addressing as many potentially critical variables as possible when developing school improvement tools.

Although the present study made valuable contributions to an understanding of school effectiveness through examination of a school improvement tool and its relationship to school performance, future studies should seek to develop a theory-based model or conceptual framework for school effectiveness, map that against what the SISQ and other measurement tools used in the school improvement process measure, and evaluate the extent to which the measures are adequately comprehensive and valid. Construct measures should be developed using the best scale development practices available. The resulting measures should be subjected to a rigorous program of construct validation to ensure that critical high stakes school improvement decisions can be made with the aid of valid measurement tools.

Specifically, the results of this study suggest it is advisable that the remaining data collection instruments contained within the Louisiana School Analysis Model be subjected to a rigorous program of construct validation. Research is needed to validate the remaining components of the model, identify and operationalize the critical variables in each component and test the model. Furthermore, the model needs to be grounded in a theoretical framework for school effectiveness. Careful scrutiny of not only the psychometric properties and conceptual cohesiveness of the instruments, but the conceptual cohesiveness of the model is necessary to ensure the model provides accurate and reliable data that can be used for high stakes school improvement purposes. Finally, each component of the model should be piloted and the results of the pilot used to improve and enhance the individual components and thus improve the overall efficiency of the model. A fully developed and validated school improvement model could provide the data necessary to conduct future longitudinal research on school effectiveness, a serious current deficit in school effectiveness research.

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APPENDIX A: INSTRUMENT

LOUISIANA DEPARTMENT OF EDUCATION

School Analysis Model (SAM 2000)

-Instructional Staff Questionnaire

DIRECTIONS: The information that you give us on this document is confidential. Reports will be made with data summed at the school level, and no one person will be identified with his/her particular information.

DISTRICT CODE	SCHOOL CODE
<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
<input type="radio"/> (1) <input type="radio"/> (2) <input type="radio"/> (3)	<input type="radio"/> (1) <input type="radio"/> (2) <input type="radio"/> (3)
<input type="radio"/> (4) <input type="radio"/> (5) <input type="radio"/> (6)	<input type="radio"/> (4) <input type="radio"/> (5) <input type="radio"/> (6)
<input type="radio"/> (7) <input type="radio"/> (8) <input type="radio"/> (9)	<input type="radio"/> (7) <input type="radio"/> (8) <input type="radio"/> (9)
<input type="radio"/> (10) <input type="radio"/> (11) <input type="radio"/> (12)	<input type="radio"/> (10) <input type="radio"/> (11) <input type="radio"/> (12)
<input type="radio"/> (13) <input type="radio"/> (14) <input type="radio"/> (15)	<input type="radio"/> (13) <input type="radio"/> (14) <input type="radio"/> (15)
<input type="radio"/> (16) <input type="radio"/> (17) <input type="radio"/> (18)	<input type="radio"/> (16) <input type="radio"/> (17) <input type="radio"/> (18)
<input type="radio"/> (19) <input type="radio"/> (20) <input type="radio"/> (21)	<input type="radio"/> (19) <input type="radio"/> (20) <input type="radio"/> (21)
<input type="radio"/> (22) <input type="radio"/> (23) <input type="radio"/> (24)	<input type="radio"/> (22) <input type="radio"/> (23) <input type="radio"/> (24)
<input type="radio"/> (25) <input type="radio"/> (26) <input type="radio"/> (27)	<input type="radio"/> (25) <input type="radio"/> (26) <input type="radio"/> (27)
<input type="radio"/> (28) <input type="radio"/> (29) <input type="radio"/> (30)	<input type="radio"/> (28) <input type="radio"/> (29) <input type="radio"/> (30)

Incorrect marks	Correct mark	Use a #2 pencil only

DARKEN THE OVAL BESIDE THE SINGLE (ONE) BEST ANSWER TO EACH QUESTION.

