CHAPTER ONE

THE PROBLEM

Context of the Study

Since the advent of the No Child Left Behind Act (NCLB), states and school districts have refocused their primary efforts toward developing standards and assessments to meet its requirements. Two tenets of the law, increased teacher and administrator accountability for school performance and the use of research-based school improvement approaches (United States Department of Education, 2002) overlay the constellation of issues that school principals face. Principals' perceptions regarding how to address these accountability issues viewing the school as an organization have appeared anecdotally in many venues. Yet, an empirical analysis of the relationship between principals' perceptions of their school's organizational characteristics relative to whether or not the school met performance objectives has not been examined.

In a study completed prior to the passage of NCLB McLaughlin and Drori (2000) derived the interrelationships at the school level among four composite features, or variables, (representing student background, organizational features, professional characteristics of teachers, and behavior climate perceptions) with average student academic achievement testing correlational, multiple regression, and structural equation model analyses. Merging the 1993 Schools and Staffing Survey (SASS) with achievement data from state assessments and the National Assessment of Educational Progress (NAEP): Reading (1994) and Mathematics (1992, 1996), their study is considered to be a comprehensive approach compared with earlier work that used proxy variables for student achievement and did not employ composite explanatory variables. Drawing upon a subset of their model this study proposes to examine a modification of one of their composite variables, *organization features*, and its predictive ability for determining

whether or not schools meet their performance goals. The modified organizational features variable includes three components: organizational complexity, shared decision making, and leadership behavior. Due to its restricted scope this study will utilize only one of the databases, the Schools and Staffing Survey (SASS) Public-Use Data (NCES: 2004-372).

Proposed Theoretical Model

Organizational features may include such factors as school size, class size, normative cohesion, teacher influence, organizational complexity, organizational goals as expressed by principals, influence by state agencies and local school boards, and staff diversity (McLaughlin & Drori, 2001). The proposed theoretical model assumes that three features of school organization influence school performance: (a) organizational complexity, (b) shared decision making, and (c) leadership behavior. It is the assumption that the number of teachers, aides, and special teachers, the diversity of job responsibilities, and the specialization of services for students creates a complex situation for a principal to supervise. Plus, in many schools there is only one administrator, especially at the elementary school level, and the responsibility of supervision and the monitoring of instruction can become overwhelming. This study also assumes that the way in which principals involve teachers in the decision making process influences school performance. Researchers have indicated that teachers want to be involved in the decision making process; particularly, when the decisions affect what happens in the classroom (Rice & Schneider, 1994). Furthermore, teacher involvement has been shown to make a difference in school performance (Smylie, Lazarus, & Brownlee-Conyers, 1996).

Finally, it is the belief that leadership behavior that facilitate teaching and learning, teachers working together collectively, an academic emphasis and support for teachers, and professional development influence how well a school will perform on district or state

performance goals. The purpose of this study is to examine the features of school organization from the principal's perception to determine the probability of school organizational features predicting whether schools would meet performance goals. The model shown in Figure 1 provides a visual representation of the relationship between school organizational features and school performance.

The research framework is shown in Figure 2. The figure shows the breakdown of the school organizational features into organizational complexity, shared decision making and leadership behavior. Organizational complexity is represented by three variables: (a) the size (b) the diversity of roles, and (c) span of control. Shared decision making is represented by three variables: (a) teacher influence in curriculum decisions, (b) policy decisions, and (c) professional development decisions. These variables were used in a taxonomy of logistic regression models to predict the odds of whether schools would meet district or state performance goals.

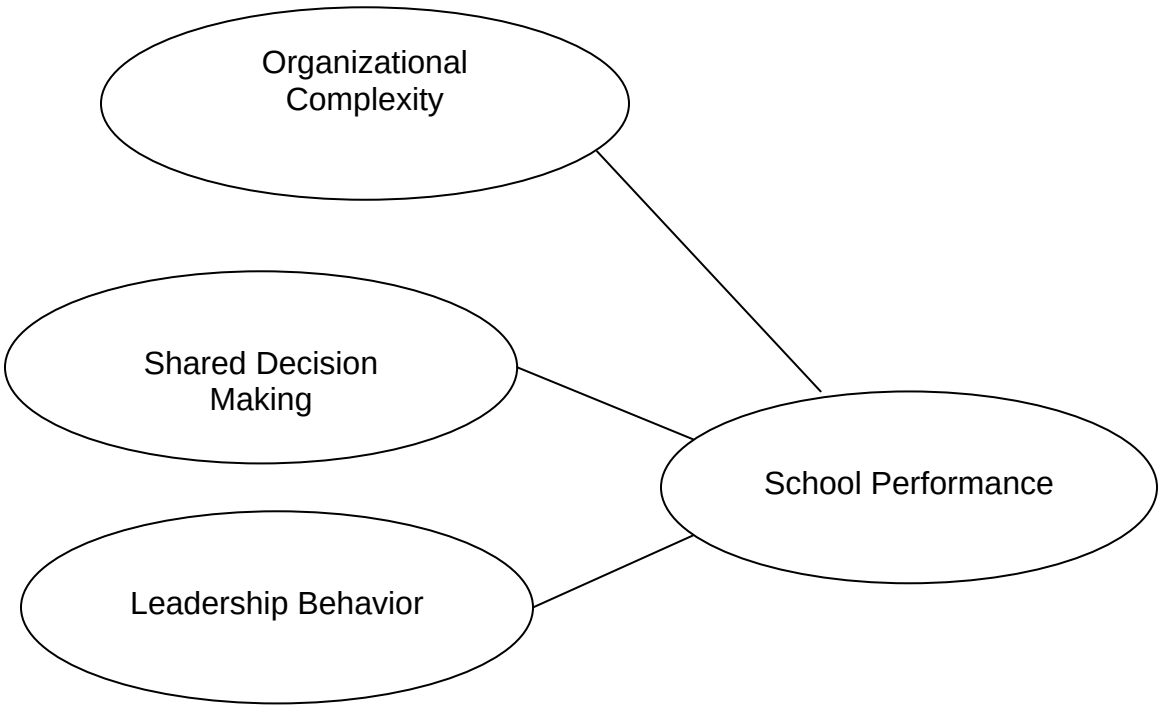

Figure 1. Proposed parsimonious theoretical model for the relationship between features of school organization (organizational complexity, shared decision making, and leadership behavior) and school performance.

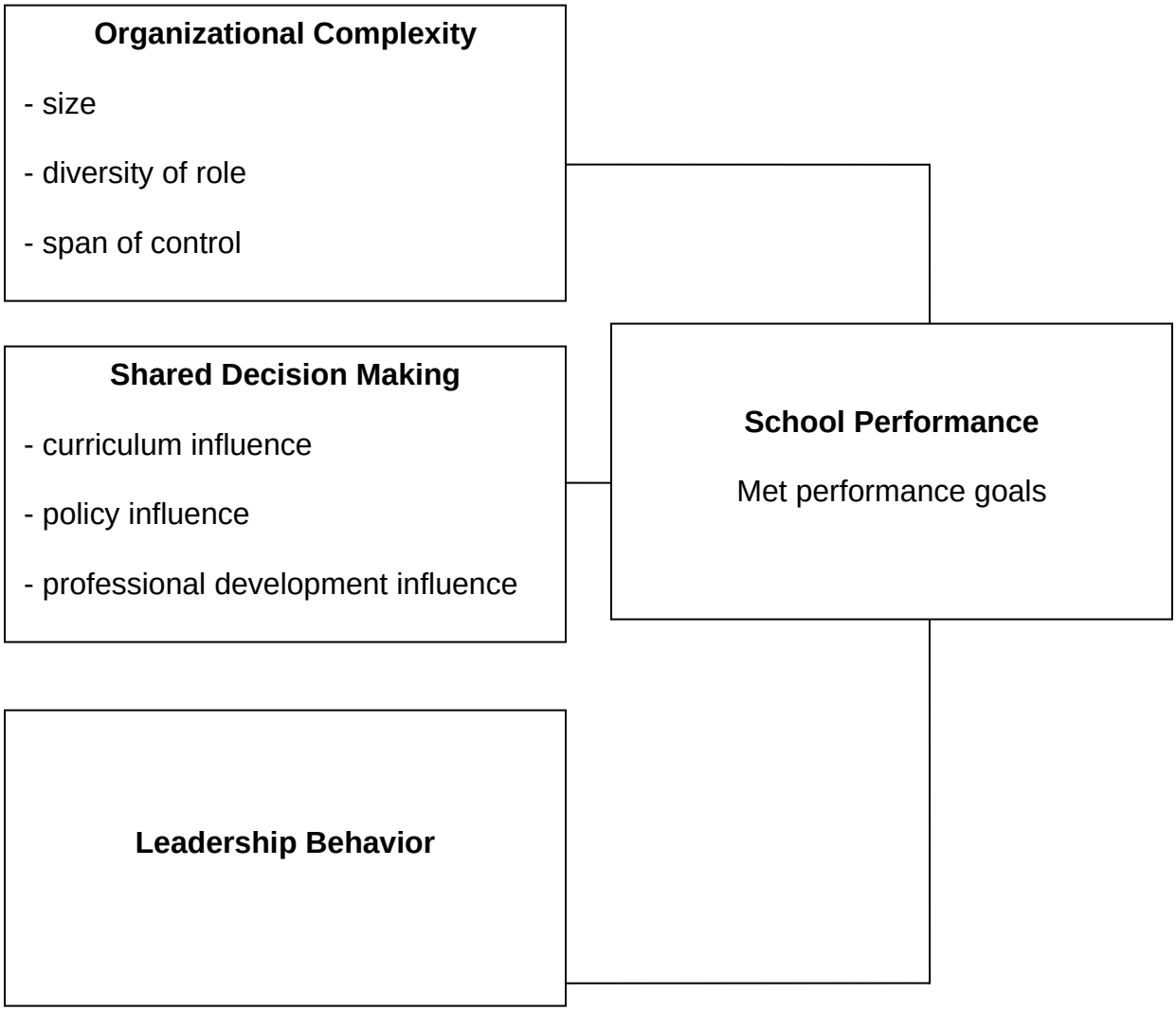

Figure 2. Research framework based on the theoretical model and the review of the literature for this study.

Theoretical Perspective

The underlying foundation for this study has been drawn from three theoretical knowledge bases. The bases are social cognitive theory, management theory, and complexity theory.

Social Cognitive Theory

Developing sound relationships between school principals and members of the school faculty is a basic principle of effective school organizations. The characteristics of the relationship may differ depending on the complexity of the organization, involvement by teachers in decision making, and the leadership behavior exhibited by the principal. Bandura's (1986) model of *triadic reciprocality* indicated that there is an interactive effect among cognition, personal factors, and environmental influences that causes people to react differently in different situations. According to Bandura's model, people's reactions are defined based on five *capabilities*:

1. Symbolic capabilities, which encompass the altering and adapting to one's environment by transforming and processing symbolic experiences.
2. Forethought capabilities, which involve relying on consequences of prior experiences before taking action.
3. Vicarious capabilities, that evoke taking action based on observed experiences of others.
4. Self-regulating capabilities, which constitute taking action based on personal beliefs and values.

5. Reflective capabilities, that refer to assessing personal actions based on the individual's decisions.

These capabilities thus infer that an individual's thoughts and actions may be the result of prior experiences, however, how one responds to situations are influenced by genetic, experiential, and physiological factors. Therefore, one might assume that behavior exhibited by principals focused on meeting school performance goals are embedded in the five dimensions of Bandura's (1986) model of triadic *reciprocality*.

Management Theory

As organizations, schools serve the needs of various groups: students, teachers, administrators, parents, and other stakeholders. The expectations of each group are important when examining features of school organization and their influence on school performance. Theorists of human relationships focus on the behavior of people within organizations and both assume and assert that organizations should invest time and effort in addressing the needs of the employees as a means of achieving the goals of the organization (Shafritz & Ott, 2001).

These assumptions can be applied to schools, because schools serve student academic needs. Society expects teachers, administrators, and other stakeholders to provide the channel for students to attain academic success. In this interpretation, school employees become required resources providing the services needed by students to achieve academically. If principals hold similar beliefs regarding the value of school employees, then there exists the possibility that achievement of state or district performance goals is attainable.

The link between leadership behavior and worker productivity has been established (Deming, 2000; Likert, 1967). High productivity and profitability are related to knowledgeable and skilled employees. If there is a belief that teachers and other school personnel are important

resources, then one might assume that meeting school performance goals would be a logical outcome. Consequently, principals should capitalize on employee expertise and nurture their human resources, the teachers and other school personnel, to encourage improved school performance.

Complexity Theory

According to Marion & Uhl-Bien (2001) the complexity theory is a field of science emphasizing the interactions of the varied parts of organizations that influence organizational change, growth, and innovation. They reported that the complexity theory had recently been used by social science researchers. Lewin, Parker, & Regine (2004) reported that the complexity theory was used to analyze behaviors within organizations. Behavior was predictable and unpredictable due to minor or substantial changes within the organization (Rosenhead, 1998) and added to the paradigm of complexity. For purposes of this study, the complexity theory was used to interpret the relationship between school organizational features and school performance.

The public can observe the paradigm of school complexity when one considers the size of the school district and schools in relationship to the number of schools, the full-time and part-time personnel, the student population, the students with special needs, the specialization of services, and the varied role responsibilities of personnel. In addition, environmental influences such as policy issues and interactions with parents and community leaders add to the complexity of school organizations.

Overview of the Methods for this Study

The purpose of this study was to determine the odds of school organization features predicting whether schools would meet district or state performance goals. The school organization features included organizational complexity, shared decision making, and

leadership behavior. The dependent variable was school performance operationally defined as the principal's *yes* or *no* response to the SASS question: Did your school meet district or state performance goals? The independent variables representing organizational complexity were *size, diversity of role,* and *span of control.* The independent variables representing shared decision making were *curriculum influence, policy influence,* and *professional development influence*. The leadership behavior feature was represented by a composite variable. The covariate was the percentage of children eligible for free and reduced lunch, referred to as *percent free lunch*.

The sample was taken from data collected by the National Center for Education Statistics (NCES) and consisted of 5,312 public schools and 5,312 public school principals. The methods of data analysis consisted of (a) the identification of indicator variables from SASS, (b) the use of a principal components analysis to extract patterns of association among the indicator variables of shared decision making and leadership behavior, (c) the development of scales, and (e) the fitting of a parsimonious logistic regression model.

Research Question

The research question that guides this study is: What is the probability of school organizational features predicting whether or not schools will meet performance goals?

Definition of Constructs

Constitutive and operational definitions of the dependent dichotomous variable, the independent variables, and the covariate are presented in Table 1.

Limitations of the Study

Limitations of this study that need to be considered when results are interpreted include:

1. The person completing the 1999-2000 SASS Public Schools *Principal* Survey may not have been the principal but someone designated by the principal.

2. There is possible measurement error in the survey responses that is due to the number of survey follow-ups conducted by telephone. (Monaco, Salvucci, Zhang, Hu, & Gruber, 1997).
3. Student achievement scores were not included in the SASS Public-Use Data, therefore, the question that asked if the school meets school performance goals, was used as the dependent variable representing school performance.
4. The phrase, *performance goals,* was not defined through survey questions, however; it was defined generally and philosophically (Gruber, et a., 2002). The specific subject content that students are expected to master is the definition used to describe school performance goals in this study.
5. Data derived from the SASS Surveys was from perceptions or self-reports.
6. In the 1999-2000 Schools and Staffing Survey (SASS) Public-Use Data (NCES: 2004-372), the indicator variable S0254 (total teachers) was used to represent teachers. The S0254 variable is a categorical variable with three categories for the number of teachers. The category was coded as *one* that represented schools with fewer than 25 teachers at a school site, *two* represented 25 to 34 teachers at a school site, and *three* represented 35 or more teachers at a school site. It was determined that having only three categories was inadequate to develop reliable variable scales. Using three other variables provided in the database, values for additional categories of this variable were imputed using a variation of the *hotdeck* imputation algorithm (Flewelling, 2004) for categorical variables.

Delimitations of the Study

Delimitations are the boundaries that the researcher places on the study, as follows:

1. Although the number of eligible cases in the SASS survey that responded to a critical threshold of survey items to be considered a valid response was 8,432 (88.5%) public school surveys and 8,524 (90.6%) public school principal surveys. the sample for this study consisted of 5,312 public schools, and the public school principal assigned to each of the 5,312 schools. For purposes of this study, data from the *School Principal Survey* and the *Public School Survey* were merged so that these two conditions were met in the data: (1) schools with principals and (2) schools that had performance goals were used in the analysis. Thus, the sample was delimited to include only school and principal reported data and NOT data from cases that indicated there was no principal in the school. This delimitation is estimated to over-sample secondary and combined schools and under-sample elementary schools making the generalizability of the conclusions slightly less applicable than a representative sample of all public schools in the United States. The conclusions may be generalized to all public schools with principals who report that they either met or did not meet performance goals.
2. An interaction between an independent variable (or a covariate) and the dependent variable can occur, when the dependent variable (or outcome) differs according to the various levels of the independent variable. When an interaction is present, the association between the dependent and the independent variable varies according to the level of the independent variable and is reflected in changes in the magnitude of the model coefficients. A delimitation of this study is that no models in which the

interactions between variables were tested. Comparing the models in which differences have been ascertained among models with and without the interactions specified is beyond the scope of this study.

Chapter Summary

In conclusion, the purpose of this study is to analyze school organizational features to determine the probability of school organizational features predicting schools meeting performance goals. School performance is defined as meeting specific content goals. The three features of school organization include organizational complexity, shared decision making, and leadership behavior. Data concerning the three features of school organization are reported from school *principals' perceptions*. This study will contribute to the empirical literature on school organization and the relationship to school performance. Theories from the disciplines of sociology and social psychology formulated the underlying theoretical basis of the study: Social cognitive theory, management theory, and complexity theory. Within the remaining chapters, the relevant literature for this study is synthesized, the methodology for data analysis is presented, and the data analysis results are reported and discussed.

Table 1

Definition of Constructs

Construct	Constitutive definitions	Operational definitions
School performance	Meeting minimum district or state subject content performance goals.	The response to question 22c on SASS Public School Principal Survey (*yes (met performance goals)* coded 1; *no (did not meet performance goals)* coded 0).
Organizational complexity	The number of people, the diversity of role, and the span of control at a school site.	The responses to SASS Public School Survey questions: 32a -32f, and 32h (number of staff holding full-time or part-time positions); and the imputed *TEACHNUM* variable.

(Table 1 continues)

Table 1

Definition of Constructs

Construct	Constitutive definitions	Operational definitions
Shared decision making	The principal's perceptions of the influence and control teachers have in decisions affecting instruction, curriculum, budget, and staffing.	The response to questions on SASS Public School Principal Survey: 10 (no influence, a great deal of influence); 13g and 13h (never, rarely, sometimes, frequently, always); and 20a, and 20b (yes; no).
Leadership behavior	The frequency of behavior exhibited by principals to facilitate professional development, the school mission, curriculum development, teacher evaluation, and student learning.	The response to question 14 (never, once or twice, three to five times, six or more times); and 21a through 21f (never, once or twice a month, once or twice a week, every day).

(Table 1 continues)

Table 1

Definition of Constructs

Construct	Constitutive definitions	Operational definitions
School percentage free and reduced lunch	The percentage of National School Lunch Program applicants approved for free or reduced-price lunches (Total School Enrollment = 100%).	The response to question 39d on SASS Public School Survey.

CHAPTER TWO

REVIEW OF THE LITERATURE

A review of the literature that was used to formulate the theoretical framework for this study is presented in this chapter. The research hypothesis of this study states that the three features of school organization (organizational complexity, shared decision making, and leadership behavior) will positively influence the probability of schools that would meet district or state performance goals. The assumption was that the number of people assigned to a school site, the diversity of role, the span of control; the influence people had in decision making; and the leadership behavior exhibited by the principal contributed to the odds of schools meeting performance goals.

The literature review is organized in three sections. The first section provides an explanation of the methods used to conduct the review, the selection criteria, and the evaluation criteria. The next section presents a synthesis of the literature on each of the three school organization features (independent variables) as they relate to school performance (dependent variable). The final section summarizes what has been learned about the relationship between school organization features and school performance, and concludes with the relevance of the findings to this study.