1. How long have you been an educator (including time at other schools)?
 - This is my first year.....(1)
 - 2-4 years.....(2)
 - 5-9 years.....(3)
 - 10 years or more.....(4)

2. How long have you been an educator at this school?
 - This is my first year.....(1)
 - 2-4 years.....(2)
 - 5-9 years.....(3)
 - 10 years or more.....(4)

3. How much formal education do you have?
 - Less than a Bachelor's Degree.....(1)
 - Bachelor's Degree.....(2)
 - Master's degree.....(3)
 - Master's degree + 30.....(4)
 - Educational Specialist's degree.....(5)
 - Doctorate.....(6)

4. How many days were you absent for staff development activities?
 - 0 days(1)
 - 1 or 2 days.....(2)
 - 3 or 4 days.....(3)
 - 5 or 6 days.....(4)
 - 7 or 8 days.....(5)
 - 9 or more days.....(6)

	Strongly Disagree	Disagree	Agree	Strongly Agree	Do Not Know
5. Most parents provide help to their child with his/her school work.....(1)	(2)	(3)	(4)	(5)	(6)
6. Administrators encourage active faculty involvement in this school's improvement process..(1)	(2)	(3)	(4)	(5)	(6)
7. Teachers participate in developing this school's improvement activities.....(1)	(2)	(3)	(4)	(5)	(6)
8. Classroom rules are enforced fairly by most teachers.....(1)	(2)	(3)	(4)	(5)	(6)
9. This school provides students with a safe learning environment.....(1)	(2)	(3)	(4)	(5)	(6)
10. Most students at this school will eventually graduate from high school.....(1)	(2)	(3)	(4)	(5)	(6)
11. Students at this school are provided hands-on, activity-based instructional experiences.....(1)	(2)	(3)	(4)	(5)	(6)
12. This school does a good job in teaching students to read well.....(1)	(2)	(3)	(4)	(5)	(6)

	Strongly Disagree	Disagree	Agree	Strongly Agree	Do Not Know
13. Most staff development activities enable us to improve classroom practices at this school.....	<input type="radio"/>				
14. Most parents at this school care about what grades their children earn.....	<input type="radio"/>				
15. Most parents at this school express a belief that their child needs a good education for success as an adult.....	<input type="radio"/>				
16. Administrators are often seen throughout the school making informal contacts with students.....	<input type="radio"/>				
17. The classroom discipline policies at this school promote an effective learning environment.....	<input type="radio"/>				
18. Students at this school can do better school work than other students.....	<input type="radio"/>				
19. Most of the teachers in our school encourage students to do extra work to improve their grades.....	<input type="radio"/>				
20. This school does a good job teaching students science.....	<input type="radio"/>				
21. Staff development activities at this school are focused on instructional needs in the classroom.....	<input type="radio"/>				
22. Most parents are involved in school-supported activities.....	<input type="radio"/>				
23. Administrators emphasize faculty participation in decision-making activities at this school.....	<input type="radio"/>				
24. I feel safe at this school.....	<input type="radio"/>				
25. The academic ability of students at this school is higher than that of other students.....	<input type="radio"/>				
26. Students are assessed in a variety of ways at this school, which gives them opportunities to demonstrate what they know.....	<input type="radio"/>				
27. This school does a good job teaching students to write well.....	<input type="radio"/>				
28. The staff development program at this school is evaluated regularly by the faculty.....	<input type="radio"/>				
29. I understand most aspects of Louisiana's School Accountability System that affect my school.....	<input type="radio"/>				
30. Most parents want feedback from teachers about their child's grades and behavior at school.....	<input type="radio"/>				
31. Teachers participate in developing this school's policies.....	<input type="radio"/>				
32. Student fights are <u>not</u> frequent at school.....	<input type="radio"/>				
33. Most students at this school can achieve at or about the level of other students in the nation.....	<input type="radio"/>				
34. Students at this school will attend some form of higher education after graduating from high school (college, junior college, technical school).....	<input type="radio"/>				
35. Teachers use a variety of teaching strategies and learning activities to help their students learn.....	<input type="radio"/>				
36. This school does a good job in teaching students mathematics.....	<input type="radio"/>				
37. During the past two years, staff development activities have addressed areas that help students achieve.....	<input type="radio"/>				
38. I recognize nearly all my students' parents.....	<input type="radio"/>				

	Strongly Disagree	Disagree	Agree	Strongly Agree	Do Not Know	
39. Administrators willingly provide assistance to improve my instructional practices.....	<input type="radio"/>	■				
40. I understand most aspects of Louisiana's High Stakes Testing Policy-that affect my students.....	<input type="radio"/>	■				
41. I consistently enforce the discipline policy at this school.....	<input type="radio"/>	■				
42. Students at this school can achieve at or above the level of other students in Louisiana.....	<input type="radio"/>	■				
43. Students at this school are taught in ways that allow them to relate what they are studying to their everyday lives.....	<input type="radio"/>	■				
44. This school does a good job teaching students social studies.....	<input type="radio"/>	■				
45. Staff development activities continue to focus on school improvement efforts as determined by school data.....	<input type="radio"/>	■				

To what degree do you use the following strategies in your daily teaching activities?

	NONE	SOME	EXTENSIVE	N/A	
1. Cooperative/collaborative learning.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	■
2. Direct instruction with the entire class.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	■
3. Independent or group centers.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	■
4. Independent work (self-paced, individual assignments).....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	■
5. Systematic individual instruction (differential assignments geared to individual needs).....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	■
6. Individual tutoring (teacher, peer, or aide).....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	■
7. Sustained writing/composition (self-selected or teacher-assigned topics).....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	■
8. Use of the computer as a tool or resource.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	■
9. Use of technology (other than computers) used as a tool or resource.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	■
10. Integration of subject areas.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	■
11. Experiential "hands-on" learning.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	■
12. Alternative assessment strategies.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	■
13. Student self-assessment (portfolios, record books, etc.).....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	■
14. Student discussion.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	■
15. Use of questioning strategies.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	■

APPENDIX B: TABLES

Table 4.8

Summary of Descriptive Statistics for Item Response Including Item Statement for the School Analysis Model (SAM) Staff Questionnaire, the Means, and Standard Deviations (n=2000 teachers)

Item Statement	N	Mean	Std. Deviation
35. Teachers us a variety of teaching strategies and learning activities to help their students learn	1338	3.78	.581
11. Students at this school are provided hands-on, activity based instructional experiences	1353	3.70	.710
43. Students at this school are taught in ways that allow them to relate what they are studying to their everyday lives	1594	3.69	.697
8. Classroom rules are enforced fairly by most teachers	1250	3.68	.732
6. Administrators encourage active faculty involvement in this school's improvement process	1120	3.64	.823
7. Teachers participate in developing this school's improvement activities	1246	3.63	.810
29. I understand most aspects of Louisiana's School Accountability System that affect my school	1621	3.60	.806
45. Staff development activities continue to focus on school improvement efforts as determined by school data	1563	3.60	.777
36. This school does a good job in teaching mathematics	1550	3.60	.751
24. I feel safe at this school	1246	3.59	.879

Table 4.8 Continued

26. Students are assessed in a variety of ways at this school, which gives them opportunities to demonstrate what they know	1594	3.59	.796
44. This school does a good job teaching students social studies	1674	3.58	.736
40. I understand most aspects of Louisiana's High Stakes Testing Policy that affect my students	1535	3.57	.812
12. This school does a good job in teaching students to read well	1480	3.52	.854
21. Staff development activities at this school are focused on instructional needs in the classroom	1570	3.52	.882
13. Most staff development activities enable us to improve classroom practices at this school	1592	3.50	.893
17. The classroom discipline policies at this school promote an effective learning environment	1446	3.49	.942
39. Administrators willingly provide assistance to improve my instructional practice	1502	3.49	.937
10. Most students at this school will eventually graduate from high school	1642	3.46	.873
37. During the past two years, staff development activities have addressed areas that help students achieve	1579	3.45	.837
20. This school does a good job teaching students science	1698	3.45	.810
27. This school does a good job teaching students to write well	1721	3.44	.868