Methods Used To Conduct this Literature Review

This literature review was conducted in two stages. Stage one involved the search of databases using the keywords: Shared decision making, student achievement, student outcomes, teacher empowerment, shared governance, leadership, efficacy, cognition, school size, organizational complexity, complexity, and leadership behavior. These searches returned more than 1,000 articles. Databases used to locate articles included Educational Resources Information

Center (ERIC), Journals@Ovid, PsycINFO, Ingenta, Kluwer-journals online, Wiley Interscience online content service, JSTOR archives of scholarly journals, RIGHTSLINK, *Elementary School Journal*, *Administration and Society*, *School Effectiveness and School Improvement*, *Urban Education*, *Economics of Education Review*, *American Sociological Review*, and Inter Library Loan internet accessible database (ILLiad) at Virginia Polytechnic Institute and State University. Literature was ordered, in microfiche, hard copy, or electronic form from Educational Resources Information Reproduction Service and Ingenta Electronic Delivery Service.

Based on the evaluation criteria, more than 200 articles were reviewed for selection in the second stage. In this literature review, 15 articles met both the selection criteria and the evaluation criteria and were selected for review in this study. Those articles were taken from journals that included *Educational Administration Quarterly, Educational Evaluation and Policy Analysis, Review of Educational Research, American Educational Research Journal*, *American Journal of Education, Administrative Science Quarterly, Education, Public Administration Review, American Sociological Review*, and *Journal of Educational Administration.*

Selection Criteria

The following criteria were used for selecting the research to be included in this review. The research must have been:

1. Conducted between 1980 and 2004, with the exception of landmark research.
2. Directly addressing:
    a. School performance defined as meeting district or state performance goals (student achievement).

b. Organizational complexity and school performance defined as school size (the number of people responsible for teaching duties employed at a school site), diversity of role, and span of control.
c. Shared decision making and school performance defined as the influence and control teachers have in decisions affecting curriculum, policy, and professional development.
d. Leadership behavior and school performance defined as behaviors exhibited by school level administrators that facilitate professional development, the school mission, curriculum development, teacher supervision and evaluation, and student learning.

3. Published in academic, research, and peer-reviewed journals, with the exception of landmark research published in books.

Evaluation Criteria

The criteria that follow were used to evaluate the literature for inclusion in this review:

1. Empirical research that used systematic data collection procedures, research that could be replicated, and research that provided evidence to support findings and results.
2. Research designs that included:
    a. Quantitative studies that used regression analysis, path analysis, or structural equation modeling.
    b. Qualitative studies that used interpretive, verification, and evaluative analysis.
    c. Multi-method studies that used both the quantitative and qualitative forms of data collection and data analysis.

d. Comparative studies that consisted of the examination of numerical descriptors of two or more variables to make decisions about differences or relationships.

The literature for this review was selected to present an overview of the research on the relationship between school organizational features and school performance. The next section, presents the synthesis of the research.

Synthesis of the Research

Within this section, the research on the relationship between school performance (dependent variable) and the independent variables of organizational complexity, shared decision making, and leadership behavior was synthesized to formulate the theoretical framework for this study. The synthesis of the research is presented in three sections. The first section presents literature on the organizational complexity variable and school performance. The next section presents literature on the shared decision making variable and school performance, and the final section presents literature on the leadership behavior variable and school performance. Each section begins with the operational definition of the independent variable, followed by the synthesis of the research and summary statements.

Organizational Complexity

Organizational complexity was operationally defined as (a) the number of people (size), (b) the diversity of role, and (c) the span of control at a school site. Size was defined as the number of people responsible for teaching duties who worked at a school site, including the administrators. Diversity of role was defined as the number of positions assigned to a school site. Span of control was defined as the teacher to administrator ratio. There were few studies in the literature that focused on the complexity of school organization and school performance as

defined by this study. Consequently, related literature on dimensions of organizational *structure* was reviewed.

The features of school organization identified for inclusion in this study are consistent with the dimensions of organizations that Pugh, Hickson, Hinings, and Turner (1986) cited in their study of organization structure and strategies of control. They defined the dimensions of organizational structure as specialization (division of duties according to function), standardization (procedures and rules), formalization (communication procedures), centralization (decision making authority), and configuration (the number of levels of hierarchy). These dimensions were not used in this study, because the SASS database does not include variables that would be mutually exclusive with this category alignment.

Much of the literature on the dimensions of organizations was conducted by researchers from 1960 through 1990. Researchers during those time periods (a) analyzed organizational structure and climate and the complexity of the interrelationships of the two (Pheysey, Payne, & Pugh, 1971); (b) analyzed organizational structure, environment, and performance (Child, 1972); and (c) analyzed structural differentiation, span of control, and role differentiation as they related to mechanization and automation (Blau, Falbe, McKinley & Tracy, 1976). Two of the studies reviewed met the criteria for inclusion in this review, along with the classic study by Woodard (1957) and two more recent studies by Meier and Bohte (2000; 2003).

The discussion of the literature regarding organizational complexity is presented in three sections. In the first section, the focus is on organizational size and its relationship with school performance. Organizational span of control and diversity of role relative to school performance are discussed together in a second section. Finally, summary statements of the findings are presented.

Size.

Meyer (1972) analyzed the causal relationships among size and features of organizations. He postulated that features of organizational structure were influenced by the size of the organization, but that the features did not influence size or each other. The features included size, the number of organizational divisions, the levels of hierarchy, and the number of supervisors within an organization. Meyer studied 194 departments of finance in city, county, and state governments. Finance departments were defined as the administrative agencies of local governments. Size was operationally defined as the number of full-time employees. The number of divisions was operationally defined as the major sub-units within the finance departments. The levels of hierarchy were defined as the mean of the levels within divisions, plus one level for the department head. The number of supervisors was operationally defined as the employees who planned, directed, and reviewed the work of others.

The causal relationship among size and the features of the finance organization (the number of organizational divisions, the levels of hierarchy, and the number of supervisors in an organization) were analyzed using a path analysis. The results revealed that size significantly influenced the number of divisions and the levels of hierarchy within an organization. The results suggest that the number of divisions and levels increase as organizational size increases, suggesting an increase in organizational complexity.

Gooding and Wagner (1985) conducted a meta-analytic review of findings across studies on the relationship between size and performance. They reviewed 31 empirical studies that were published between 1931 and 1985. The organizations included in the studies were manufacturing firms and companies, colleges, school districts, schools, human resource agencies, hospitals, and post offices. Size was operationally defined as the number of employees, the log of the number

of employees, capacity, assets, and transactions. Performance was operationally defined as output which included profits, sales, and the number of clients served. Their initial findings did not reveal a relationship between size and performance, but they did find considerable variance across the studies (.0749) with only 18% of the variance accounting for sampling error variance.

Subsequently, Gooding and Wagner (1985) conducted an independent meta-analysis for the three variables that appeared to influence the size performance relationship: Level of analysis, the size measure, and the performance measure (productivity and efficiency). They found that residual variance associated with each moderator variable was greater than 40% of the observed variance, indicating moderating effects. They further performed subgroup analysis that revealed a strong mean correlation (r = .651) between size and performance when performance was measured as productivity at the organization level: The profits, sales, and number of clients served.

Span of control and diversity of role.

Span of control for this study was operationally defined as the ratio of teachers to school administrators. Diversity of role for this study was operationally defined as the different positions assigned to a school site. The review of the literature revealed few studies on span of control and diversity of role as related to school performance. Woodward's (1957) landmark study on the structure of management and supervision was cited by Mier and Bohte (2000, p. 118) as "one of few systematic studies of span of control and organizational performance" and has been included in this section. Two studies by Mier and Bohte (2000; 2003) investigating the relationship between span of control and organizational performance were also included. This section begins with Woodward's (1957) study and concludes with the literature by Mier and Bohte (2000; 2003).

Woodward's (1957) study was conducted over a four year period involving 91% of the manufacturing firms in Britain. Surveys were used to collect data from employees. Span of control was operationally defined as the number of people directly responsible to a manager or supervisor. The study results revealed that the levels of authority and the demand for managers and supervisory staff increased as advanced methods of mass production were introduced in the manufacturing field. Thus, the study appears to suggest that the more specialized the organization, the greater the administrative span of control.

Meier and Bohte (2000) studied span of control in Texas public schools as it related to organizational performance. Organizational performance was operationally defined as the percentage of students who passed standardized reading and mathematics test each year. There were four variables for span of control: Administrator to teacher, central office administrators to school level administrators, class size, and school size (student enrollment). There were 678 school districts with student enrollments over 500 that were used with the student as the unit of analysis. The school districts selected had maintained usable data sets from 1994 to1997. The data were pooled and generated 2,712 cases (students) for the study. Their data were analyzed using multiple regression analysis.

While the researchers reported several different analyses, only the results pertaining to the administrator to teacher span of control are reported here. The mean administrator to teacher span of control was 13.8 with a range of 3.0 to 30.5. The results revealed that the teacher to administrator ratio was positively related to organizational performance, indicating that performance can be increased by widening the span of control.

The second study by Meier and Bohte (2003) focused on how span of control was determined within school organizations and the effect span of control had on organizational

performance. Span of control was similarly operationally defined as the ratio of teachers to administrators. They described a narrow span of control as close supervision of the employee and a wide span of control as less supervision and more independence on the part of the employee to perform the job. They concluded that the determinants of span of control included diversification of function, time and stability, and size and space.

Meier and Bohte (2003) described diversification of function as diversity of task demands, diversity of production, and diversity of role. For purposes of this study the teacher to administrator span of control and how it was affected by the diversity of role was the focus. Diversity of role was operationally defined as the different occupations or roles within the organization. A Herfindahl index was used to measure diversity. A Herfindahl index is frequently used in economics research to measure the degree of market concentration taking into account the total number of companies and the size or share of the market (Herfindahl Index, 2005). As related to schools, a Herfindahl index would generate information about the concentration of teachers. It takes into account the total number of schools in a district and the share (proportion) of teachers assigned to each school site.

In their study school performance was operationally defined as student performance on standardized tests of basic skills. The sample for the study consisted of 678 school districts with student enrollments over 500. The school districts selected as participants in the study had maintained usable data sets from 1994-1997. The data were pooled and generated 2,712 cases for the study.

The results revealed that principals supervised fewer teachers, aides, support staff, and counselors, when there was a great deal of diversity among the staff. It suggested that the more diverse the teaching staff, the narrower the span of control (fewer people are supervised). Large

spans of control were indicated at the administrator-teacher level in large organizations, suggesting that teachers had greater independence to monitor themselves as they performed their job responsibilities. Relating span of control to student performance indicated that 71% of the variance in student test scores was explained by a narrow administrator to teacher span of control. Thus, the results suggest that the degree to which a span of control varies from narrow to wide in organizations is related to student performance (organizational performance).

Summary.

There is little research on organizational complexity related to school performance. The literature reviewed suggests; (a) that the more varied the staffing, the smaller the span of control, suggesting that diversity of role and span of control contribute to school performance, (b) a relationship between size and the number of divisions and levels within an organization is inconclusive, and (c) a positive relationship exists between the size of the organization and performance, when performance was defined as profits, sales and number of clients served.

Shared Decision Making

Shared decision making is operationally defined for this study as the actual influence and control teachers have in decisions on policies, curriculum, and professional development. The extent that principals share this decision making responsibility with teachers and other school stakeholders has been the focus of many studies. Mohrman, Cooke, and Mohrman (1978) identified three decisional dimensions: Managerial (hiring, budget planning, faculty assignments, and facilities), technical (instructional policies, classroom discipline, textbook selection, and learning issues), and negotiable (employee grievances and salaries). They concluded that teacher actual involvement in the decision making process varied as it related to whether the decisions were technical or managerial. Rice and Schneider's (1994) empirical analysis of teacher

involvement in decision making revealed that teachers have a desire for more participation in decision making and wanted to be involved in decisions that were not frivolous. Marks and Printy (2003) reported that principals had involved teachers in decisions about instructional issues as a way of improving student performance.

Whether substantive teacher involvement in significant decision making would improve student performance has also been a topic of discussion for educators and researchers. Researchers have argued that no relationship exits between shared decision making and school performance and that a relationship does exist between shared decision making and school performance. Several of the studies reviewed for possible inclusion in this literature review made reference to research from both arguments. Consequently, literature that examines both arguments is included in this review of the literature. This section begins with the argument that a relationship does not exist between shared decision making and school performance. It is followed by literature that supports the argument that a relationship does exist between shared decision making and school performance, and concludes with summary statements.

Argument supporting a relationship does not exist between shared decision making and school performance.

Taylor and Bogotch (1994) sampled volunteer teachers and administrators from a total of 32 schools that included elementary schools and senior high schools to examine the shared decision making and school performance relationship. The schools were located within a large diverse school district. Student achievement, the dependent variable, was operationally defined as student scores on the Stanford Achievement Mathematics Test. Shared decision making, the independent variable, was operationally defined as teacher participation in decisions that affected their job responsibilities.

The researchers administered a teacher survey to collect data for the study, receiving a 39% return response rate. The low survey response rate and the volunteer sample limited the results being representative of the population of teachers. The teacher response mean scores regarding their actual participation in decisions were used to classify schools as high teacher decision making participation schools and low teacher decision making participation schools. Student gain-loss math scores on the Stanford Mathematic Achievement Test for schools with a high degree of teacher participation in decision making were compared with student scores from the schools classified as low teacher participation schools. The multivariate analysis of variance (MANOVA) revealed no significant difference between the academic performance of students in schools where teachers had a high degree of decision making participation and schools where teachers had a low degree of decision making participation.

A study conducted by Jones (1997) on the shared decision making and school performance relationship, used a sample of urban kindergarten through sixth grade elementary schools. Only 25 volunteered to participate in the study. A survey was administered to teachers with a return response rate of 34.4%, which limited Jones' study being representative of elementary teachers' perceptions. Decision making was operationally defined as the extent teachers perceived being involved in shared decision making activities. Student scores on the Texas Assessment of Academic Skills reading, writing, and mathematics achievement tests defined student performance.

A correlation analysis was used to show relationships between shared decision making and student achievement. The analysis revealed no significant relationship between teacher participation in decision making and student performance.

The final study that is included in this section by Marks and Louis (1997) also supports the argument that a relationship does not exist between shared decision making and student achievement. Their study focused on shared decision making from the perspective of teacher empowerment and whether teacher empowerment was related to student achievement. The sample for the study consisted of teachers and administrators from 24 public schools. The public schools represented elementary schools, middle schools, and secondary schools from 16 states and 22 urban school districts. A survey was administered with a teacher return response rate of 82% (910 teachers).

Student academic performance, the dependent variable, was operationally defined as an assessment of the quality of student work as it related to three mathematics and social studies standards. A student's achievement score was the sum of their scores on the three standards. Empowerment, the independent variable, was operationally defined as teacher work life. A teacher's work life referred to teacher involvement in making decisions that directly affected them as a teacher and control over classroom instruction, textbook selection, teaching techniques, and subject content.

A correlation analysis was used to show the relationship between decision making and student academic performance. The analysis revealed that a relationship did not exist between shared decision making and student academic performance. All schools had participated in some form of site-based management which limited the population for which the results could generalize to.

Summary statements.

The literature supporting the argument that a relationship does not exist between shared decision making and school performance used volunteer samples, had low survey response rates, and used correlation analysis as the primary method of data analysis. The volunteer samples and the low survey response rates make it difficult for the results to be representative of the population. It suggests that caution should be taken when interpreting the results beyond the survey sample. In addition, student achievement or school performance was operationally defined differently: As student math scores; student aggregated scores on reading, writing, and mathematic achievement test for fourth grade students by school; and the sum of averaged student scores in mathematics and social studies on curriculum standards. Consequently, caution needs to be taken when extrapolating the result beyond the survey sample.

Argument supporting a relationship between shared decision making and school performance.

Smylie, Lazarus, and Brownlee-Conyers (1996) conducted a longitudinal study in a Midwestern kindergarten through grade 8 school district, to investigate the shared decision making and school performance relationship. They examined the shared decision making and school performance relationship from a theoretical perspective. Their theory postulated that the greater the teacher involvement in decision making, the greater teacher control, motivation, and student learning, suggesting improved instruction and student learning. Surveys were administered to collect data for the study during 1990, 1992, and 1994. The teacher return response rates were 60% (190) for 1990, 79% (206) for 1992, and 82% (211) for 1994.

Student performance was operationally defined as student math achievement scores from the Illinois Goal Assessment Program standardized test for third grade, sixth grade, and eighth

grade students. Shared decision making was operationally defined as teacher involvement in activities that provided opportunities for autonomy and activities that directly affected their motivation and opportunities for professional development. A correlation analysis was conducted to show relationships between shared decision making and student math and reading achievement test scores.

The results revealed a positive relationship between shared decision making and student math and reading achievement in some schools but not in all schools. Smylie et al. (1996) reported that the initial correlation analysis had single-school outliers that accounted for the small correlation coefficients. They recalculated the coefficients after omitting one of the outlier schools reducing the sample of schools to six instead of seven. The recalculation revealed large correlations between shared decision making and changes in reading (r = .80) and mathematics (r = .52) test scores. Smylie et al. (1996) findings again supported the argument that a relationship does exist between shared decision making and student performance.

Marks and Printy's (2003) study emphasized principal leadership and school performance. It has been included in this section because it addressed shared decision making and school performance from the perspective of principal and teacher collaboration in discussions about curriculum, instruction, and assessment. Collaboration was operationally defined as sustained dialogue and decision making between principals and teachers on instructional issues affecting school performance. Academic achievement was operationally defined as the sum of the averaged student scores in mathematics and social studies on three curriculum standards.

The sample consisted of 24 urban public schools representing16 states and 22 school districts. The data collection process consisted of observations, interviews, student work

samples, and the administration of a School Restructuring Survey (SRS). The survey was completed by 910 teachers with an 80% teacher return response rate. Hierarchical linear modeling (HLM) was used to assess the effect of the school's collaborative approach to leadership on student achievement. The results revealed that in schools where the principal and teachers collaborated on curriculum, instruction, and assessment, students achieved was higher (0.6 SD) on the academic measure than in schools where there was little principal-teacher collaboration.

Summary.

The research supporting a relationship between shared decision making and school performance had high survey response rates, analyzed survey data using correlation analysis in conjunction with more rigorous statistical procedures such as regression analysis, and hierarchical linear modeling. The samples were similar in size to the research that supported the argument that a relationship did not exist between shared decision making and school performance. The sample selection procedures were not reported in the literature. School performance was operationally defined as student scores on standardized math achievement test or student averaged scores on mathematics and social studies curriculum standards. It was evident that the methods of data analysis and statistical procedures used to test the shared decision making and school performance relationship may influence the outcomes of research studies.

Leadership Behavior

Leadership behavior is operationally defined as behavior exhibited by principals to facilitate professional development, the school mission, curriculum development, teacher evaluation, and student learning. Leadership is perceived by educators as an important factor

when discussing improved school performance. “The belief that principals have an impact on schools is long-standing in the folk-wisdom of American educational history” (Hallinger & Heck, 1996, p. 5). A cursory review of the literature presents three different arguments for approaching the existence of a relationship between leadership behavior and school performance; that a relationship did not exist between leadership behavior and school performance; that a relationship did exist between leadership behavior and school performance, and that leadership behavior was indirectly related to school performance.

Several of the studies reviewed for possible inclusion in this literature review made reference to research from each of the arguments. Much of the literature from the early 1970s that revealed a positive relationship between leadership behavior and school performance was comparative research. The comparative research examined schools where students were meeting the performance goals and schools that were not meeting the performance goals (Edmonds & Frederiksen, 1978; Weber, 1971; Brookover & Lezotte, 1977).

Consequently, literature that examined these arguments was included in this review. The indirect relationship argument was included with the no relationship argument in the review of literature for this study. This section begins with the argument that a relationship does not exist between leadership behavior and school performance, followed by summary statements. The next section presents literature that supports the argument that a relationship does exist between leadership behavior and school performance, followed by summary statements.

Argument supporting a relationship does not exist between leadership behavior and school performance.

Leitner (1994) examined principal instructional management behavior and the relationship to student achievement. The sample for the study consisted of 27 principals (75% of

eligible principals) and 412 teachers (95% of eligible teachers) from 27 kindergarten through twelfth grade urban schools. Leadership behavior was operationally defined as the principal's role in defining the school mission, managing the instructional program, and promoting a positive school climate. Principal behavior was measured using an instructional management rating scale. Student achievement was operationally defined as student achievement scores on standardized reading, mathematics, and language tests. Student fall semester achievement scores were compared with student spring semester achievement scores to obtain student achievement gains.

Leitner (1994) administered a teacher survey which had a 100% return response rate with 93% useable surveys. A multiple regression analysis was used to determine whether the existence of a significant relationship between principal behavior and student achievement. Leitner (1994) reported that the regression analysis revealed little or no relationship between principal behavior and student achievement and concluded that no direct relationship existed between principal behavior and student achievement. The results and conclusion appear to be contradictory, suggesting that there was a possibility of a relationship.

Pounder, Ogawa, and Adams (1995) examined the relationship between organizational leadership exerted by principals and school effectiveness. They operationally defined organizational leadership as principal influence in goal achievement, promoting teacher job satisfaction, and encouraging teacher loyalty. School effectiveness was operationally defined as student achievement, averaged for a three year period, on the Stanford Achievement Test for reading, language, and mathematics.

A teacher survey was administered to collect data for the study with a return response rate of 95%. The sample selection process consisted of a stratified random combination of 57

elementary school and secondary school sites. A path analysis was used to test for direct effects of principal leadership behavior on school effectiveness (student achievement). The results revealed that principal leadership indirectly affected student achievement through the teacher satisfaction with their job, explaining 51% of the variance in student achievement.

Hallinger, Bickman, and Davis (1996) also examined the leadership and school performance relationship. They operationally defined leadership behavior as the principal's role for managing curriculum and instruction, and creating an academically focused learning climate. Student achievement was operationally defined as third and sixth grade student reading performance on a criterion-referenced Basic Skills First Test of Reading. The sample consisted of 87 schools from a total of 110 Tennessee elementary schools that volunteered to participate in the study. A survey was administered to teachers and principals to collect data for the study.

Hallinger et al. (1996) used structural equation modeling to test the leadership behavior effect on school performance. The model did not reveal a direct path from principal leadership to reading achievement. The results indicated that principal behavior did not have a direct effect on school performance, but there was an indirect effect through the school climate variable.

Summary.

The literature supporting the argument that a relationship does not exist between leadership behavior and school performance reported high survey return response rates. The sample selection procedures include volunteer selection process and a stratified random selection process. The analytical procedures used to conduct the analysis for the studies included a multiple regression analysis, a path analysis, and structural equation modeling. The operational definition for student achievement differed among the studies. Some of the studies defined student achievement as overall school performance on standardized achievement test for specific

subjects, others defined it as overall student achievement on standardized test at specific grade levels in specific subjects, and still others defined it as student performance on criterion referenced test and core subjects. Leadership behavior was also operationally defined differently in each study. Leadership behavior was defined as influencing aspects of the school organization, as achieving goals, and managing the instructional program. However, the results did not reveal direct relationships, but indirect relationships were revealed.

Argument supporting a relationship between leadership behavior and school performance.

Jackson, Logsdon, and Taylor (1983) designed a quantitative-qualitative study to identify the leadership behaviors that distinguished effective, low-income urban schools from ineffective low-income urban schools. The operational definition of effective schools was that 50% or more of the students had to score at or above the fiftieth percentile on the California Test of Basic Skills. The sample for the study consisted of four District of Columbia effective low-income public schools and four ineffective low-income public schools, 97 teachers and 8 principals.

A Likert-type survey was administered to teachers with a return response rate of 100% for effective schools and 89.25% for ineffective schools. Jackson et al. (1930) attributed the high response rate to the follow-up efforts to secure surveys from the no response teachers. The data from the effective and ineffective schools were compared to identify whether the leadership behavior would distinguish the two types of schools.

A factor analysis was used to identify the underlying relationship among the survey items. The factor analysis revealed two leadership behavior dimensions: (1) Leadership style and support and (2) the design and implementation of staff development programs. The findings from the school comparison revealed that leadership behavior such as the monitoring of curriculum,

conferring with teachers, and providing academically focused staff development were characteristics consistent among the effective schools. As a result, this study suggests that certain leadership behaviors contribute to school effectiveness. Jackson et al. (1983) study supports the findings of the comparative studies conducted by Edmonds and Frederiksen in 1978 and other effective schools researchers.

Heck, Larsen, and Marcoulides (1990) tested a theoretical causal model to examine the influence that principal leadership behavior had on student achievement. Student achievement was operationally defined as consistent performance above or below the school's comparison band test score in reading and mathematic on the California Achievement Program Test. Leadership behavior was operationally defined as principal behavior that created a positive learning climate (defining the school mission and goals) and management of the instructional program.

The non random sample consisted of 168 teachers and 30 principals from 30 schools that included elementary and secondary, from a population of 5,000 schools. Within the sample, 40% of the schools were low performing and 60% were high performing, representing all geographical regions within the state. A survey was administered to teachers and principals to collect data to conduct the study. The predicted model of the influence of leadership behavior on student achievement included three dimensions. The dimensions were school climate (school mission goals and positive learning climate), governance (staff decision making involvement), and instructional organization (curriculum, instruction, and learning). Structural equation modeling with path diagrams was the analytical procedure used to generate the statistical parameters and their respective models depicting the influence leadership behavior had on

student achievement. The analysis revealed that the instructional organization dimension was a strong predictor of school achievement, explaining 53% of the variance in school achievement.

The study conducted by Marks and Printy (2003), that is included in the decision making section of this review, is also included in this section, because it examined the relationship of transformational leadership and shared instructional leadership as they related to student performance as well as decision making. Transformational leadership was operationally defined as those behaviors that empowered and supported teachers as valued partners in decision making. Shared instructional leadership was operationally defined as collaboration of the principal and teachers on curriculum, instruction, and assessment. Academic achievement was operationally defined as the sum of averaged student scores in mathematics and social studies on three subject standards in mathematics and social studies.

The sample consisted of 24 urban public schools representing 16 states and 22 school districts. The data collection process consisted of observations, interviews, student work samples, and the administration of a School Restructuring Survey (SRS). The survey was completed by 910 teachers with an 80% teacher return response rate.

Marks and Printy (2003) used a scatterplot with quadrant overlay and grouped schools as transformational leadership schools (high or low) and as shared instructional leadership schools (high or low) to compare leadership and school achievement. They used hierarchical linear modeling (HLM) to assess the effect of the school's leadership typology on student achievement. The analysis revealed that principal behavior significantly influenced student achievement in schools where an integrated leadership approach was evident. The integrated leadership approach was the existence of both, transformational leadership and shared instructional leadership practiced at high levels within a school site.

Summary.

The literature reviewed that supported a relationship between leadership behavior and student achievement had high survey return response rates. The sample selection procedure was identified in one of the studies and not noted in the others. The primary analytical procedures used to analyze the data included a comparative analysis, structural equation modeling, and hierarchical linear modeling. Student achievement was operationally defined as overall school performance (student achievement scores on standardized achievement test) and sum of averaged student scores in specific subjects. Leadership behavior was operationally defined as those behaviors that created a positive learning climate, the management of the instructional program, empowering and supporting teachers, and collaboration. The findings suggested a direct relationship between leadership behavior and school performance.

Chapter Summary

A review of the literature on features of the school organizational structure that was used to formulate the theoretical framework for this study was presented in Chapter 2. The school organization features were organizational complexity, shared decision making, and leadership behavior. A total of fifteen articles and one classic study were reviewed.

There were few studies on organizational complexity and school performance. However, the literature that was synthesized suggested that the size of an organization influenced performance and that the more varied the staffing the smaller the span of control contributing to 71% of the variance in student test scores. Before any definitive conclusions can be made on the relationship between school organizational features and school performance, additional research needs to be conducted.

From the synthesis of the literature it was evident that (a) the methods of data analysis were different and more rigorous in some studies than others; (b) the unit of analysis varied among the studies (the teacher level, the school level, or student level); (c) sample size varied from small to large; (d) samples for the studies were mostly volunteer with one or two using a random sampling procedure; and (e) the operational definition of school performance and the independent variables and the methods of data analysis varied from study to study. Because of the varied research designs, it is difficult to conclude that one argument on the relationship of school organizational features and school performance is right and the other is wrong. Researchers need to continue investigating school organizational features and their relationship to school performance.

Conclusion.

The proposed theoretical model for this study was based on the assumption that three features of school organization would predict schools meeting performance goals. Those features are organizational complexity, shared decision making, and leadership behavior. The synthesis of the literature has presented information about the sample and sample selection procedures, data collection procedures, and the analytical procedures used for data analysis on those organizational features. Furthermore, the synthesis of the literature suggested that two arguments existed regarding shared decision making and school performance, leadership behavior and school performance, and that few studies were available on organizational complexity and school performance.

Finally, suggestions for future research might include (a) an investigation of organizational complexity and school performance at the school level, (b) the use of larger sample sizes and randomized sample selection procedures, and (c) the utilization of rigorous

analytical procedures. The research framework for this study, as shown in Figure 2, shows the indicators of the independent variables that were found to be the underlying dimensions of organizational complexity, shared decision making, and leadership behavior as operationally defined in the literature. The methodology used by researchers from both arguments in the literature were expanded for this study to focus on overall school performance from the argument that school organizational features would predict the odds of schools meeting district or state performance goals. The methodology for this study is presented in Chapter 3.

CHAPTER THREE

METHODOLOGY

The purpose of this study was to determine the probability that features of school organization would predict school performance. Specifically, what is the probability of the independent variables (size, diversity of role, span of control, curriculum influence, policy influence, professional development influence, and leadership behavior) predicting schools that would meet, or not meet, district or state performance goals? Within this chapter, the procedures used to conduct the study are presented in three sections. The first section begins with an overview of the Schools and Staffing Survey (SASS). The overview includes the sample selection procedures, the population and sample size, the data collection procedures, survey reliability, and SASS data processing procedures. Next, the variables in the study are operationally defined. In the final section, the methods of data analysis are presented and a summary concludes the chapter.

Overview of the Schools and Staffing Survey (SASS)

The 1999-2000 Schools and Staffing Survey (SASS) Public-Use Data (NCES: 2004-372) was used for this study, because the survey contained data on school organization, decision making, staffing, and principal activities from the principal's perception. In particular, two surveys within the SASS database were used: the *Schools and Staffing Public School Questionnaire* and the *Schools and Staffing Public School Principal Questionnaire*. The *SASS Public School Survey* domains included (a) general information about the school; (b) admissions, programs, and performance; (c) student and class organization; (d) parent involvement and school safety; (e) staffing; (f) technology; and (h) special programs and services. The *SASS Public School Principal Questionnaire* domains included (a) experience and training, (b)

attitudes and opinions about education and the school, (c) teacher professional development, (d) teacher and school performance and principal's activities, and (e) demographic information.

Before the 1999-2000 SASS Public School Questionnaire and the Public School Principal Questionnaire were administered, revised surveys were field tested during the spring and fall of 1998 by the National Center for Education Statistics (NCES) to identify any potential problems. The spring field testing consisted of modified surveys, a sample of 250 public schools and 250 public school principals. The public school principal response rate was 71% and the public school response rate was 68%. The fall field testing consisted of all survey questions, a sample of 474 public schools and 474 public school principals with 62.9% and 63.1% response rates, respectively. Professional review panels and behavior coding of interactions between respondents and interviewers were used by NCES to asses the surveys.

The Schools and Staffing Survey (SASS) is the most comprehensive survey on kindergarten through twelfth grade organizational aspects of public schools within the United States. According to NCES, the SASS survey data could be used to analyze and report on teacher and school district capacity. Teacher capacity included teacher qualifications, career paths, and professional development. School district capacity referred to the school organization and decision making, curriculum and instruction, parental involvement, school safety and discipline, and school resources. In addition, SASS data could be used to examine trends, because the data were collected four times from 1982 to 2000. Finally, SASS survey data could be used to analyze teachers, administrators, and school districts within and across states (Thurgood, Walter, Carter, Henn, Huang, Nooler, Smith, Cash & Salvucci, 2003).

The SASS data will be used in this study to analyze the probability of school organizational features predicting whether schools would meet performance goals. Specifically,

the principal's response to questions on the *Schools and Staffing Public School Principal Questionnaire* and the *Public School Questionnaire* that focused on organizational complexity, shared decision making, and leadership behavior will be used. The specific items from each survey that were used in this study are listed in Appendix B, Tables B1 through B4.

SASS Sample Selection Procedures

The SASS database employed the Common Core Public School Universe (CCD) 1997-98 database as the sampling frame for the public schools. The CCD is a file of data collected yearly by NCES on public schools, special education, vocational schools, and alternative schools. It was used as the sampling frame for SASS, because it produced a representative sample of public schools. The sampling frame provided a population of 88,266 public schools within the United States.

Sample weighting procedures were used to account for each school's selection probabilities, to reduce no response bias, and to improve the accuracy of sample estimates by making use of information from other sources. The sample weighting procedures conducted by NCES for schools consisted of four factors (Tourkin, Pugh, Fondelier, Parmer, Cole, Jackson, Warner, & Weant, 2004). The first factor was the basic weight which was the inverse of the probability of selection. The second factor was the sampling adjustment for schools operating out of several locations that were identified as single schools or schools that had merged with another school. The third factor was the noninterview adjustment factor that accounted for total school no response. The final factor was the first-stage ratio adjustment factor that was used to account for deficiencies in the sample selected from the sampling frame. The public school principal sample weighting was completed separate from the public school sample weighting, but the same process was used. *Bootstrap* resampling procedures, one of the major balanced

repeated replication methods, was used to estimate sampling errors (Jabine, 1994). The bootstrap procedure used by NCES involved the generation of new samples by drawing from the original data to estimate sample variances (Tourkin, 2004-303).

A stratified sample design was used by NCES to obtain a survey sample that was representative of the population of public schools within the United States. During the school stratification process, all members of the population of schools had the same probability of being selected for inclusion in the survey sample. The stratification school process for selection of schools was conducted in three levels. In the first level, schools were selected according to three types, (a) Native American schools selected by state and local education agency with 19.5% or more Native American students; (b) schools in the states of Delaware, Nevada, and West Virginia; and (c) all other schools not included in (a) and (b). In the second level, the Native American schools were stratified by state with the exception of Alaska. Schools in Delaware, Nevada, and West Virginia were stratified by state and then by district. All other schools not already included were stratified by state. The third level consisted of schools stratified by grade level (elementary, secondary, and combined). The sample of public schools and public school principals for this study were taken from the NCES stratified school sample. Schools were selected first, and then the principal assigned to each school was selected.

SASS Population and Sample

The United States Bureau of Census mailed surveys to 9,893 public schools and 9,893 public school principals. A total of 9,527 of the returned school surveys were eligible for the sample, and 9,404 of the returned public school principal surveys were also eligible. However, the number of eligible cases that responded to a critical threshold of survey items to be considered a valid response was 8,432 (88.5%) public school surveys and 8,524 (90.6%) public

school principal surveys. This response rate was considered to be relatively high and indicated little threat of response bias (Girden, 2001).

Study Sample

The sample for this study consisted of 5,312 public schools, and the public school principal assigned to each of the 5,312 schools. For purposes of this study, data from the *School Principal Survey* and the *Public School Survey* were merged so that these two conditions were met in the data: (1) schools with principals and (2) schools that had performance goals were used in the analysis. Thus, the principal's response was the unit of analysis.

The sample represented elementary schools, secondary schools, and combined schools. The sample included schools from the Northeastern, Midwestern, Southern, and Western regions of the United States. Large central city schools, suburban schools, and rural schools were included in the sample. The demographic characteristics for the participants included SASS public school principal sample used in this study are shown in Table 2. The demographic characteristics for the corresponding schools included in the SASS public school sample used in this study are shown in Table 3.

A chi-square test of independence was performed to determine whether the two categories of school performance (met performance goals, did not meet performance goals) were significantly different by the demographic characteristics of the principals. A second chi-square analysis was performed for the categories of school performance by the demographic characteristics of the schools. The analyses revealed no significant differences between the two categories of school performance by the selected principal demographics and by the selected school demographics. The results of the analysis for principal demographics are shown in Table 4. The results of the analysis for the school demographics are shown in Table 5.

Table 2

Demographic Characteristics of the Principal Sample used in this Study

(N = 5,312)

Principal characteristics	*n*	% of the Sample
School level		
Elementary	2,638	49.7
Secondary	2.207	41.5
Combined	467	8.8
Gender		
Male	3,360	63.3
Female	1,915	36.7
Age		
Under 40	519	9.8
40 to 44	626	11.8
45 to 49	1,259	23.7
50 to 54	1,775	33.4
55 and over	1,133	21.3

(Table 2 continues)

Table 2

Demographic Characteristics of the Principal Sample used in this Study

(N = 5,312)

Principal characteristics	*n*	% of the Sample
Highest degree		
Associate	1	0.00
Bachelor's	71	1.3
Master's	2,868	54.0
Education specialist's	1,795	33.8
Doctorate	577	10.9

Note. The data in this table are from SASS Public School Principal Questionnaire. (NCES: 2004-372). The subcategories are consistent with subcategories in SASS.

Table 3

Demographic Characteristics of the Schools used in this Study

(N =5,312)

School characteristics	*n*	% of Sample
School level		
Elementary	2,638	49.7
Secondary	2,207	41.5
Combined	467	8.8
Teachers		
Fewer than 25 teachers	1,295	24.4
25 to 34 teachers	1,063	20.0
35 or more teachers	2,954	55.6
Student enrollment		
Less than 300 students	1,093	20.6
300 to 499 students	1,278	24.1
500 or more students	2,941	55.4

(Table 3 continues)

Table 3

Demographic Characteristics of the Schools used in this Study (N = 5,312)

School characteristics	*n*	% of Sample
Percentage of children eligible for free and reduced lunch		
Less than 5%	347	6.5
5 to 19 %	1,233	23.2
20 to 49%	1,927	36.3
50% or more	1,805	34.0
School region		
Northeast	800	15.1
Midwest	1,143	21.5
South	2,189	41.2
West	1,180	22.2
School urbanicity		
Large or mid-size central city	1,249	23.5
Urban or mid-size city	2,103	39.6
Small town or rural	1,960	36.9

Note. The data in this table are from SASS Public School Survey, School Questionnaire, (NCES: 2004-372). The subcategories are consistent with subcategories in SASS.

Table 4

Chi-Square Test of Independence for the Two Categories of School Performance (met goals, did not meet goals) for Selected Demographic Characteristics of School Principals in the Study Sample

Principal characteristics	% Met goals	% Did not meet goals	*df*	Chi-square
School level			2	1.905
Elementary	67.9	32.1		
Secondary	66.2	33.8		
Combined	68.1	31.9		
Age			4	3.600
Under 40	64.0	36.0		
40-44	66.0	34.0		
45-49	67.7	32.3		
50-54	67.7	32.3		
55 and over	68.0	32.0		
Gender			1	.173
Male	67.4	32.6		
Female	66.9	33.1		

(Table 4 continues)

Table 4

Chi-Square Test of Independence for the Two Categories of School Performance (met goals, did not meet goals) for Selected Demographic Characteristics of School Principals in the Study Sample

Principal characteristics	% Met goals	% Did not meet goals	*df*	Chi-square
Highest degree			3	1.043[1]
Associate	.00	100.0		
Bachelor's	70.4	29.6		
Master's	67.5	32.5		
Education specialist	66.4	33.6		
Doctorate	67.9	32.1		

Note. The data in this table are from SASS Public School Principal Questionnaire. (NCES: 2004-372). The subcategories are consistent with subcategories in SASS.

*$p < .05$.

[1]The Associate and Bachelor's degree categories were combined to avoid cell size frequencies less than 5 in the Chi square analysis.

Table 5

Chi-Square Test of Independence for the Two Categories of School Performance (met performance, did not meet performance) for Selected Demographic Characteristics of Schools

School characteristics	% Met goals	% Did not meet goals	*df*	Chi-square
School level			2	1.905
Elementary	67.9	32.1		
Secondary	66.2	33.8		
Combined	68.1	31.9		
Teachers			2	1.878
Fewer than 25 teachers	67.8	32.2		
25 to 34 teachers	68.6	31.4		
35 or more teachers	66.5	33.5		
Student enrollment			2	1.488
Less than 300 students	68.3	31.7		
300 to 499 students	67.9	32.1		
500 or more students	66.5	33.5		

(Table 5 continues)

Table 5

Chi-Square Test of Independence for the Two Categories of School Performance (met performance, did not meet performance) for Selected Demographic Characteristics of Schools

School characteristics	% Met goals	% Did not meet goals	*df*	Chi-square
Percent free lunch			3	2.180
Less than 5%	64.3	35.7		
5 to 19%	68.3	31.7		
20 to 40%	67.4	32.6		
50% or more	66.8	33.2		
School region			3	6.935
Northeast	65.3	34.7		
Midwest	69.9	30.1		
South	67.5	32.5		
West	65.4	34.6		
Urbanicity			2	3.846
Large or mid-size central city	66.9	33.1		
Urban or mid-size city	65.9	34.1		
Small town or rural	66.8	31.2		

Note. The data in this table are from SASS Public School Questionnaire (NCES: 2004-372). The subcategories are consistent with subcategories in SASS. *$p < .05$.