Table 4.8 Continued

15. Most parents at this school express a belief that their child needs a good education for success as an adult	1690	3.37	.957
16. Administrators are often seen throughout the school making informal contacts with students	1334	3.37	1.010
19. Most of the teachers in our school encourage students to do extra work to improve their grades	1654	3.37	.815
42. Students at this school can achieve at or above the level of other students in Louisiana	1666	3.36	.951
14. Most parents at this school care about what grades their children earn	1765	3.33	.996
30. Most parents want feedback from teachers about their child's grades and behavior at school	1672	3.29	1.008
1. How long have you been an educator (including time at other schools)	1952	3.24	.983
23. Administrators emphasize faculty participation in decision-making activities at this school	1577	3.23	1.068
31. Teachers participate in developing this school's policies	1692	3.21	1.044
28. The staff development program at this school is evaluated regularly by the faculty	1726	3.11	1.031
32. Student fights are not frequent at school	1583	3.09	1.144
34. Students at this school will attend some form of higher education after graduating from high school (college, junior college, technical school)	1850	3.08	1.005

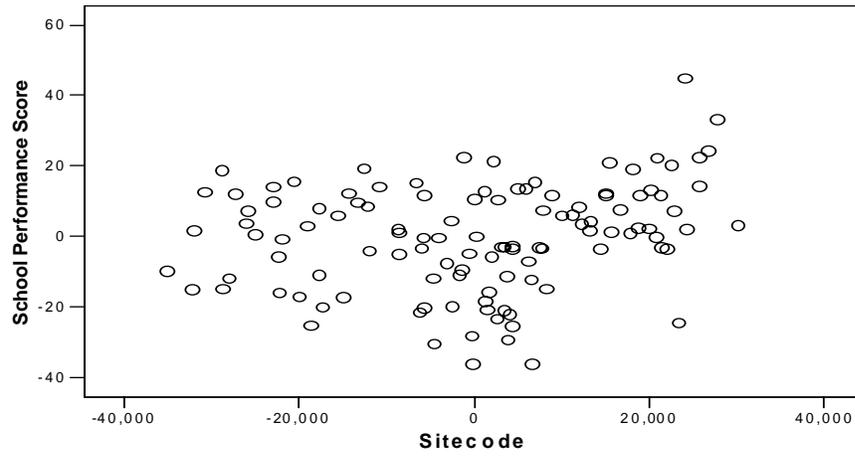
Table 4.8 Continued

33. Most students at this school can achieve at or about the level of other students in the nation	1786	3.06	1.070
18. Students at this school can do better school work than other students	1823	2.90	.952
2. How long have you been an educator at this school	1946	2.64	1.130
25. The academic ability of students at this school is higher than that of other students	1876	2.58	.955
5. Most parents provide help to their child with his/her school work	1922	2.54	1.077
3. How much formal education do you have	1930	2.36	.827
22. Most parents are involved in school-supported activities	1869	2.36	1.043
4. How many days were you absent for staff development activities	1888	1.47	.938