Data Collection Procedures for the Schools and Staffing Survey (SASS)

The SASS data collection process was conducted by the United States Bureau of Census in three steps. Step one consisted of the mailing of introductory letters that explained the survey, to the sampled school districts and principals. The second step consisted of the mailing of surveys to the public school sample and public school principal sample. Reminder postcards and a second survey mailing went to all schools and principals who had not responded. During the final step, schools and school principals not responding were contacted by telephone or were visited at the school site.

Principals responded to survey questions about decision making influence and professional development on a 5-point scale: 1 represented *no influence* or *never* and 5 represented *a great deal of influence* or *always.* Principals responded on a 4- point scale to questions about the activities they had participated in: 1 represented *never* and 4 represented *everyday.* Caution must be taken when interpreting the results of this study because the school surveys were addressed to the principal, but the surveys may have been completed by someone other than the principal.

There were items on SASS surveys left unanswered or the principal refused to answer. A procedure called imputation was used by NCES to supply missing data to reduce nonresponse bias. The imputation procedures included (a) the use of data from other items on the same survey, (b) the use of data from different surveys, (c) the use of data from the Common Core Public School Universe (CCD) 1997-98 data file, and the use of the *hotdeck* method. The hot-deck method is the premier approach used for managing missing data. With the hotdeck method, data from a respondent, who was similar in characteristics to the nonrespondent, was used to supply missing data (Thurgood, et al., 2003).

SASS Survey Reliability

A reinterview program was conducted by NCES to evaluate the reliability of data for selected SASS questions on the surveys and to measure the consistency in responses between the original survey and the reinterview survey (Gruber, Wiley, Broughman, Stritzek, & Burion-Fitzgerald, 2002). The reinterview survey was independent of the first survey. The reinterview survey used the same data collection procedures, and the administration of the survey was conducted under the same conditions as the original surveys (Salvucci, Walter, Conley, Fink, & Saba, 1997). The reinterview process included (a) selection of questions critical to the SASS survey or questions that were found to be problematic, and (b) the mailing of reinterview surveys to principals after receipt of the original survey.

Pearson's correlation coefficient was calculated to measure the data reliability for continuous variables on the reinterview survey. The index of inconsistency and the gross difference rate were used to measure response variance in the categorical data. The gross difference rate was the percentage of responses that were found in the original interview, but were not found in the reinterview, or vice versa. The index of inconsistency provided a ratio estimate of the response variance to the total variance for questions (Bushery, Schreiner, Sebron & Kaufman, 1998). When the index of inconsistency was less than 20%, it was considered low, 20% to 50 % was considered moderate, and response variance higher than 50% was considered high (Bushery et al., 1998). The results indicated high response variance for 42% of the 95 questions evaluated, thus indicating poor reliability; moderate response variance for 47% of the questions; and a low response variance for 20% of the questions (Tourkin et al, 2004). Consequently, the questions that had high response variance were targeted by NCES for possible changes.

SASS Data Processing Procedures

Data processing was conducted to identify inconsistencies, invalid entries, whether cases were useable for the survey, and if sufficient data were collected for survey classification. The NCES data processing consisted of several steps. The first step was the survey check-in where surveys were designated as complete or refused. During step two, data were scanned and reformatted into statistical software package data sets. Step three consisted of classification of cases as interviews, non interviews, or as out of scope (Gruber, et al., 2002). Discrepancies between CCD and the survey data were identified during the computer pre-editing process. A second computer editing occurred to delete entries if the values were unacceptable, inconsistent, or if data were missing. A final interview edit was conducted to identify eligible cases and to determine if sufficient data had been collected for the case to be classified as an interview. Finally, values were entered for those survey items that had missing data (Tourkin, et al., 2004).

Variables in the Study

One dependent variable, seven independent variables, and one covariate were used in this study. The dependent variable, school performance, was dichotomous with two distinct groups, *met performance goals* and *did not meet performance goals*. Seven independent variables were developed to represent the variables pertaining to each of the three features of school organization. The independent variables of size, span of control, and diversity of role represented organizational complexity feature. The independent variables of curriculum influence, policy influence, and professional development influence represented shared decision making. Leadership behavior, representing itself, was the seventh independent variable. The percentage of children eligible for free and reduced lunch (an inverse proxy for school socio-economic status) was the covariate.

The variables were operationally defined in accordance with the format by which the questions were phrased on the 1999-2000 SASS Public Schools Survey and Public Schools Principal Survey. A cross-reference of the variables to SASS questions is shown in Appendix B: Tables B1 through Table B4.

Methods of Data Analysis

The methods of data analysis were conducted in three stages. Stage one consisted of the identification and extraction of indicators from SASS database for the independent variables of organizational complexity, shared decision making, and leadership behavior. Stage two consisted of the development of scales for organizational complexity, shared decision making, and leadership behavior. Finally, stage three consisted of the fitting of a parsimonious logistic regression model (Hosmer & Lemeshow, 2000) to the variables. This section begins with the identification of indicators, followed by the development of scales, and concludes with procedures for fitting a parsimonious logistic regression model.

Stage One: Identification of Indicator Variables

Identification of the dependent variable, the covariate, and the school organization independent variables involved the tagging and extraction of indicators from the SASS Public-Use Data to develop a data file for the study. The SASS indicators A0209 (Did your school meet the minimum district or state performance goals?) was identified as the indicator for the dependent variable, school performance. The indicators S0229 through S0238, S0205 through S0208, S0211 through S0216, S0223 through S0224, and S0254 were tagged as indicators for the organizational complexity. The indicators tagged for shared decision making included A0079, A0081, A0087, A0089, A0095, A0097, A0104, A0111, A0105, A0112, A0118, A0119, A0125, A0127, A0160, and A0161. The indicators tagged for leadership behavior included

A0197 through A0202. The indicator tagged to represent the covariate, percentage of children eligible for free and reduced lunch was S0287. Specific descriptions of each indicator can be found in the Stage Two section and in Appendix B: Tables B1 through Table B4. This tagged indicator data set was imported into the AM Stats, the American Research Version 0.06, 2003 software program.

Stage Two: Development of Scales

Stage two is presented in two sections. The first section presents background information about factor analysis (Thompson, 2004). Next, the coding of the dependent variable is discussed. The final section describes the development of the scales for the independent variables.

Factor Analysis

Factor analysis (Thompson, 2004) was used to identify patterns of association among the indicator variables and the independent variables of shared decision making and leadership behavior. Principal components analysis (Thompson, 2004), using a *varimax* rotation, identified the number of components of shared decision making and leadership behavior. According to Thompson (2005), varimax factor rotation facilitates the presence of the relationship of the patterns of association of the independent variable.

The guidelines used for extraction to identify the components that accounted for the greatest amount of variance consisted of the Kaiser (1960) criterion and the *scree* test (Cattell, 1966). When employing the Kaiser criterion, factors are retained if the *eigenvalue* is greater than one (1.000). The eigenvalue indicated the amount of variation the factor represented in the independent variable. The scree test was a graphical representation showing the variance that the factors represented in the independent variable. Components were named to reflect the primary relationship of the variables.

Cronbach's alpha coefficient was used to determine the reliability of the scales for the seven independent variables. A Cronbach's standardized alpha coefficient below .60 was considered unacceptable, between .60 and .65 was considered undesirable, between .65 and .70 was considered acceptable, and between .70 to .80 was considered respectable, and an alpha coefficient of .80 to .90 was considered the best (DeVellis, 2003).

Dependent Variable

The dependent variable was school performance. The indicator variable A0209 (Did your school meet the minimum district or state performance goals?) from SASS Public School Principal Survey data was coded *one* if schools met performance goals and was coded as *two* if schools did not meet performance goals. For purposes of this study, the survey coding for schools that did not meet performance goals (*two)* was changed and coded as zero. The school performance variable used in this study was named *metperfo*.

Independent Variables

The independent variables were size, span of control, and diversity of role (representing the organizational complexity feature), curriculum influence, policy influence, and professional development influence (representing the shared decision making feature), and leadership behavior. The development of each of the independent variables from the SASS database items is discussed in the next sections.

Independent Variables Representing Organizational Complexity

Organizational complexity was operationally defined as the principal's response to SASS questions on the number of teachers and the different teaching assignments at a school site. For purposes of this study organizational complexity focused on the number of people at a school site (size), the different role responsibilities (diversity of roles), and the ratio of the number of

teachers to school level administrators (span of control). A total of 22 items were extracted from the SASS database as indicators of organizational complexity. Another indicator S0254 (total teachers) was extracted from the SAS database from which another variable, *TCHRNUM* (total teachers), was imputed categorically.

The organizational complexity SASS indicators were S0229 (part-time library media aides), S0230 (full-time library media aides), S0231 (part-time special education aides), S0232 (full-time special education aides), S0233 (part-time Title 1 aides), S0234 (full-time Title 1 aides), S0235 (part-time bilingual/English as a second language aides), S0236 (full-time bilingual/English as a second language aides), S0237 (other part-time aides such as kindergarten), S0238 (other full-time aides such as kindergarten), S0205 (the number of part-time principals), S0206 (full-time principals), S0207 (part-time assistant or vice principals), S0208 (full-time assistant or vice principals), S0211 (part-time instructional coordinator and supervisor), S0212 (full-time instructional coordinator and supervisor), S0213 (part-time library media specialists), S0214 (full-time library media specialists), S0215 (part-time counselor), S0216 (full-time counselor), S0223 (part-time speech pathologists), S0224 (full-time speech pathologists), and *TCHRNUM* (total teachers). A visual representation of the SASS indicators for organizational complexity is shown in Appendix C: Figures C1 through Figure C5.

TCHRNUM imputation.

In the 1999-2000 Schools and Staffing Survey (SASS) Public-Use Data (NCES: 2004-372), the indicator S0254 (total teachers) was used to represent number of teachers reported to be assigned to a school. The S0254 indicator is a categorical variable with three categories for the number of teachers. The category was coded as *one* that represented schools with fewer than 25 teachers at a school site, *two* represented 25 to 34 teachers at a school site, and *three* represented

35 or more teachers at a school site. During the development of the variables of the organizational complexity feature, it was determined that having only three categories was inadequate to develop realistic variables of the total number of teachers to calculate the independent variables representing organizational complexity. Using three other variables (School level, Urbanicity, and Total student enrollment) provided in the SASS database, values for additional categories of this variable were imputed using a categorical variation of the *hotdeck* imputation algorithm. The new, expanded variable was named *TCHRNUM* and was used in each of the calculations for the independent variables of size, diversity and span of control.

Size.

The *size* variable was defined as the total number of full-time and part-time people responsible for student learning assigned to a school site, including the principal and assistant or vice principal. Part-time people were counted as equivalents of full-time people, because the *size* dimension was defined as the number of full-time and part-time people at a school site and not positions, assignments, or job responsibilities. The *size* variable was developed using two steps.

Step one consisted of grouping and summing SASS indicators that were identified with the same title. Example: Aides, administrators, special teachers

1. Aides: The indicators from SASS; S0229 (part-time library media aides), S0230 (full-time library media aides), S0231(part-time special education aides), S0232 (full-time special education aides), S0233 (part-time Title 1 aides), S0234 (full-time Title 1 aides), S0235 (part-time bilingual/English as a second language aides), S0236 (full-time bilingual/English as a second language aides), S0237 (other part-time aides such as kindergarten), and S0238 (other full-time aides such as kindergarten) were summed to develop the intermediate variable *aide.* This variable *aide* ranged from 0

to 98, zero indicating the lowest numerical value and 98 the highest numerical value for the number of aides at a school site.

a. Example: S0229 (part-time library media aides) + S0230 (full-time library media aides) + S0231 (part-time special education aides) + S0232 (full-time special education aides) + S0233 (part-time Title 1 aides) + S0234 (full-time Title 1 aides) + S0235 (part-time bilingual/English as a second language aides) + S0236 (full-time bilingual/English as a second language aides) + S0237 (other part-time aides such as kindergarten) + S0238 (other full-time aides such as kindergarten) = *aide.*

2. Administrators: The SASS indicators, S0205 (the number of part-time principals), S0206 (full-time principals), S0207 (part-time assistant or vice principals), and S0208 (full-time assistant or vice principals) were grouped and summed to develop the intermediate variable named *administ.* The intermediater variable *administ* assignment per school ranged from 1 to 16 one indicating the lowest numerical value and 16 the highest numerical value for the number of *administ* at a school site.
3. Special teachers: The SASS indicators, S0211 (part-time instructional coordinator and supervisor), S0212 (full-time instructional coordinator and supervisor), S0213 (part-time library media specialists), S0214 (full-time library media specialists), S0215 (part-time counselor), S0216 (full-time counselor), S0223 (part-time speech pathologists), and S0224 (the number of full-time speech pathologists) were grouped and summed to develop the new indicator variable named *speciali.* The indicator variable *speciali* at a school site ranged from 0 to 50, zero indicating the lowest

numerical value and 50 the highest numerical value for the number of *speciali* teachers at a school site.

Example: S0211 (part-time instructional coordinator and supervisor) + S0212 (full-time instructional coordinator and supervisor) + S0213 (part-time library media specialists) + S0214 (full-time library media specialists) + S0215 (part-time counselor) + S0216 (full-time counselor) + S0223 (part-time speech pathologists) + S0224 (the number of full-time speech pathologists) = *speciali*

4. Teachers: The imputed variable *TCHRNUM (total teachers)* was used.

Step two involved the summing of the indicator variables *aide, administ, speciali*, and *TCHRNUM* (*total teachers)* to develop the variable for *size*. The indicator variable *size* ranged from 15.20 to 222.00, with 15.00 indicating the lowest numerical value and 222.00 the highest numerical value for the number of teachers at a school site. The equation used to compute *size* at a school site is next.

Example: *aide* + *administ* + *speciali* + *TCHRNUM* = *size*

The standardized coefficient alpha for the size independent variable was .67 which was considered acceptable, as shown in Table 6.

Diversity of role.

The diversity of role variable was defined as the different positions assigned to a school site. The diversity of role indicators selected from SASS were S0229 (part-time library media aides), S0230 (full-time library media aides), S0231 (part-time special education aides), S0232 (full-time special education aides), S0233 (part-time Title 1 aides), S0234 (full-time Title 1 aides), S0235 (part-time bilingual/English as a second language aides), S0236 (full-time

bilingual/English as a second language aides), S0237 (other part-time aides such as kindergarten), S0238 (other full-time aides such as kindergarten), S0205 (the number of part-time principals), S0206 (full-time principals), S0207 (part-time assistant principals or vice principals), S0208 (full-time assistant principals or vice principals), S0211 (part-time instructional coordinator and supervisor), S0212 (full-time instructional coordinator and supervisor), S0213 (part-time library media specialists), S0214 (full-time library media specialists), S0215 (part-time counselor), S0216 (full-time counselor), S0223 (part-time speech pathologist), S0224 (the number of full-time speech pathologists), and *TCHRNUM* (total teachers). The diversity of role variable was developed using three steps.

Step one included the coding of SASS indicators for aides, special teachers, and administrators so that each position had a value of one. This included all full-time and part-time positions except full-time principal. The coded diversity of role indicators were *S0229R* (part–time library media aides), *S0230R* (full-time library media aides), *S0231R* (part-time special education aides), *S0232R* (full-time special education aides), *S0233R* (part-time Title 1 aides), *S0234R* (full-time Title 1 aides), *S0235R* (part-time bilingual/English as a second language aides), *S0236R* (full-time bilingual/English as a second language aides), *S0237R* (other part-time aides such as kindergarten), *S0238R* (other full-time aides such as kindergarten), *S0211R* (part-time instructional coordinator and supervisor), *S0212R* (full-time instructional coordinator and supervisor), *S0213R* (part-time library media specialists), *S0214R* (full-time library media specialists), *S0215R* (part-time counselor), *S0216R* (full-time counselor), *S0223R* (part-time speech pathologist), and *S0224R* (full-time speech pathologist).

Step two consisted of grouping the indicators and summing the value of the coded SASS indicators that were identified with the same position name:

1. Aides: The coded SASS diversity of role indicators *S0229R* (part-time library media aides), *S0230R* (full-time library media aides), *S0231R* (part-time special education aides), *S0232R* (full-time special education aides), *S0233R* (part-time Title 1 aides), *S0234R* (full-time Title 1 aides), *S0235R* (part-time bilingual/English as a second language aides), *S0236R* (full-time bilingual/English as a second language aides), *S0237R* (other part-time aides such as kindergarten), and *S0238R* (other full-time aides such as kindergarten) were grouped and summed to develop the indicator variable *aides*. The indicator variable *aides* values ranged from 0 to 9, zero indicating the lowest numerical value and 9 the highest numerical value for the number of aide positions at a school site.

   Example: *S0229R* (part-time library media aides) + *S0230R* (full-time library media aides) + *S0231R* (part-time special education aides) + *S0232R* (full-time special education aides) + *S0233R* (part-time Title 1 aides) + *S0234R* (full-time Title 1 aides) + *S0235R* (part-time- bilingual/English as a second language aides) + *S0236R* (full-time bilingual/English as a second language aides) + *S0237R* (other part-time aides such as kindergarten) + *S0238R* (other full-time aides such as kindergarten) = *aides.*

2. Special teachers: The SASS coded indicators, *S0211R* (part-time instructional coordinator and supervisor), *S0212R* (full-time instructional coordinator and supervisor), *S0213R* (part-time library media specialists), *S0214R* (full-time library media specialists), *S0215R* (part-time counselor), *S0216R* (full-time counselor), *S0223R* (part-time speech pathologist), and *S0224R* (full-time speech pathologist) were summed to develop the indicator variable named *special*. The indicator variable

special values ranged from 0 to 7, zero indicating the lowest numerical value and 7 the highest numerical value for the number of *special* positions at a school site.

Example: *S0211R* (part-time instructional coordinator and supervisor) + *S0212R* (full-time instructional coordinator and supervisor) + *S0213R* (part-time library media specialists) + *S0214R* (full-time library media specialists) + *S0215R* (part-time counselor) + *S0216R* (full-time counselor) + *S0223R* (part-time speech pathologist) + *S0224R* (full-time speech pathologist) = *special.*

3. Administrators: The SSAS coded indicators, *S0205R* (part-time principals), *S0207R* (part-time principal or vice principal), and *S0208R* (full-time assistant principal or vice principal) were summed to develop the indicator variable *adminter*. The indicator variable *adminter* values ranged from 0 to 3, zero indicating the lowest numerical value and three representing the highest numerical value. It is important to remember that all of the schools in the sample have a principal, but all of the school may not have part-time assistant principals or vice principals and full-time assistant principals. The principal SASS indicator is not included in the development of this variable.

Step three consisted of first summing the values of the coded SASS indicator variables *aides, special, adminter,* and *TCHRNUM* (*total teachers*) and then dividing the sum by 22, the number of possible positions at a school site. This step was taken to develop the diversity of role variable, named *diverse.* The values for the diversity of role variable ranged from 0.65 to 8.27 with higher values indicative of a greater differentiation of roles within a school.

Example: (*aides* + *special* + *adminter* + *TCHRNUM) / 22 = diverse*

The standardized coefficient alpha for the diverse independent variable was .50 which was considered unacceptable, as shown in Table 7. This variable was included in the logistic regression due to its high conceptual value in the research model.

Span of control.

The span of control variable was defined as the total number of teachers that school administrators supervise at a school site. Span of control was measured as the ratio of teachers to administrators. The SASS indicators included S0207 (part-time assistant principals or vice principals), S0208 (full-time assistant principals or vice principals), S0206 (full-time principals), S0205 (part-time principals), and TCHRNUM (total teachers). The span of control variable was developed using two steps.

Step one included the coding of SASS indicators, S0207 (part-time assistant principals or vice principals) and S0205 (part-time principals) so that the value for part-time administrators was .5 and were named as *S0205S* (part-time principals) and *S0207S* (part-time vice or assistant principal). The values for the indicators, *S0205S* (part-time principals), *S0207S* (part-time vice or assistant principal), S0206 (full-time principal), and S0208 (full-time vice principal) were summed to develop the *admin* variable. The indicator variable *admin,* values ranged from 1 to 15.50, one indicating the lowest numerical value and 15.50 indicating the highest numerical value for the *admin* variable.

Step two consisted of calculating the ratio of teachers to administrators by dividing the value for the indicator variable TCHRNUM (*total teachers)* by the value for the indicator variable *admin*. The span of control variable was named *spanctlr.* The *spanctrl* variable ranged from 2.29 to 160 with 2.29 indicating the lowest numerical value and 160 indicating the highest

numerical value. Higher values indicated greater teacher supervision (span of control) for administrators.

Example: *TCHRNUM*/*admin* = *spanctrl*

The standardized coefficient alpha for the size independent variable was .71 which was considered unacceptable, as shown in Table 8, which is considered respectable.

Independent Variables Representing Shared Decision Making

The shared decision making construct was operationally defined as the principal's response to SASS questions on the influence and the frequency of teacher involvement in decisions about instruction, curriculum, budget, teacher evaluation, and staffing. The process used to develop the independent variables representing the shared decision making construct included two steps. First, the indicators from SASS were tagged and extracted from the SASS database. Next, a principal components analysis was performed to extract indicators that formed patterns of association for shared decision making. Finally, the shared decision making variables were developed. A visual representation of independent variables representing shared decision making is shown in Appendix D: Figures D1 through Figure D4.

Step one.

A total of 16 potential indicators corresponding to questions on SASS were tagged and extracted from the SASS database. Indicator variables for the shared decision making variable are shown in Appendix D: Table D1.

Table 6

Item Analysis for the Size Independent Variable (size)

Variable	Variable description	Scale mean if variable deleted	Scale variance if variable deleted	Corrected variable total correlation	Squared multiple correlation	Alpha if variable deleted
Aide	Aide	87.05	3,002.02	.16	.04	.12
Administ	Administrators	92.98	3,084.41	.58	.45	.14
Speciali	Special teachers	90.08	2984.93	.46	.37	.10
TCHRNUM	Total teachers	15.53	86.48	.37	.33	.33

Standardized alpha = .67

Table 7

Item Analysis for the Diversity of Role Independent Variable (diverse)

Variable	Variable description	Scale mean if variable deleted	Scale variance if variable deleted	Corrected variable total scale correlation	Squared multiple correlation	Alpha if variable deleted
TCHRNUM	Total teachers	6.77	3.50	.33	.36	.22
Aides	Aides	83.66	2,790.34	.02	.03	.03
Special	Special teachers	83.13	2,766.62	.29	.11	.02
Adminter	Part-time principals and vice or assistant principals	85.79	2,762.19	.58	.34	.01

Standardized alpha = .50

Table 8

Item Analysis for the Span of Control Variable (spanctrl)

Variable	Variable description	Scale mean if variable deleted	Scale variance if variable deleted	Corrected variable total scale correlation	Squared multiple correlation	Alpha if variable deleted
TCHRNUM	Total teachers	2.16	1.91	.56	.31	-
Admin	Administrators	79.68	2727.44	.56	.31	-

Standardized alpha = .71

Step two.

A principal components analysis was used to extract indicators that formed the patterns of association for shared decision making. The 16 indicators loaded onto four components explaining 54.96% of the variance in shared decision making, as shown in Table 9. An assessment of the variance of the indicators for the four component loading as shown in Table 9, the scree plot as shown in Figure 2, and the coefficient pattern of association as shown in Table 10 revealed that the three component indicator loading better explained the patterns of association of shared decision making (48.67%). The coefficients for the three component loading are shown in Table 11. Indicators with a coefficient that was at or above .50 were retained as an indicator of that component unless it loaded higher on another component. Next, the three components of shared decision making were named based on communality among the indicators. The variables were named *curriculum influence*, *policy influence*, and *professional development influence.*

> The curriculum influence component consisted of the SASS indicators: A0089 (influence on curriculum by teachers), A0087 (influence on curriculum by principals), A0081 (influence on standards by teachers), A0079 (influence on standards by principals), A0097 (influence on professional development programs by teachers), A0095 (influence on professional development programs by principals), A0104 (influence on evaluation of teachers by principal), and A0105 (influence on evaluation of teachers by teachers). The value for the indicators; A0089 (influence on curriculum by teachers), A0087 (influence on curriculum by principals), A0081 (influence on standards by teachers), A0079 (influence on standards by principals), A0097 (influence on professional development programs

Table 9

Variable Variance the Four Component Indicator (Factor) Loading for Shared Decision Making

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Indicators	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.62	22.66	22.66	3.62	22.66	22.66	3.62	22.64	22.64
2	2.84	17.79	40.46	2.84	17.79	40.46	1.81	11.31	33.96
3	1.31	8.20	48.67	1.31	8.20	48.67	1.78	11.15	45.12
4	1.00	6.29	54.96	1.00	6.29	54.96	1.57	9.83	54.96
5	.993	6.20	61.16	-	-	-	-	-	-
6	.930	5.81	66.97	-	-	-	-	-	-
7	.860	5.40	72.37	-	-	-	-	-	-
8	.790	4.99	77.37	-	-	-	-	-	-

(Table 9 continues)

Table 9

Variable Variance the Four Component Indicator (Factor) Loading for Shared Decision Making

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Indicators	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
9	.76	4.78	82.15	-	-	-	-	-	-
10	.59	3.71	85.86	-	-	-	-	-	-
11	.53	3.32	89.19	-	-	-	-	-	-
12	.45	2.81	92.00	-	-	-	-	-	-
13	.39	2.45	94.46	-	-	-	-	-	-
14	.37	2.36	96.82	-	-	-	-	-	-
15	.32	2.00	98.87	-	-	-	-	-	-
16	.18	1.12	100.00	-	-	-	-	-	-

Note. Extraction Method: Principal Components Analysis.

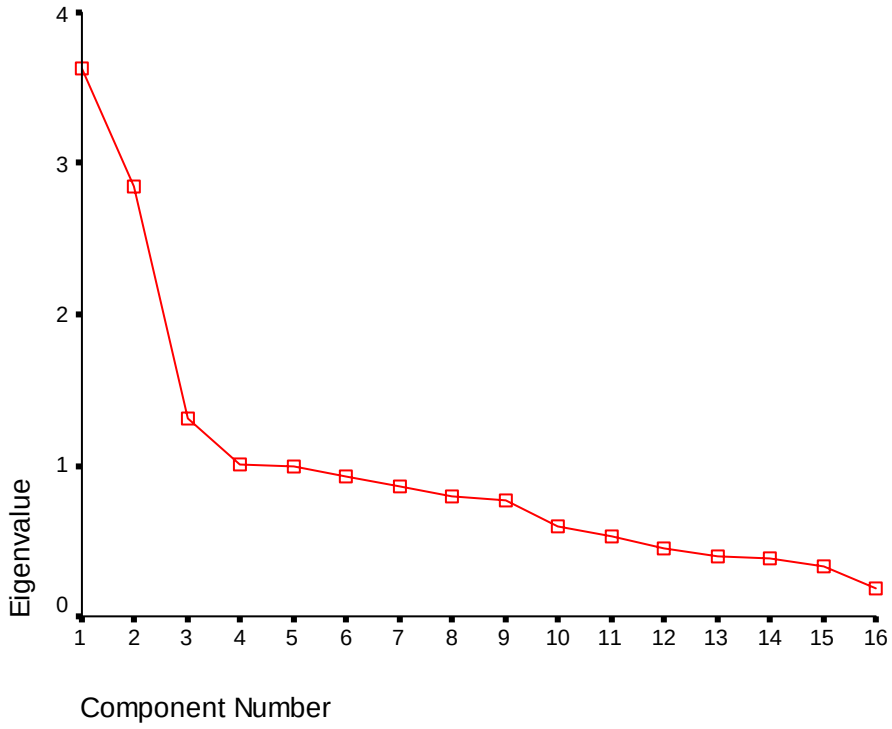

Figure 3. The scree plot shows factor loading for the shared decision making indicators.

Table 10

Pattern of Coefficients for Four Component Indicator (Factor) Loading for the Shared Decision Making

Indicators	Component 1	Component 2	Component 3	Component 4
Influence on curriculum-teachers	.79	.09	-.08	-.01
Influence on curriculum-principal	.79	.02	-.00	.00
Influence on standards-teachers	.77	.10	-.13	.00
Influence on standards-principal	.77	.02	-.05	.02
Influence on discipline policy-principal	.00	.82	.13	.00
Influence on spending-principal	-.02	.26	.74	.02
Influence on hiring teachers-principal	.00	.53	.35	.02
Influence on discipline policy-teachers	.01	.74	.21	.15
Influence on spending-teachers	-.00	.15	.78	.15
Influence on evaluation of teachers-principal	.45	-.19	.25	-.06

(Table 10 continues)

Table 10

Pattern of Coefficients for Four Component Indicator (Factor) Loading for the Shared Decision Making

Indicators	Component 1	Component 2	Component 3	Component 4
Influence on hiring teachers-teachers	.00	.27	.45	.19
Influence on professional development programs-teachers	.64	-.08	.12	-.01
Professional development planned by teachers	.63	-.18	.22	.00
Professional development presented by teachers	.00	.10	.11	.86
Influence on evaluation of teachers-teachers	.02	.04	.13	.85
Influence on hiring teachers-teachers	.38	.10	-.13	.06

Note. Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization .Rotation converged in 6 iterations.

Table 11

Pattern of Coefficients for Three Component Indicator (Factor) Loading for the Shared Decision Making

Indicators	Component 1	Component 2	Component 3
Influence on curriculum-teachers	.78	-.04	-.04
Influence on curriculum-principal	.79	-.02	-.00
Influence on standards-teachers	.76	-.06	-.02
Influence on standards-principal	.77	-.05	.00
Influence on discipline policy-principal	.02	.61	-.37
Influence on spending-principal	.01	.65	-.20
Influence on hiring teachers-principal	.03	.57	-.26
Influence on discipline policy-teachers	.04	.67	-.21
Influence on spending-teachers	.03	.67	-.04
Influence on evaluation of teachers-principal	.45	-.01	-.01

(Table 11 continues)

Table 11

Pattern Coefficients for Three Component Indicator (Factor) Loading for the Shared Decision Making

Indicators	Component 1	Component 2	Component 3
Influence on hiring teachers-teachers	.03	.55	-.01
Influence on professional development programs-teachers	.64	-.01	.00
Professional development planned by teachers	.63	-.00	.03
Professional development presented by teachers	.03	.50	.69
Influence on evaluation of teachers-teachers	.05	.47	.72
Influence on hiring teachers-teachers	.38	-.01	.02

Note. Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization .Rotation converged in 6 iterations.

by teachers), A0095 (influence on professional development programs by principals), A0104 (influence on evaluation of teachers by principal), and A0105 (influence on evaluation of teachers by teachers) were summed to develop the variable named, *curriflu* for the curriculum influence component.

Example: A0089 (influence on curriculum by teachers) + A0087 (influence on curriculum by principals) + A0081 (influence on standards by teachers) + A0079 (influence on standards by principals) + A0097 (influence on professional development programs by teachers) + A0095 (influence on professional development programs by principals) + A0104 (influence on evaluation of teachers by principal) + A0105 (influence on evaluation of teachers by teachers) = *curriflu.*

The frequency distribution showing principal response to questions for the curriculum influence indicators is shown in Appendix E: Table E1. Cronbach's standardized alpha reliability coefficient for the curriculum influence variable was.81. The item analysis for the curriculum influence variable is in Table 12.

The policy influence component consisted of six SASS indicators with a Cronbach's standardized alpha reliability coefficient of .71. The item analysis for the policy influence component is shown in Table 13. The indicators for the policy influence component included: A0118 (influence on discipline policy by principals), A0125 (influence on spending by principals), A0111 (influence on hiring teachers by principals), A0112 (influence on hiring teachers by teachers), A0119 (influence on discipline policy by teachers), and A0127 (influence on spending by teachers). The indicators were summed to develop the *policy* variable. The frequency distribution for principal response to SASS policy influence questions is shown in Appendix E: Table E2.

Table 12

Item Analysis for the Curriculum Influence Variable

Indicator number	Indicators	Mean if indicator deleted	Variance if indicator deleted	Indicator total correlation	Squared multiple correlation	Alpha if indicator deleted
A0089	Influence on curriculum-teachers	28.21	17.02	.66	.59	.75
A0087	Influence on curriculum-principal	28.24	17.44	.65	.59	.76
A0081	Influence on standards-teachers	28.25	17.03	.63	.60	.76
A0079	Influence on standards-principal	28.19	17.53	.63	.60	.76

(Table 12 continues)

Table 12

Item Analysis for the Making Curriculum Influence Variable

Indicator number	Indicator	Scale mean if indicator deleted	Scale variance if indicator deleted	Corrected indicator total correlation	Squared multiple correlation	Alpha if indicator deleted
A0097	Influence on professional development programs-teachers	28.20	18.14	.53	..35	.78
A0095	Influence on professional development programs-principal	28.04	18.84	.50	.36	.78
A0105	Influence on evaluation of teachers-teachers	29.22	18.44	.28	.10	.78
A0104	Influence on evaluation of teachers-principal	27.56	20.70	.33	.14	.83

Standardized alpha =.81

Table 13

Item Analysis for the Policy Influence Variable

Indicator number	Indicator	Scale mean if indicator deleted	Scale variance if indicator deleted	Corrected indicator total correlation	Squared multiple correlation	Alpha if indicator deleted
A0119	Influence on discipline policy-teachers	20.21	9.42	.49	.40	.65
A0118	Influence on discipline policy-principal	19.80	10.64	.43	.40	.68
A0127	Influence on spending-teachers	20.91	8.34	.52	.39	.64
A0125	Influence on spending-principal	20.20	9.12	.50	.39	.65
A0112	Influence on hiring teachers-teachers	21.16	8.49	.38	.22	.70
A0111	Influence on hiring teachers-principal	19.75	10.52	.42	.24	.68

Standardized alpha =.73

Example: A0118 (influence on discipline policy by principals) + A0125 (influence on spending by principals) + A0111 (influence on hiring teachers by principals) + A0112 (influence on hiring teachers by teachers) + A0119 (influence on discipline policy by teachers) + A0127 (influence on spending by teachers) = *policy*

The professional development influence component consisted of two indicators with a Cronbach's standardized alpha reliability coefficient of .70. The item analysis for the professional development influence variable is shown in Table 15. The indicators of the professional development influence component included A0160 (professional development planned by teachers) and A0161 (professional development presented by teachers). The values for the indicators were summed to develop the professional development variable, *profdev*.

Example: A0160 (professional development planned by teachers) + A0161 (professional development presented by teachers) = *profdev.*

The frequency distribution for principal response to questions on the professional development variable is shown in Appendix E: Table E3.

The shared decision making variables were curriculum influence (*curriflu*), policy influence (*policy*), and professional development influence (*profdev*). The coefficient alpha was .80 for the curriculum influence variable, .71 for the policy influence variable, and .70 for the professional development influence variable. It is important to remember that the degree of influence exerted by principals and teachers is from the principal's perception.

Table 14

Item Analysis for the Professional Development Influence Variable

Indicator number	Indicator	Scale mean if indicator deleted	Scale variance if indicator deleted	Corrected indicator-total correlation	Squared multiple correlation	Alpha if indicator deleted
A0160	Professional development planned by teachers	3.47	.61	.54	.30	-
A0161	Professional development presented by teachers	3.70	.73	.54	.30	-

Standardized alpha = .70

Leadership Behavior Independent Composite Variable

The leadership behavior composite variable was operationally defined as the principal's response to SASS questions on the frequency at which the principal facilitated professional development, the school mission, curriculum development, teacher evaluation, and student learning. The process used to develop the composite variable for the leadership behavior variable included three steps. First, the leadership behavior indicators from SASS database were tagged, and extracted. Next, a principal components analysis was performed to extract indicators that formed patterns of association for leadership behavior. Finally, the values of the indicators for leadership behavior were summed to develop the variable. The steps used to develop the leadership behavior composite are described in the next sections. A visual representation of the leadership behavior indicators is shown in Appendix F.

Step one.

A total of six indicators corresponding to questions on SASS were tagged and extracted from the SASS database.

Step two.

The six indicators were entered into a principal components analysis to extract the indicators that formed the patterns of association for the leadership behavior variable. The indicators loaded onto one component explaining 45.19% of the variance in leadership behavior. The indicator loading for leadership behavior is shown in Table 15. The principal components pattern of association for the leadership behavior loading is shown in Table 16. The indicator variable loading was supported by the scree plot as shown in Figure 4. The SASS indicators included A0197 (principal frequently facilitating achievement of the school mission), A0198 (the principal frequently supervising staff), A0199 (the principal frequently guiding the development

of curriculum), A0200 (the principal frequently facilitating student learning), A0202 (the principal frequently building professional community), and A0201 (the principal frequently providing professional development activities). The frequency distribution on principal response to SASS questions on leadership behavior is shown in Appendix G. The Cronbach's standardized alpha coefficient for the leadership behavior variable was .75. The item analysis for leadership behavior is shown in Table 17.

Step three.

The six indicators were summed to form the leadership behavior variable named, *leadbeha*.

Example: A0197 (principal frequently facilitating achievement of the school mission) + A0198 (the principal frequently supervising staff) + A0199 (the principal frequently guiding the development of curriculum) + A0200 (the principal frequently facilitating student learning) + A0202 (the principal frequently building professional community) + A0201 (the principal frequently providing professional development activities) = *leadbeha*.

Table 15

Indicator (Factor) Loading for the Leadership Behavior

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Indicator	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	2.71	45.19	45.19	2.71	45.19	45.19
2	.85	14.26	59.45			
3	.73	12.22	71.68			
4	.63	10.63	82.31			
5	.56	9.36	91.67			
6	.49	8.32	100.00			

Extraction Method: Principal Component Analysis

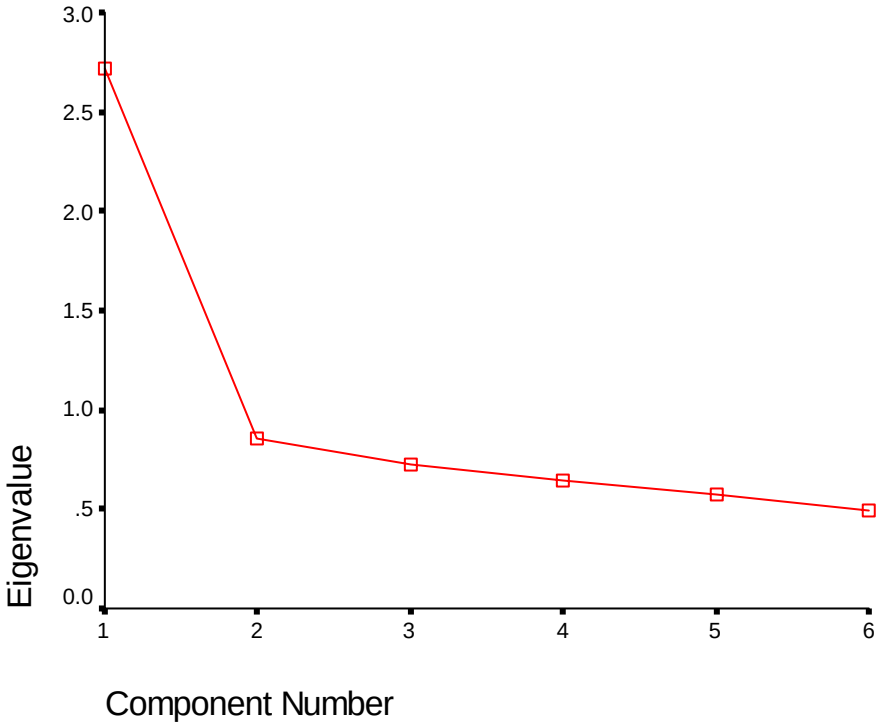

Figure 4. The scree plot shows the factor loading for leadership behavior indicators.

Table 16

Patterns of Association for the Leadership Behavior Indicator (Factor) Loading

Indicator	Component 1
Frequently facilitate achievement of school mission	.68
Frequently supervise staff	.64
Frequently guide development of curriculum	.73
Frequently facilitate student learning	.74
Frequently provide professional development activities	.55
Frequently build professional community	.64

Table 17

Item Analysis for the Leadership Behavior Variable

Indicator number	Indicator	Scale mean if indicator deleted	Scale variance if indicator deleted	Corrected indicator-total correlation	Squared multiple correlation	Alpha if indicator deleted
A0197	Frequently facilitate achievement of school mission	15.04	7.17	.50	.26	.71
A0198	Frequently supervise staff	14.81	7.71	.46	.23	.72
A0199	Frequently guide development of curriculum	15.24	7.09	.56	.33	.70
A0200	Frequently facilitate student learning	14.79	7.19	.57	.34	.69
A0201	Frequently provide professional development activities	15.68	8.26	.38	.16	.74
A0202	Frequently build professional community	15.09	7.20	.47	.24	.72

Standardized alpha = .75

Stage Three: Fitting a Parsimonious Logistic Regression Model

The third stage of the methods of data analysis, included the fitting of a parsimonious logistic regression (Hosmer & Lemeshow, 2000) model by regressing the dependent dichotomous variable on seven independent variables: curriculum influence (*curriflu*), policy influence (*policy*), professional development influence (*profdev*), leadership behavior *(leadbeha), size,* diversity of role (*diverse),* and span of control (*spanctrl).* The fitting of a parsimonious logistic regression model was conducted in four steps. First, applying principles of best subsets logistic regression the taxonomy of regression models was developed. Second, the model that *best fit* the data was identified. Next, the estimated logistic regression coefficients were assessed to determine the significance of the variables to the model. Finally, the research question was tested.