APPENDIX C: DIAGNOSTIC PLOTS

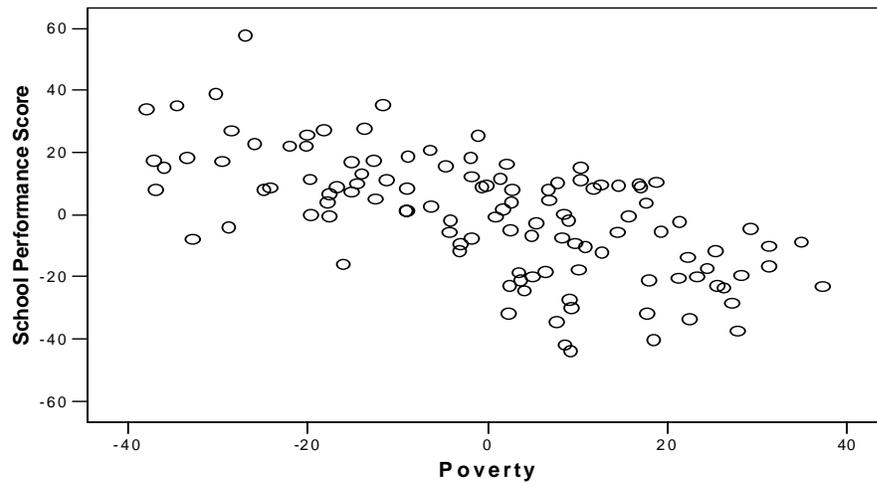
Partial Regression Plot

Dependent Variable: School Performance Score



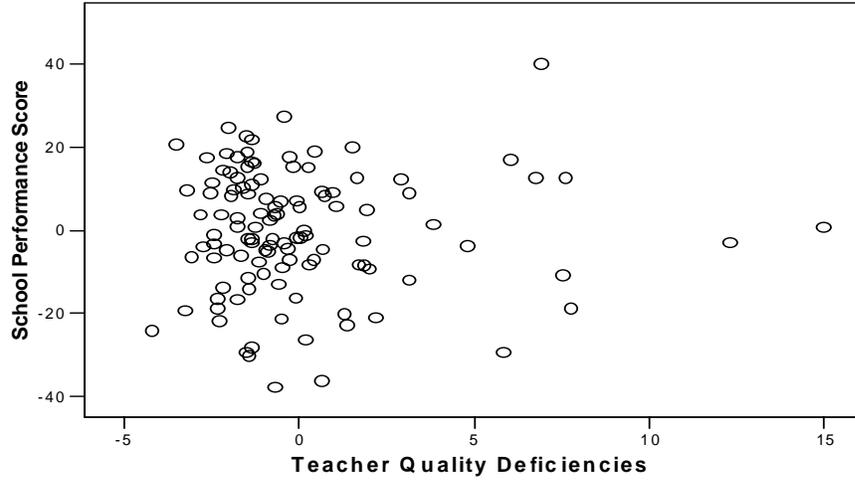
Partial Regression Plot

Dependent Variable: School Performance Score



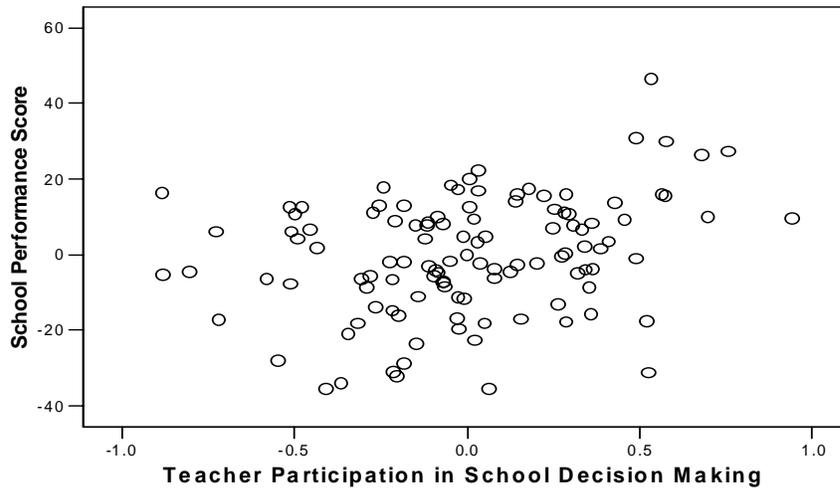
Partial Regression Plot

Dependent Variable: School Performance Score



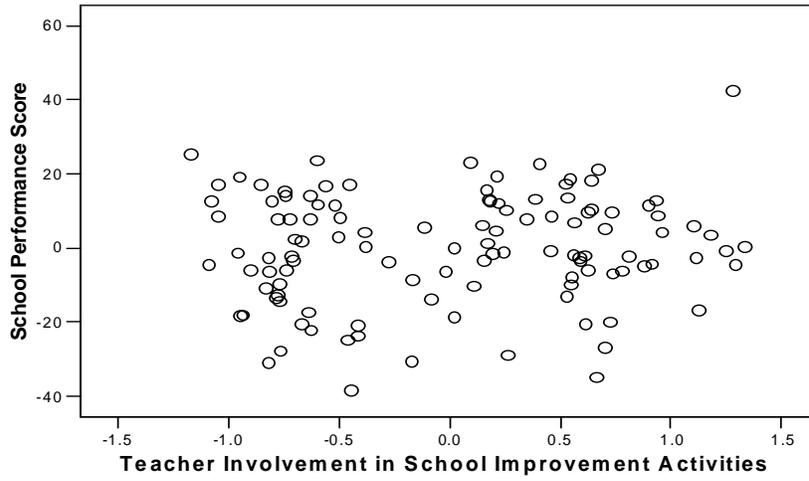
Partial Regression Plot

Dependent Variable: School Performance Score



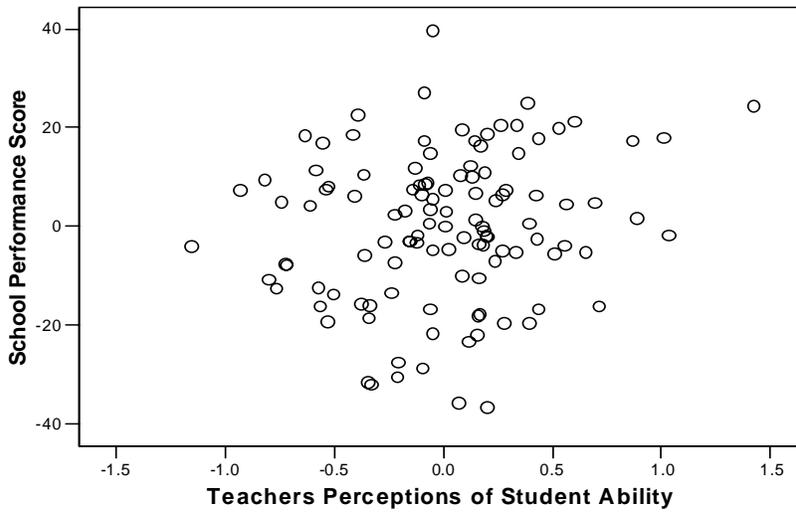
Partial Regression Plot

Dependent Variable: School Performance Score



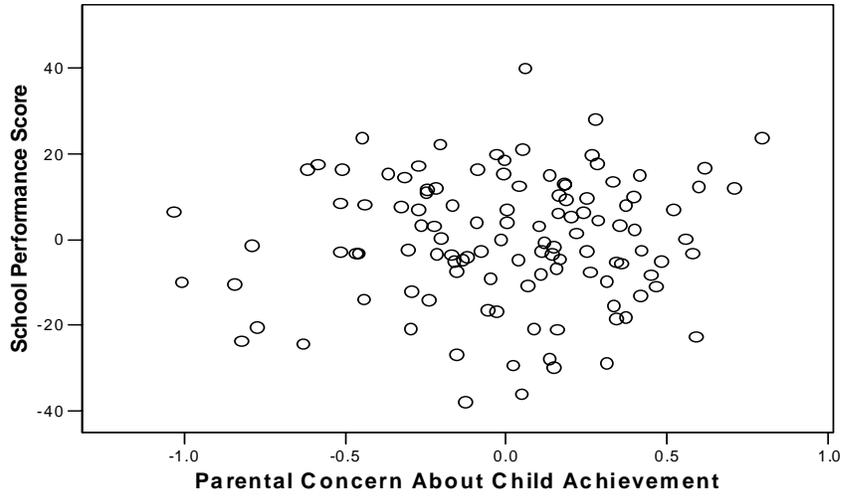
Partial Regression Plot

Dependent Variable: School Performance Score



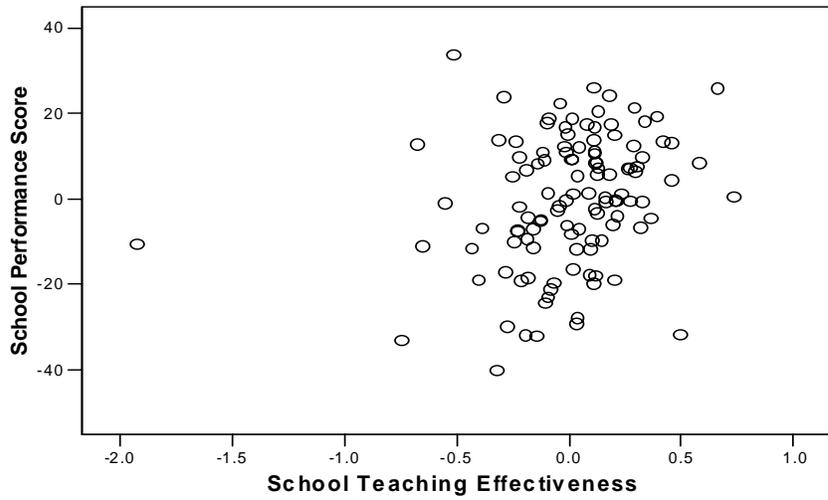