Step 1: Development of logistic regression taxonomy of models.

The taxonomy of regression models consisted of the development of four models. The first model, the *Null Model* as is typical, contained only the constant with no independent variables entered. The percentage of children eligible for free and reduced lunch (an inverse proxy for socioeconomic status of a school), *S0287,* was added to the Null Model to estimate the Percentage Free Lunch Model. The curriculum influence variable (*curriflu*), the policy influence variable (*policy*), and the professional development influence variable (*profdev*) were added to the Percentage Free Lunch Model to estimate Model 1. The leadership behavior variable, *leadbeha* was added to Model 1 to estimate Model 2. Finally, in Model 3 the *size* variable, the *diverse* variable, and the *spanctrl* variable were added to Model 2 to estimate Model 3, the last model of the taxonomy.

Step 2: Identification of the best fit model.

The identification of the model that best fit the data was determined by an examination of the variables in each model using the WALD statistic, the log-likelihood ratio, and a comparison of the overall percent correct prediction. Once the *best fit* model was identified, the estimated logistic regression coefficients for the *best fit* model were evaluated for their significance to model.

Step 3: Assessing the significance of the estimated logistic regression coefficients.

The estimated logistic regression coefficients were assessed for their significance to the best fit model using three steps. First, the *P* statistic for the logistic regression coefficient was assessed to determine if it was statistically significant at the $p < .05$ level. Next, the sign of the coefficient *(+, -)* was assessed. Finally, the exponent of the estimated logistic regression coefficient was assessed to determine the odds of the variable predicting schools meeting performance goals.

Step 4: Testing the research question.

The final step in fitting a parsimonious logistic regression model was the testing of the research question: What are the odds of school organizational features predicting school that would meet district or state performance goals. The ratio of the odds of schools meeting performance goals to the ratio of the odds of schools not meeting performance goals was used to test the research question.

Chapter Summary

The methodology used to conduct this study was presented in Chapter 3. The SASS Public School Principal Questionnaire and the Public School Questionnaire generated the data for this study. The sample for this study consisted of 5,312 public schools and public school

principals drawn from the 1999-2000 SASS Public-Use Data. The principal was the unit of analysis. The dependent variable was school performance. The percentage of children eligible for free and reduced lunch was the covariate used in this study. The independent variables used in the data analysis included curriculum influence *(curriflu*), policy influence *(policy)*, professional development influence *(profdev),* leadership behavior (*leadbeha*), *size*, diversity of role (*diverse*), and span of control (*spanctrl*).

Indicators for the independent variables were extracted from the 1999-2000 SASS Public-Use Data. A principal components analysis extraction was used to identify patterns of association for the independent variables of shared decision making and leadership behavior.

CHAPTER FOUR

RESULTS OF THE STUDY

The purpose of this study was to determine the odds of the variables representing the school organizational features of organizational complexity, shared decision making, and leadership behavior predicting schools that would meet district or state performance goals. The seven continuous independent variables used in the data analysis were *curriflu, policy, profdev,, size, diverse, spanct*rl, and *leadbeha* The covariate was the percentage of children eligible for free and reduced lunch, *S0287,* referred to as *Percent Free Lunch*. The values of this variable are inversely related to socioeconomic status. Logistic regression analysis was used to estimate taxonomy of models and to determine the odds of school organizational features predicting whether schools would meet school district or state performance goals.

There were 5,312 public schools and their principal included in the sample. School performance, the dichotomous dependent variable, was operationally defined as the principal's *yes* or *no* response to the SASS question: Did your school meet district or state performance goals? The school performance variable was coded *one* if the principal's response was *yes* (met performance goals) and coded *zero* if the principal's response was *no* (did not meet performance goals). The school performance variable that was used in the data analysis was named *metperfo.*

Descriptive Statistics

The frequency distribution for the dependent variable, school performance defined as schools meeting or not meeting district or state performance goals (*metperfo*) is shown in Table 18. An independent samples *t*-test was conducted to test the hypothesis that there was not a significant mean difference between the number of schools that met performance goals and the number of schools that did not meet performance goals among each of the seven continuous

independent variables. Due to the risk of incurring a Type I error, when multiple statistical tests are done on the same data set, a Bonferroni correction was applied to statistically significant *p* values as indicated in Table 19.

The results revealed initially a significant mean difference between the two categories of the dependent variable for the curriculum influence variable. However, when the Bonferroni correction was applied, the *t* statistic was no longer significant. These results were consistent with the assumption that the school meeting performance goals were not significantly different from school not meeting performance goals regarding the independent variables meeting performance goals.

The results of the data analysis are reported in three sections. The first section provides an assessment of the regression models to identify the *best fit* model. Next, the *best fit* model was assessed. The final section reported results on the testing of the research question: What is the odds probability of school organizational features predicting whether or not schools would meet performance goals? The chapter concludes with a summary.

Table 18

Frequency Distribution for the Dependent Variable: Met Performance Goals (metperfo)

Dependent variable categories	Frequency	%
Met performance goals (yes)	3,570	67.2
Did not meet performance goals (no)	1,742	32.8

Note. Metperfo is the coded SASS indicator variable A0209 (Did your school meets the minimum district or state performance goals?).

Table 19

Independent Samples t-Test on the Mean Difference Between the two Categories of School Performance (met performance goals and did not meet performance goals) on the Independent Variables

Independent variables	*t*-statistic	*df*	*Mean difference*	*SE difference*	95% Confidence interval Lower	Upper
Curriflu	2.62	5,310	.36	.14	.09	.64
Policy	-1.39	5,310	-.14	.10	-.35	.05
Profdev	1.53	5,310	.06	.04	-.01	.14
Size	-.55	5,310	-..91	1.64	-.42	2.31
Diverse	-.71.	5,310	-.05	.07	-.18	.08
Spanctrl	.97	5,310	.75	.77	-.77	2.28
Leadbeha	-.50	5,310	-.04	.09	-.23	.13

** $p<.01$ = Bonferroni correction: $p<.001$.

Assessment of the Regression Models

An assessment of the regression models was conducted to determine how effective the models described schools that would meet performance goals. The assessment included the log likelihood ratio, the Cox & Snell *R*-square, and the overall percent correct prediction. The log likelihood ratio was used to determine the overall significance of the model for predicting schools that would meet performance goals. The difference between the log likelihood ratio for the models and the log likelihood ratio for the Null Model was calculated to determine whether there was a significant difference between the two. The overall percent correct prediction generated the proportion of the schools classified as meeting performance goals in the model. The Cox & Snell *R*-square was used to determine the percent of variance the model accounted for in the dependent variable. The model assessment began with an evaluation of the Percent Free Lunch Model, followed by Model 1 and Model 2, and finally an evaluation of Model 3. The logistic regression results are presented in Tables 20 through Table 24.

Null Model

The Null Model is the situation in which all the coefficients in the regression equation take the value zero (with the assumption that the model under consideration is accurate). Basically, the Null Model serves as the comparison model for the subsequent models.

Percent Free Lunch Model

The *S0287* variable (percentage of children eligible for free and reduced lunch) was added to the Null Model to estimate the Percent Free Lunch Model. The log likelihood (LL = -3360.94) for the Percent Free Lunch Model was not significantly different from the Null Model (LL = -3360.94), χ^2 (1, N = 5,312) = .00, 3.84_{cv} which suggested that the Percent Free Lunch Model did not estimate that schools would meet performance goals better than the Null

Model. The log likelihood difference for the logistic regression models is shown in Table 25. The Cox & Snell R-square (.00) for the Percent Free Lunch Model explained .0% of the variance in whether schools would meet performance goals, suggesting that little if any variance in the dependent variable (schools meeting performance goals) was explained by variables in the Percent Free Lunch Model. Thus, with the addition of the covariate we fail to reject the null hypothesis of a significant relationship between Percent Free Lunch and the dependent variable, whether or not performance goals were met for a school. This finding appears to be counterintuitive to common knowledge that schools enrolling higher percentages of children eligible for free and reduced lunch would be more likely to NOT meet performance goals. The overall percent correct prediction for the Percent Free Lunch Model correctly predicted 39.0% of the schools as meeting performance goals which was not different from the Null Model (39.0%). The calculation for the overall percent correct prediction for the Null Model is shown in Appendix H: Table H1 and the calculation for the overall percent correct prediction for the Percent Free Lunch Model are shown in Appendix H: Table H2.

Table 20

Logistic Regression Results for the Null Model: Dependent Variable = Met Performance Goals

Variable	*B*	*SE*	WALD	*df*	*Exp(B)*	95% Confidence interval (Exp*B*)	
						Lower	Upper
Constant	.446	.018	24.99	1	1.562	.973	1.044

Log likelihood: -3360.94

Overall percentage correct prediction: 39.0

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 21

Logistic Regression Results for the Percent Free Lunch Model: Dependent Variable = Met Performance Goals

Variable	*B*	*SE*	WALD	*df*	*Exp(B)*	*SD Exp(*B*)*	95% Confidence interval Exp (*B*)	
							Lower	Upper
Constant	.446	.061	7.28	1	1.562	-	.912	1.158
Percent free lunch	.000	.020	.00	1	1.000	1.502	.961	1.039

Log Likelihood: -3360.94

Overall percent correct prediction: 39.0

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 22

Logistic Regression Results for Model 1: Dependent Variable = Met Performance Goals

Variable	*B*	*SE*	WALD	*df*	*Exp(B)*	*SD Exp(B)*	95% Confidence interval Exp (*B*)	
							Lower	Upper
Constant	.203	.190	1.07	1	1.225	-	.967	1.508
Percent free lunch	.000	.020	-.02	1	1.000	1.000	.961	1.039
Curriflu	.010	.004	2.59*	1	1.010	1.049	.992	1.007
Policy	-.010	.005	-1.93*	1	.999	.964	.990	1.009
Profdev	.026	.013	1.98*	1	1.026	1.029	.975	1.026

Log Likelihood: -3354.51

Overall percent correct prediction: 44.3

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 23

Logistic Regression Results for Model 2: Dependent Variable = Met Performance Goals

Variable	*B*	*SE*	WALD	*df*	*Exp(B)*	*SD Exp(*B*)*	95% Confidence interval Exp (*B*)	
							Lower	Upper
Constant	.195	.193	1.00	1	1.215	-	.711	1.515
Percent free lunch	-.001	.020	-.04	1	1.000	.99	.961	1.039
Curriflu	.010	.004	2.58*	1	1.010	1.049	.992	1.007
Policy	-.011	.005	-2.00*	1	.990	.961	.990	1.009
Profdev	.026	.013	2.00*	1	1.026	1.036	.975	1.026
Size	.004	.002	1.59	1	1.004	1.253	.996	1.003
Diverse	-.105	.056	-1.86	1	.900	.975	.890	1.109
Spanctrl	.002	.001	2.23*	1	1.002	1.054	.998	1.001

Log likelihood: -3351.2

Overall percent correct prediction: 47.2

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 24

Logistic Regression Results for Model 3: Dependent Variable = Met Performance Goals

Variable	*B*	*SE*	WALD	*df*	*Exp(B)*	*SD Exp(B)*	95% Confidence interval Exp (*B*)	
							Lower	Upper
Constant	.263	.212	1.51	1	1.300	-	.697	1.602
% Free lunch	-.001	.020	-.05	1	.999	.999	.961	1.039
Curriflu	.010	.004	2.67*	1	1.010	1.049	.992	1.007
Policy	-.011	.005	-1.99*	1	.990	.961	.990	1.009
Profdev	.026	.013	1.98*	1	1.026	1.038	.975	1.026
Size	.004	.002	1.59	1	1.004	1.253	.996	1.003
Diverse	-.105	.056	-1.86	1	.900	.077	.890	1.094
Spanctrl	.002	.001	2.22*	1	1.002	1.142	.998	1.001
Leadbeha	-.005	.006	-.79	1	.995	.984	.988	1.011

Log likelihood: -3350.88

Overall percent correct prediction: 44.5

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 25

Log Likelihood Differences for Logistic Regression Models

Model	Log likelihood statistic	Log likelihood difference from Null Model	*df*	χ^2
Null Model	-3360.94			
Percent free lunch Model	-3360.94	.00	1	.00
Model 1	-3354.51	6.43	4	12.86*
Model 2	-3351.20	9.74	7	19.48**
Model 3	-3350.88	10.06	8	20.12**

*p <.05. **p < .01. ***p < .001.

Model 1

The *curriflu* variable, the *policy* variable, and the *profdev* variable were added to the Percent of Free Lunch Model to estimate Model 1. The log likelihood (LL = -3354.51) for Model 1 was significantly different from the Null Model (LL = -3360.94), χ^2 (4, N = 5,312) = 12.86, $13.27_{cv,}$ p <.01. This suggested that Model 1 was a better estimator than the Null Model for predicting whether schools would meet performance goals. The log likelihood difference ratio for the logistic regression models is shown in Table 25. The Cox & Snell R-square statistic (.003) for Model 1 suggested that the model explained .3% of the variance in whether schools would meet performance goals. The overall percent correct prediction for Model 1 correctly predicted 44.3% of the schools as meeting performance goals which was an improvement over the Null Model (39%). The calculation for the overall percent correct prediction for Model 1 is shown in Appendix H: Table H3.

Model 2

The *size* variable, the *diverse* variable, and the *spanctrl* variable were added to Model 1 to estimate Model 2. The log likelihood (LL = -3351.2) for Model 2 was significantly different from the Null Model (LL = -3360.94), χ^2 (5, N = 5,312) = 19.48, $18.48_{cv,}$ p <.01. This suggested that Model 2 was an overall better estimator than the Null Model and Model 1 for predicting whether schools would meet performance goals. The log likelihood difference ratio for the logistic regression models is shown in Table 25. The Cox & Snell R-square statistic (.003) for Model 2 suggested that the model explained .3% of the variance in whether schools would meet performance goals. The overall percent correct prediction for Model 2 correctly predicted 47.2% of the schools as meeting performance goals which was an improvement over the Null Model

(39%). The calculation for the overall percent correct prediction for Model 2 is shown in Appendix H: Table H4.

Model 3

The *leadbeha* variable was added to Model 2 to estimate Model 3. The log likelihood (LL = -3350.88) for Model 3 was significantly different from the Null Model (LL = -3360.94), χ^2 (8, N = 5,312) = 20.12, 20.09$_{.cv,}$ p <.01. This suggested that Model 3 was an overall better estimator than the Null Model and Model 1 for predicting whether schools would meet performance goals. The log likelihood difference ratio for the logistic regression models is shown in Table 25. The Cox & Snell R-square statistic (.003) for Model 3 suggested that the model explained .3% of the variance in whether schools would meet performance goals. The overall percent correct prediction for Model 3 correctly predicted 44.45% of the schools as meeting performance goals which was an improvement over the Null Model (39.0%) and Model 1. However, the overall percent correct prediction for Model 3 (44.5%) was less than the overall percent correct prediction for Model 2 (47.2%). The calculation for the overall percent correct prediction for Model 3 is shown in Appendix H: Table H5.

In conclusion, the assessment of the logistic regression models revealed that Model 2 fit the data better than the other models. The overall percent correct prediction (47.2%) was more improved over the Null Model and Model 3, the complete model, when compared to the other models. There was a significant difference between the log likelihood ratio for Model 2 and the Null Model. The log likelihood difference ratio for Model 2 and Model 3, the complete model, were similar, suggesting that adding the *leadbeha* variable to Model 3 did not influence the overall significance of Model 3 when compared to Model 2. Next, the variables in Model 2 were assessed to determine their significance to Model 2, the *best fit* model.

Assessing the Significance of the Variables to the *Best Fit* Logistic Regression Model

The variables in Model 2 were assessed to determine their significance for predicting whether schools would meet district or state performance goals. Three steps were followed to assess the significance of the variables to Model 2 predicting the odds of whether schools would meet performance goals. First, the WALD statistic was assessed for significance. For purposes of this study, the WALD statistic was considered statistically significant if $p < .05$. The p value $p < .05$) represented the probability of there being a relationship between the independent variables and the dependent variable with a 5% probability of error. The second step was the assessment of the *sign* (+, -) of the estimated regression coefficient, and finally, the exponent of the estimated regression coefficients was evaluated. This section begins with the significance of the WALD statistic ($p < .05$), followed by an explanation of the estimated regression coefficient *sign*, and the assessment concludes with an evaluation of the exponent of the estimated logistic regression coefficients.

WALD Statistic

The variables in Model 2 included the covariate, *percent free lunch,* and the independent variables: *curriflu, policy, profdev, size, diverse, and spanctrl.* The WALD statistic for the logistic regression coefficients for the *curriflu* variable, the *policy* variable, the *profdev* variable, and the *spanctrl* variable were statistically significant ($p < .05$). The significance of these variables suggested that they were significant contributors to the prediction of whether schools would meet district or state performance goals. The remaining variables *percent free lunch*, *size, diverse,* and *leadbeha* were not significant contributors to Model 2.

The Coefficient Sign (+,-)

Next, the assessment focused on the *sign* (+, -) for the estimated logistic regression coefficients. A positive sign (+) indicated that the likelihood of schools meeting performance goals would increase, and a negative sign (-) indicated that the likelihood of schools meeting performance goals would decrease. The estimated logistic regression coefficient for the *curriflu* variable, *profdev* variable, and the *spanctrl* variable exhibited a positive relationship with the likelihood of schools meeting performance goals. The *policy* variable had a negative sign suggesting that the likelihood of schools meeting performance decreased. In addition, the coefficient for the *percent free lunch* variable was negative, suggesting an inverse relationship with the likelihood of schools meeting performance goals.

Exponent of the Logistic Regression Coefficients

In the third step of the assessment of variables, the exponent of the estimated logistic regression coefficients was evaluated to determine the odds of the individual variables in the model predicting whether schools would meet performance goals. An odds ratio equal to or greater than *one* (1) suggested that the odds of being a school that would meet performance goals increased, when the independent variable increased. An odds ratio of less than *one* (1) suggested that the odds of being a school that would meet performance goals decreased, when the independent variable increased.

The odds ratio for the *curriflu* variable, the *profdev* variable, and the *spanctrl* variable were greater than or equal to one (1), suggesting that the odds of being a school that would meet performance goals increased when those variables increased. The odds of schools meeting performance goals when the *curriflu* variable increased were estimated to be 1.01 times larger than the odds of not meeting performance goals when the *curriflu* variable increased. The

confidence interval suggested that the odds for schools meeting performance goals when the *curriflu* variable increased were as little as .922 and as much as l.007 times as great as the odds for schools not meeting performance goals.

The odds of schools meeting performance goals when the *profdev* variable increased were estimated to be 1.026 times larger than the odds of not meeting performance goals when the *profdev* variable increased. The confidence interval suggested that the odds for schools meeting performance goals when the *profdev* variable increased were as little as .975 and as much as 1.026 times as great as the odds for schools not meeting performance goals.

The odds of schools meeting performance goals when the *spanctrl* variable increased were estimated to be 1.002 times larger than the odds of not meeting performance goals when the *spanctrl* variable increased. The confidence interval suggested that the odds for schools meeting performance goals when the *spanctrl* variable increased were as little as .988 and as much as 1.001 times as great as the odds for schools not meeting performance goals.

The odds ratio for the *policy* variable was less than *one* (1), suggesting that the odds of being a school that would meet performance goals decreased, when the *policy* variable increased. A school where the *policy* variable increased was estimated to be .990 times as likely to not meet performance goals. The confidence interval suggested that the odds of schools not meeting performance goals, when the *policy* variable increased, were as little as .990 and as much as 1.009.

The odds of Model 2 predicting whether schools would meet district or state performance goals were estimated to be 1.13 larger than the odds of not meeting performance goals. The exponents of the coefficients are shown in Table 23, Logistic Regression Results for Model 2.

The calculation for the exponent of the estimated logistic regression coefficients is shown in Appendix I. The equation for calculating the predicted odds is shown in Appendix K.

Testing the Research Question

The research question that guided this study was: What is the odds probability of school organizational features predicting whether or not schools would meet performance goals? The variables representing the organizational features of organizational complexity, shared decision making, and leadership behavior included curriculum influence, policy influence, professional development influence, leadership behavior, size, diversity of role, and span of control. The research question was tested using an odds ratio of schools meeting performance goals to the odds ratio of schools not meeting performance goals. The results revealed that the odds of school organization features predicting whether schools would meet district or state performance goals were .7243, which was less than one or less than chance. The calculation for the odds ratio is shown in Appendix: L.

Summary

A logistic regression analysis was performed to test the research question: What is the odds probability of school organizational features predicting whether or not schools would meet performance goals? The dependent variable was defined as the principal's *yes* response or *no* response to the question that asked: Did your school meet district or state performance goals? The variables used in the analysis were *curriflu, policy, profdev, leadbeha, size, diverse,* and *spanctrl.* The covariate used in the data analysis was *percent free lunch*, *S0287*. The analysis included 5,312 public schools that represented elementary schools, secondary schools, and combined schools and their principal.

The regression models were assessed to determine the model that best fit the data for explaining the odds of whether school organizational features would predict schools that would meet district or state performance goals. The results revealed that Model 2 best fit the data for predicting the odds of whether schools would meet performance goals. The odds of school organization features (organizational complexity, shared decision making, and leadership behavior) predicting whether schools would meet performance goals were estimated to be .7243 times larger than the odds of not predicting, which was less than one or less than chance.

CHAPTER FIVE

DISCUSSION AND SUGGESTIONS FOR FUTURE RESEARCH

The five preceding chapters presented the research problem, a review of the literature, the methodology used to conduct the study, and the results of the analytical procedures. Chapter 5, the final chapter of this study, presents in four sections a discussion and an interpretation of the results. The first section presents an overview of the study; followed by a discussion of the limitations of this study. The third section is a discussion and an interpretation of the results. The final section presents suggestions for future research.

Overview of the Study

The purpose of this study was to determine the odds of school organizational features predicting whether schools would meet district or state performance goals. The dependent variable was school performance operationally defined as the principal's *yes* response if the school met performance goals and the principal's *no* response if the school did not meet performance goals. The independent variables were curriculum influence, policy influence, professional development influence, size, diversity, span of control, and leadership behavior. Percent free lunch was the covariate. The sample was taken from data collected by the National Center for Education Statistics (NCES) and consisted of 5,312 public schools and 5,312 public school principals. Data were collected from the Schools and Staffing Public School Questionnaire and the Schools and Staffing Public School Principal Questionnaire.

A principal components analysis was used to extract the patterns of correlation among the indicators of the school organizational features, shared decision making and leadership behavior. Three components were identified for shared decision making. The components, later termed independent variables, were curriculum influence, policy influence, and professional

development influence. The SASS indicators for leadership behavior loaded on one component. The six indicator were summed to form the leadership behavior independent composite variable.

The coefficient alphas were calculated for the seven continuous independent variables (curriculum influence (*curriflu*), policy influence (*policy*), professional development (*profdev*), *size,* diversity of role (*diverse*), span of control (*spanctrl*), and leadership behavior (*leadbeha*). The alpha values ranged from acceptable to unacceptable (*diverse*). All variables were included in the logistic regression models for conceptual reasons.

The data analysis consisted of fitting a parsimonious logistic regression model by regressing the dependent variable, school performance, on seven independent variables and a covariate, percent free lunch. A taxonomy of logistic regression models was developed that included the Null Model, Percent Free Lunch Model, Model 1, Model 2, and Model 3. The logistic regression models were assessed to identify the model that *best fit* the data. The assessment revealed that Model 2, which included the *percent free lunch* variable, the *curriflu* variable, the *policy* variable, the *profdev* variable, the *size* variable, the *diverse* variable, and the *spanctrl* variable, best fit the data. The odds of the school organization features predicting whether schools would meet performance goals were .7243, which was less than one or less than chance.

Discussion and Interpretation of the Results

The discussion of the results presents an interpretation of the findings generated by the analytical method used in this study. The interpretation begins with a discussion of the variables, and concludes with a summary of the findings.

The Variables

Schools are complex organizations and during the past four decades the expectations placed upon administrators and teachers have become more challenging. Schools are no longer institutions where the focus is on just the teaching of reading, writing, and arithmetic. The focus has shifted to include school programs that provide breakfast, lunch, after-school daycare, and medical care. In addition, meeting the needs of students who have been identified as having physical and cognitive limitations, parental involvement, and school-community-business partnerships add to the challenges of school administrators.

School administrators are expected to implement changes for improved school performance. They are also expected to manage and to administer schools of varied sizes, as well as supervise the instructional staff. In addition, administrators are expected to monitor the curriculum and provides opportunities for teachers to be involved in the decision making process. Consequently, a study such as this one that focuses on school organizational features might provide administrators insight into the probability of school organizational features predicting schools that would meet district or state performance goals.

Organizational complexity.

The literature review revealed little research and conclusions regarding the relationship between the elements of school organizational complexity and school performance. It is widely believed that the more diverse the roles serving instructional needs of students in a school, the more likely schools would meet performance goals. Marion and Uhl-Bien (2001) described complexity as the interaction of the varied parts of organizations that influence change, growth, and innovation. If that thesis holds true, then it might be assumed that the more faculty the smaller the student / teacher ratio and the more likely schools would meet performance goals.

Meier and Bohte's (2000) study revealed that the teacher to administrator ratio was positively related to organizational performance. They also reported in their 2003 study that the more diverse the teaching staff the narrower the span of control and that the degree to which a span of control varied from narrow to wide in organizations was related to student performance.

The results of this study revealed that the span of control variable representing organizational complexity was the only variable that significantly influenced whether schools would meet district or state performance goals, thus supporting Marion and Ul-Bien (2001) and Meier and Bohte (2000, 2003) findings regarding span of control and student performance. Size and diversity of role were not significant. This study was inconclusive in elaborating the size and diversity of role relationship to school performance.

Although the span of control variable was significant, we can glean very little insight into the influence span of control has on whether schools would meet district or state performance goals. Therefore, the relationship of organizational complexity with meeting performance goals as depicted in the theoretical model was not verified. Consequently, before conclusive decisions can be made regarding the influence organizational complexity had on schools that would meet performance goals, more empirical research would be need to be conducted.

Shared decision making.

The review of the literature revealed both, research findings that supported a relationship between shared decision making and school performance, and research findings that did not support a relationship. The results of this study appear to support the research of Smylie, Lazarus, and Brownlee-Conyers (1996) and Marks and Printy (2003) whose findings indicated a relationship between shared decision making and school performance. Their studies focused on providing opportunities for teacher autonomy and activities that directly affected their motivation

and opportunities for professional development; and sustained dialogue and decision making between principals and teachers on instructional issues affecting school performance.

The variables in this study that represented the school organization feature of shared decision making were curriculum influence (*curriflu*), policy influence (*policy*), and professional development influence (*profdev).* The results revealed that the variables were statistically significant contributors to explaining the odds of whether schools would meet district or state performance goals. The results suggested that as the curriculum influence variable and the professional development variable increased the odds of whether schools would meet performance goals increased. Although, the policy influence variable was a significant contributor it was a significant negative contributor to schools meeting performance goals, suggesting the probability of schools not meeting performance goals when policy influence increased.

It appears that the relationship between shared decision making and meeting performance goals, as depicted in the theoretical model was verified. It is important to remember that this study is from the principal's perception of teacher involvement in decisions about curriculum, policy, and professional development. Caution should be taken because the shared decision making and school performance relationship was very weak.

Leadership behavior.

Leadership behavior is perceived by educators to have an impact on school performance. The review of the literature supported both a direct and an indirect relationship between leadership behavior and school performance, as well as no relationship. Hallinger et al. (1996) and Pounder et al. (1995) reported an indirect relationship between leadership behavior and school performance through teacher satisfaction with their job and through a school climate

variable, and Leitner (1994) concluded that a direct relationship did not exist. Jackson et al. (1983), Heck et al. (1990), and Marks and Printy (2003) reported that principal behaviors such as conferring with teachers, academically focused staff development, monitoring curriculum, defining the school mission, and instructional organization influenced student achievement. The leadership behavior indicators that comprised the leadership behavior composite variable for this study were similar to the variables used by the researchers in their research. Those indicators focused on the frequency at which the principal facilitated achievement of the school mission, guided curriculum development, provided professional development activities, established professional community, and supervised staff. Consequently, one might believe that the results of this study regarding the leadership behavior and school performance relationship would support the assumption that leadership behavior would be a contributing predictor of the odds of whether schools would meet performance goals. However, the results of this study appear to support the argument that leadership behavior exhibited by school level administrators is not a significant predictor of whether schools would meet district or state performance goals. This study was also inconclusive in elaborating that leadership behavior was a significant contributor to explaining the odds of whether schools would meet performance goals. The relationship of leadership behavior with meeting performance goals as depicted in the theoretical model was not verified.

Summary of the Findings

The purpose of this study was to determine the odds of school organizational features predicting schools that would meet district or state performance goals. The school organization features were organizational complexity, shared decision making, and leadership behavior. There were three variables that represented the organizational complexity feature (size, diversity of

role, and span of control) and three variables that represented the shared decision making feature (curriculum influence, policy influence, and professional development influence). The leadership behavior variable was a composite variable.

The overall findings of this study suggested that the three variables representing the shared decision making feature of school organization (curriculum influence, policy influence, and professional development influence) and that only the span of control variable representing organizational complexity were significant when explaining the odds of school organization features predicting whether schools would meet district or state performance goals. However, insight into the influence the variables had on whether schools would meet performance goals is open to interpretation. The size variable and the diversity of role variable representing the organizational complexity feature of school organization, and the leadership behavior composite variable were not significant contributors to explaining whether schools would meet district or state performance goals.

Finally, the relationship of the organizational complexity feature of school organization and the relationship of the leadership behavior feature of school organization with meeting performance goals as depicted in the theoretical model was not verified. The relationship of the shared decision making feature of school organization with meeting performance goals as depicted in the theoretical model was verified. The results need to be interpreted with caution, due to the extensive limitations and delimitations of the study.

Suggestions for Future Research

There are possibly other aspects of school organization that may influence whether schools would meet performance goals that were not addressed by this study. Some of those include school climate, communication, a cohesive working relationship among the

administration and staff, the academic focus of the school, school community relations, and financial support. Those aspects of school organization could be the focus of future research on examining the odds probability of whether school would meet district or state performance goals.

Future researchers might consider using the 1999-2000 SASS Restricted-Use Data to determine the odds of school organizational features predicting whether schools would meet district or state performance goals and use the continuous total teacher variable. Additional research might focus on the development and assessment of a scale that can be used to measure the complexity of a school organization. Finally, the unit of analysis for this study was principal and future researchers might consider using the school as the unit of analysis.

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Appendix A

Glossary

B	The weighting of the value of *B* used in the equation.
Binary	Refers to a system of coding where the digits 1 and 0 are used.
Combined school	Schools with k-12, 6-12, or 1-12 configurations; and ungraded schools with out traditional grade configurations (Tourkin, 2004).
Community Type	"A three level categorization based on the eight level U.S. Census Bureau definition of locale. A central city school is a school located in a large or mid-size city. A urban fringe/large town school is a school located in the urban fringe of a large or midsize city, in a large town, or in a rural area within an urbanized metropolitan area. A rural/small town is a school located in a small town or rural setting." (SASS, p. 288)
Cox & Snell R-Square	Estimates of the R-square value, indicating what percentage of the dependent variable may be accounted for by all include predictor variables.
Dichotomous variable	A binary variable that has two outcomes.
Exp(B)	e^B, used to help in interpreting the meaning of the regression coefficients.
Free or reduced-price lunches	"A federally funded program to aid schools in providing an adequate lunch at school. Schools are reimbursed to provide meals to students, either free or for a reduced price. Students are eligible for free or reduced-price lunch based on their family income. Children from families with incomes at or below 139 percent of the poverty level are eligible for free lunches. Children from families whose income falls between 130 percent and 185 percent of the poverty level are eligible for reduced-price lunches.

	The percentage of free or reduced lunches is related inversely to socio-economic status. A school with a high level of free and reduced lunch eligible students is often related to a low level of socio-economic status among the students." (SASS, p. 228-9)
In scope cases	The number of eligible cases for inclusion in the sample with the exclusion of cases that refused or retuned surveys with too little valid information to be considered complete.
Interviews	The number of in-scope or eligible cases minus the eligible non-interview cases. The unweighted number of cases that responded to enough items to be considered a valid response.
Iterations	A statistical process that estimates a set of results and the process is repeated until a stabilized set of coefficients is obtained (Thompson, 2004).
Latent variables	Variables with underlying characteristics that can not be observed or measured directly (DeVellis, 2003).
Logistic regression	A variation of Ordinary Least Squares (OLS) regression, useful when the observed outcome is restricted to two values, which usually represent the occurrence or non-occurrence of some outcome event. It produces a formula that predicts the probability of the occurrence as a function of the independent variables. Produces an odds ratio.
-2Log Likelihood	One of the model summary measures that is used to indicate how well the model fits the data.
Model Chi-Square	The likelihood of observing the actual data (under the assumption that the model that has been fitted is accurate).
Non interviews	The eligible cases that refused or returned incomplete surveys. The number of in-scope responding questionnaires divided by the number of in-scope sample cases.
Odds ratio	The odds of an even occurring to the odds of an event not occurring.

Predicted probability	The models estimate of the probability that a school is a member of the pet performance group (Grimm & Yarnold, 2003).
Performance goals	A set of goals or objectives that when attained, represent excellence. School attainment of specific district or state subject content (NCES: 2003-603).
Public school	"An institution that provides educational services for at least one of grades 1- 12 (or comparable ungraded levels), has one or more teachers to give instruction, is located in one or more buildings, receives public funds as primary support, and is operated by an education or chartering agency. They include regular, special education, vocational/technical, alternative, and public charter schools. Schools in juvenile detention centers and schools located on military bases and operated by the Department of defense are include. They also include Bureau of Indian affairs-funded schools operated by local public school districts." (SASS, p. 230)
Public school sampling frame	The 1997-98 Common Core of Data (CCD) school file: All elementary and secondary schools in the United States with the exception of the Department of Defense schools and schools that offered only kindergarten, pre-kindergarten, or adult education.
R	Partial correlations assessing the effect of each variable given the presence of others in the model.
Region	Northeast: Main, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania. Midwest: Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas. South: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas. West: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, Hawaii.

Stratified sample	A sample drawn from the subsets or strata, and not the entire SASS sampling frame.
School, elementary	A school having one or more grades K-6 and no grade higher than grade 8. Schools with only pre-kindergarten or kindergarten were not included.
School, secondary	A school having one or more grades of 7 -12 and no grade lower than 7.
Teacher	A full-time or part-time who teaches any regularly scheduled classes of grade K-12. This included administrators, librarians, and other professional or support staff who teach regularly scheduled classes on a part-time basis.
Unweighted item response rate	The number of sample units responding to an item divided by the number of sample units that participated in the survey.
Varimax rotation	A procedure used to obtain a clear pattern of factor loadings to maximize variance (Thompson, 2004).
WALD test	A test of significance of variables for possible removal or retention in regression models. A measure of significance of *B* for a given variable. Higher values, in combination with the degrees of freedom indicate significance.

Appendix B

Cross-Reference of SASS Survey Question with Dependent Variable and Independent Variables

Table B1

Cross-Reference of SASS Survey Questions School Performance Variable and Covariate (Percent Free Lunch)

Question number	Indicator	Survey domain	Indicator description	Labels
22c	A0209	Teacher and School Performance Principal Activities (Principal Survey)	Did your school meet the minimum district or state performance goals?	1 = yes 2 = No -8 = Valid skip
39c	S0287	Special Programs and Services (School Survey)	How many applicants at this school were approved for free or reduced-price lunches?	1 = Less than 5% 2 = 5-19% 3 = 20-49% 4 = 50% or more -8 = Valid Skip -9 = Missing

Table B2

Cross-Reference of SASS Survey Questions with the Organizational Complexity

Question number	Indicator	School survey domain	Indicator description	Labels
32h-1	S0229	Staffing	How many staff held part-time library media center aide positions or assignments?	Continuous
32h-1	S0230	Staffing	How many staff held full-time library media center aide positions or assignments?	Continuous
32h-2	S0231	Staffing	How many staff held part-time special education aide positions or assignments?	Continuous
32h-2	S0232	Staffing	How many staff held full-time special education aide positions or assignments?	Continuous
32h-3	S0233	Staffing	How many staff held part-time regular Title 1 aide positions or assignments?	Continuous
32h-3	S0234	Staffing	How many staff held full-time regular Title 1 aide positions or assignments?	Continuous
32h-4	S0235	Staffing	How many staff held part-time bilingual/English as Second Language aide positions or assignments?	Continuous

(Table B2 continues)

Table B2

Cross-Reference of SASS Survey Questions with the Organizational Complexity

Question number	Indicator	School survey domain	Indicator description	Labels
32h-4	S0236	Staffing	How many staff held full-time bilingual/English as Second Language aide positions or assignments	Continuous
32h-5	S0237	Staffing	How many staff held part-time teacher aide, such as kindergarten aide position or assignment?	Continuous
32h-5	S0238	Staffing	How many staff held full-time teacher aide, such as kindergarten aide position or assignment?	Continuous
32a	S0205	Staffing	How many staff held part-time principal positions or assignments?	Continuous
32a	S0206	Staffing	How many staff held full-time principal positions or assignments?	Continuous
32b	S0207	Staffing	How many staff held part-time vice principals and assistant principal positions or assignments?	Continuous
32b	S0208	Staffing	How many staff held full-time vice principals and assistant principal positions or assignments?	Continuous

(Table B2 continues)

Table B2

Cross-Reference of SASS Survey Questions with the Organizational Complexity

Question number	Indicators	School survey domain	Indicator description	Labels
32c	S0211	Staffing	How many staff held part-time instructional coordinator and supervisor positions or assignments, such as curriculum specialists?	Continuous
32c	S0212	Staffing	How many staff held full-time instructional coordinator and supervisor positions or assignments, such as curriculum specialists?	Continuous
32d	S0213	Staffing	How many staff held part-time library media specialists/librarian positions or assignments?	Continuous
32d	S0214	Staffing	How many staff held full-time library media specialists/librarian positions or assignments?	Continuous
32e	S0215	Staffing	How many staff held part-time counselor positions or assignments, excluding psychologists and social workers?	Continuous
32e	S0216	Staffing	How many staff held full-time counselor positions or assignments, excluding psychologists and social workers?	Continuous

(Table B2 continues)

Table B2

Cross-Reference of SASS Survey Questions with the Organizational Complexity

Question number	Indicator	School survey domain	Indicator description	Labels
32f-4	S0223	Staffing	How many staff held part-time speech therapists or pathologists positions or assignments?	Continuous
32f-4	S0224	Staffing	How many staff held full-time speech therapist or pathologist positions or assignments?	Continuous
33f	S0254	Staffing	How many total teachers (full-time and part-time teachers)?	1 = Fewer than 25 2 = 25-43 teachers 3 = 35 or more teachers

Table B3.

Cross-Reference of SASS Survey Questions with Shared Decision Making

Question number	Indicator	Principal survey domain	Indicator description	Labels
10a-4	A0079	Attitudes and Opinions	How much actual influence do you think principals have on decisions concerning setting performance goals?	1 = No influence 5 = A great deal of influence
10a-6	A0081	Attitudes and Opinions	How much actual influence do you think teachers have on decisions concerning setting performance goals?	1 = No influence 5 = A great deal of influence
10b-4	A0087	Attitudes and Opinions	How much actual influence do you think principals have on decisions concerning establishing curriculum?	1 = No influence 5 = A great deal of influence
10b-6	A0089	Attitudes and Opinions	How much actual influence do you think teachers have on decisions concerning establishing curriculum?	1 = No influence 5 = A great deal of influence
10c-4	A0095	Attitudes and Opinions	How much actual influence do you think principals have on decisions concerning setting performance goals?	1 = No influence 5 = A great deal of influence

(Table B3 continues)

Table B3.

Cross-Reference of SASS Survey Questions with Shared Decision Making

Question number	Indicator	Principal survey domain	Indicator description	Labels
10c-6	A0097	Attitudes and Opinions	How much actual influence do you think teachers have on decisions concerning setting performance goals?	1 = No influence 5 = A great deal of influence
10d-4	A0104	Attitudes and Opinions	How much actual influence do you think principals have on decisions concerning teacher evaluation?	1 = No influence 5 = A great deal of influence
10d-6	A0105	Attitudes and Opinions	How much actual influence do you think teachers have on decisions concerning teacher evaluation?	1 = No influence 5 = A great deal of influence

Table B4.