Partial Regression Plot

Dependent Variable: School Performance Score



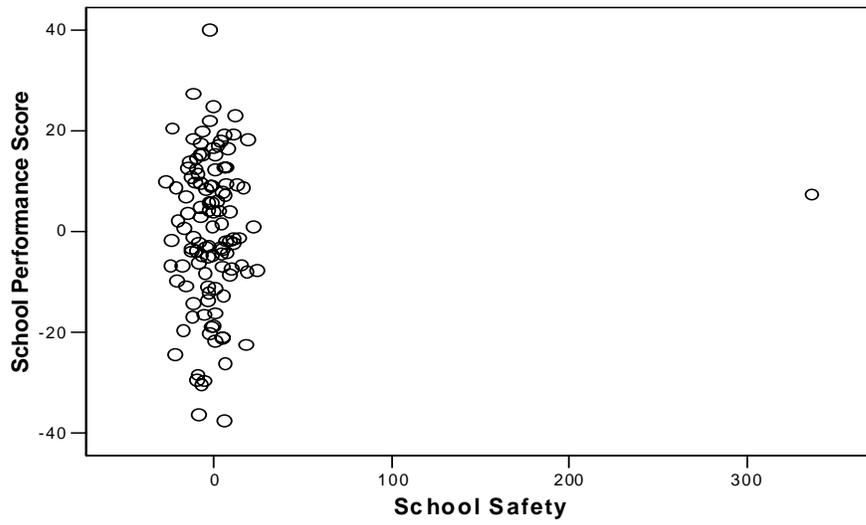
Partial Regression Plot

Dependent Variable: School Performance Score



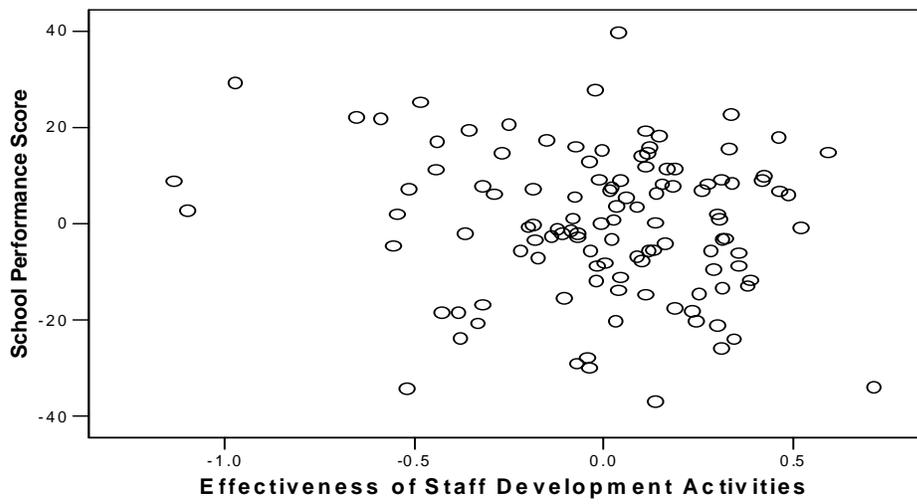
Partial Regression Plot

Dependent Variable: School Performance Score



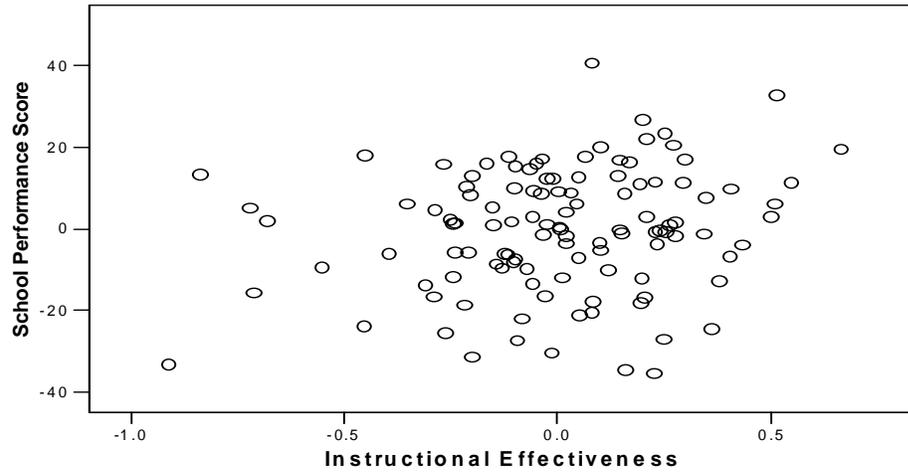
Partial Regression Plot

Dependent Variable: School Performance Score



Partial Regression Plot

Dependent Variable: School Performance Score



VITA

Nikki Bray Clark holds a bachelor of arts in social studies education as well as a master's in secondary teaching from Southeastern Louisiana University. She has done additional post-graduate work in geography education at Portland State University and post-graduate work on Russian studies at Yale University. She received a doctorate in human resource education and workforce development from Louisiana State University. Ms. Clark has 20 years of experience in education in addition to public policy experience with state and national education initiatives. Currently, Ms. Clark serves as President of the National Council of State Social Studies Specialists (CS4). Active with many education organizations including: National Council for Social Studies, the International Assembly, Gilder-Lehrman Institute of American History, Louisiana Public Broadcasting Corporation and the National Geography Education Alliance, she has served as an advisor to the Louisiana Governor's Office on Character Education and as a consultant to the National Council for Economic Education. Ms. Clark currently sits on the governing boards of numerous state and national educational and academic organizations. Most recently, Ms. Clark has worked as a secondary supervisor of instruction for the Louisiana Department of Education where she is active in teacher training, curriculum development, assessment development and oversight of the Graduation Exit Exam Remediation Program. Previously she taught social studies at the elementary, middle and high school level as well as serving as an education consultant for public television program development with Louisiana Public Broadcasting Corporation. Ms. Clark and her husband, Joey Clark, live in Baton Rouge, Louisiana and have a son, Scott.