Cross-Reference of SASS Survey Questions with Leadership Behavior

Question number	Indicator	Principal survey domain	Indicator description	Labels
14	A0163	Teacher Professional Development	How often have you participated in professional development with teachers in your school?	1 = Never 2 = Once or twice 3 = three to five times 4 = Six or more times
21a	A0197	Teacher and School Performance Principal Activities	How often did you engage in activities in your role as principal to facilitate achievement of the school's mission through such activities as consensus building, planning, obtaining resources, monitoring progress, etc.?	1 = Never 2 = Once or twice a month 3 = Once a twice a week 4 = Every day

(Table B4 continues)

Table B4.

Cross-Reference of SASS Survey Questions with Leadership Behavior

Question number	Indicator	Principal survey domain	Indicator description	Labels
21b	A0198	Teacher and School Performance Principal Activities	How often did you engage in activities in your role as principal to supervise and evaluate faculty and other staff?	1 = Never 2 = Once or twice a month 3 = Once or twice a week. 4 = Every day
21c	A0199	Teacher and School Performance Principal Activities	How often did you engage in activities in your role as principal to guide the development and evaluation of curriculum and instruction?	1 = Never 2 = Once or twice a month 3 = Once or twice a week. 4 = Every day
21d	A0200	Teacher and School Performance Principal Activities	How often did you engage in activities in your role as principal to facilitate student learning (e. g., eliminate barriers to student learning, establish high expectations for students?	1 = Never 2 = Once or twice a month 3 = Once or twice a week. 4 = Every day

(Table B4 continues)

Table B4.

Cross-Reference of SASS Survey Questions with Leadership Behavior

Question number	Indicator	Principal survey domain	Indicator description	Labels
21e	A0201	Teacher and School Performance Principal Activities	How often did you engage in activities in your role as principal to provide professional development activities?	1 = Never 2 = Once or twice a month 3 = Once or twice a week. 4 = Every day
21f	A0202	Teacher and School Performance Principal Activities	How often did you engage in activities in your role as principal to build professional community among faculty and other staff?	1 = Never 2 = Once or twice a month 3 = Once or twice a week. 4 = Every day

Appendix C

Visual Representation for Organizational Complexity Variable

Figure C1. The Variables Representing Organizational Complexity

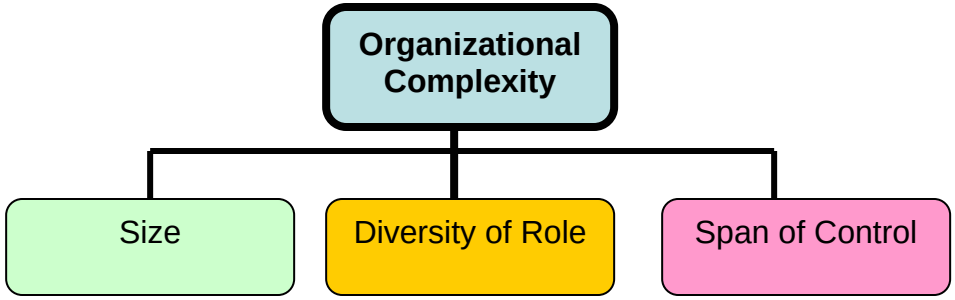
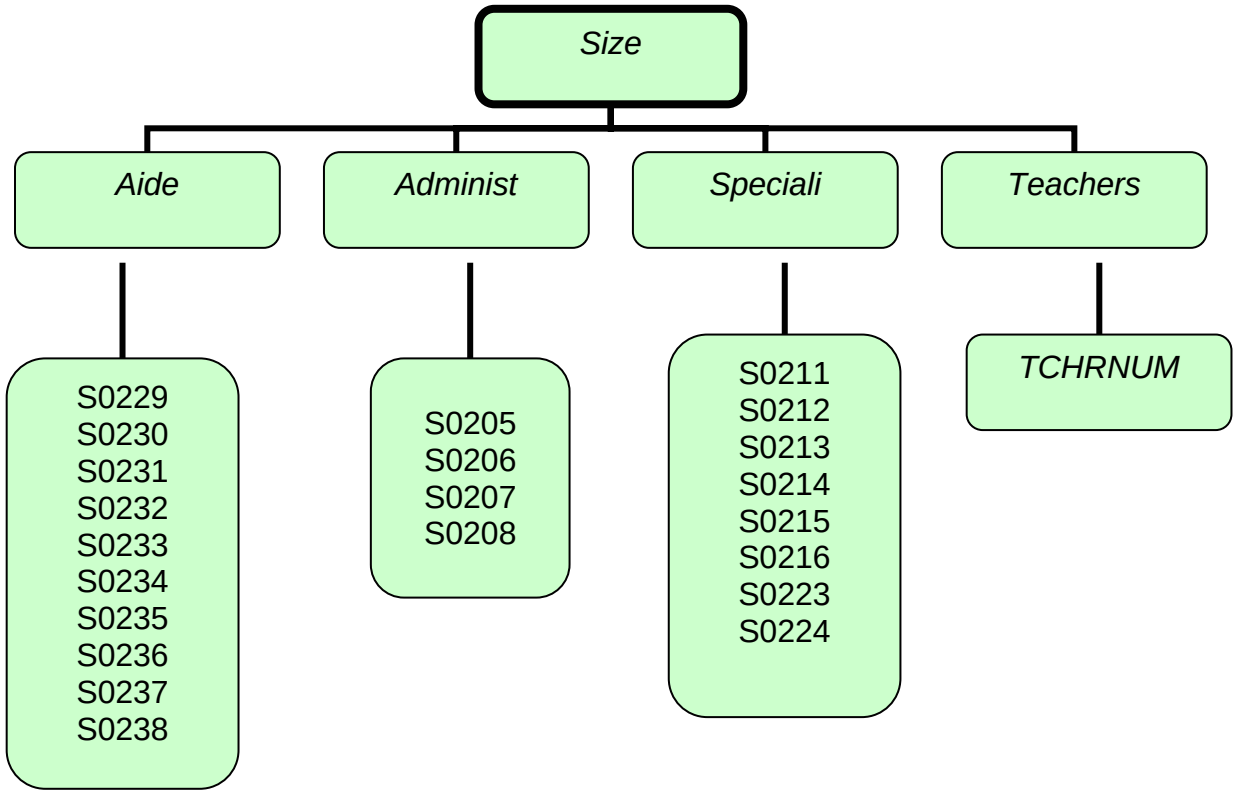
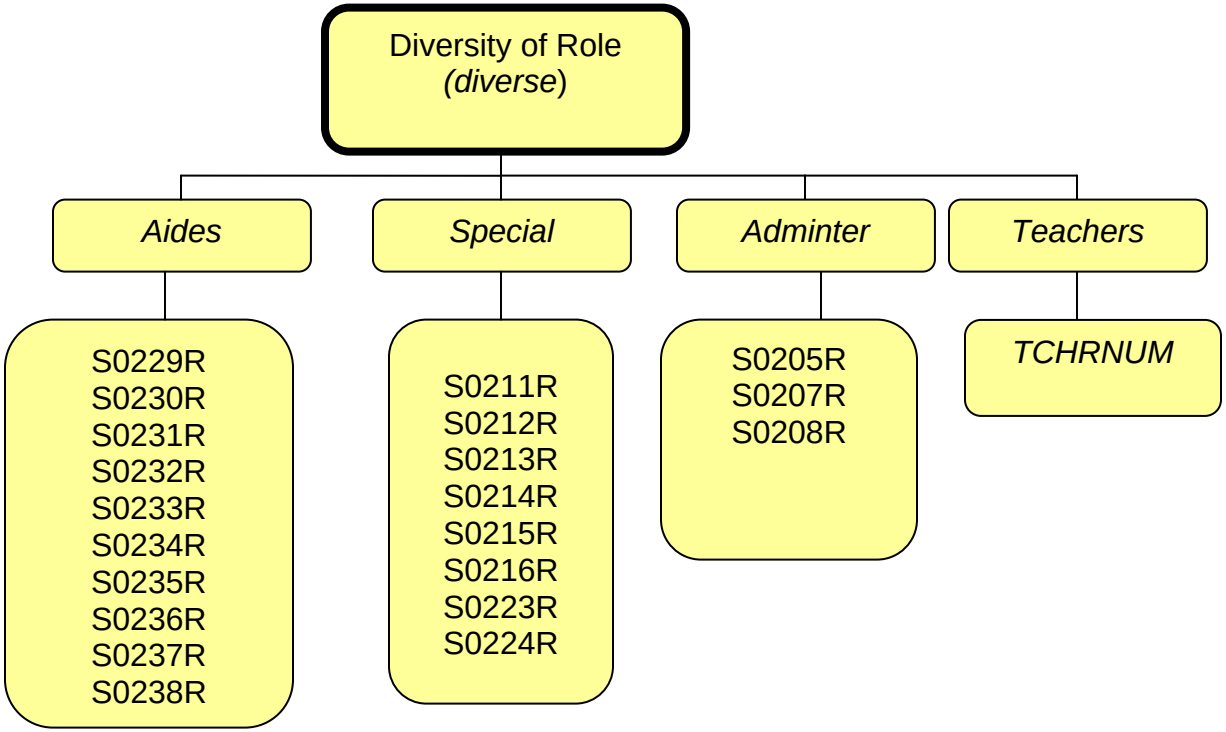


Figure C2. Indicator Variables for the Organizational Complexity Variable: *Size*



Note. The size variable was developed by summing the values for the variables in each size category separately and then summing the values for the four categories. Example: *Aide* + *Administ* + *Speciali* + *TCHRNUM*= *Size*

Figure C3. Indicator for the Organizational Complexity Variable: Diversity of Role

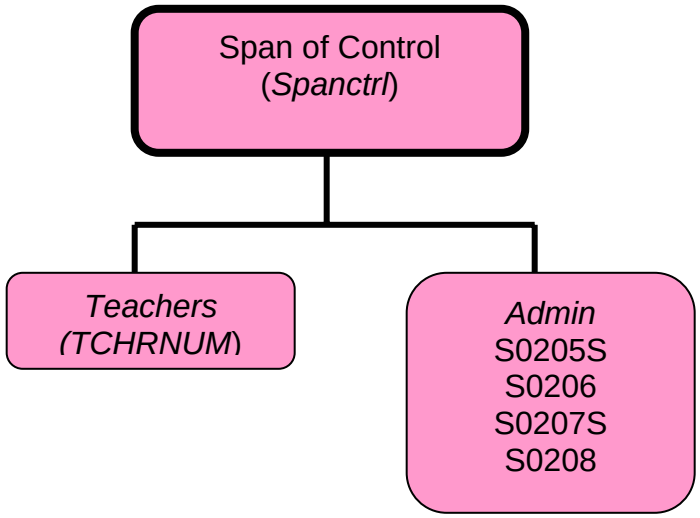


Note. The diversity of role variable was developed by summing the values for the indicators in each size category separately and then summing the values for the three categories and dividing by 22 (the number of positions at a school site). Example: (*Aides* + *Special* + *Adminter* +*TCHRNUM*)/22 = *Diverse*

The question numbers are consistent with SASS and the *R* at the end of the question number represents the coding.

See Chapter 3 for more information.

Figure C4. Indicator Variables for the Organizational Complexity Variable: Span of Control



Note: The span of control variable was a ratio of *teachers* to *admin*. Example: *TCHRNUM*/*Admin* = *Spanctrl*

Admin = S0205S + S0206 + S0207S + S0208

The question numbers are consistent with SASS and the *S* at the end of the question number represents the coding.

See Chapter 3 for more information.

Appendix D

Visual Representation for Shared Decision Making Variables

Figure D1. The Variables Representing Shared Decision Making

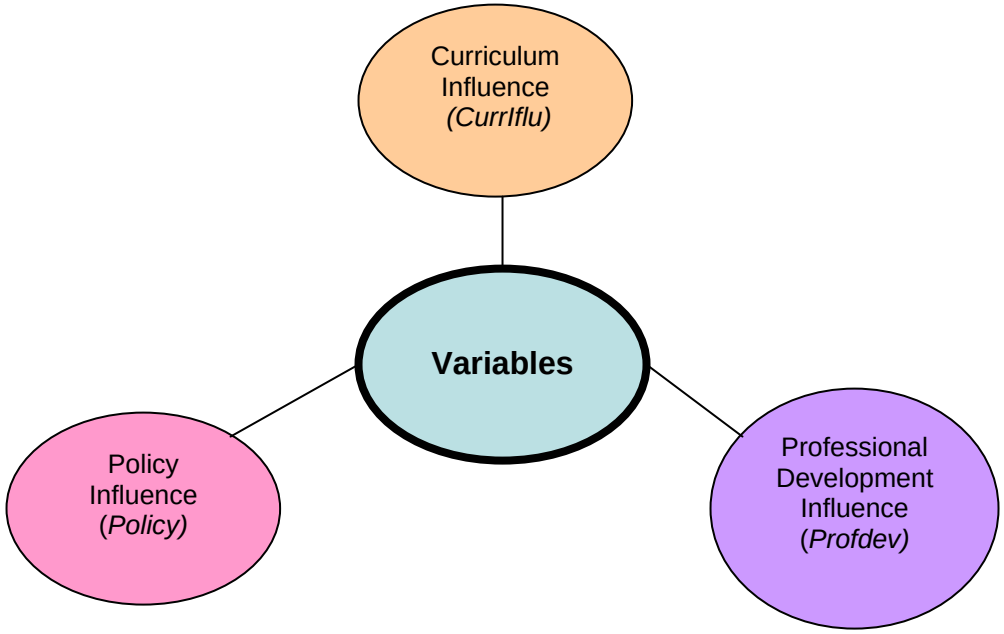
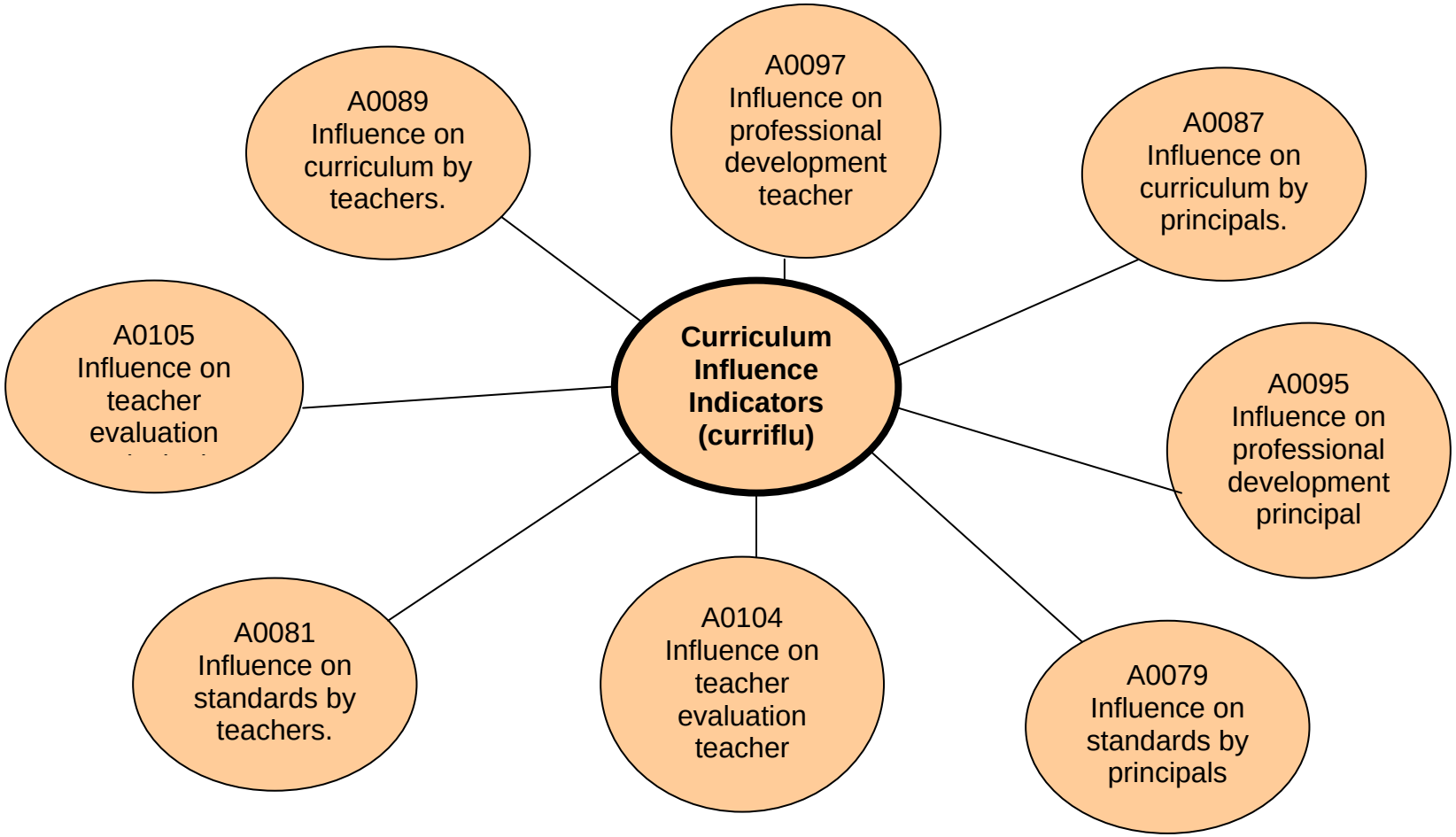
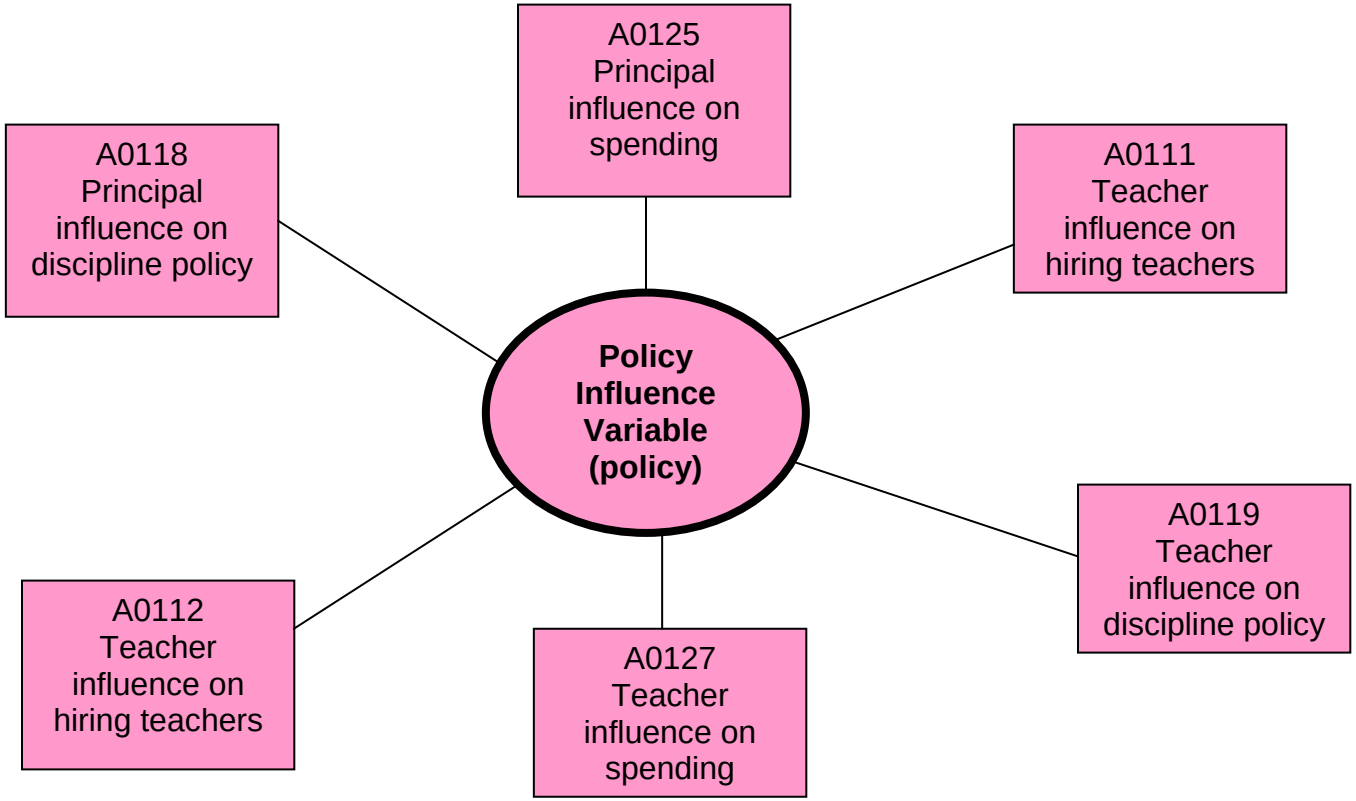


Figure D2. Shared Decision Making Indicators for the Curriculum Influence Variable



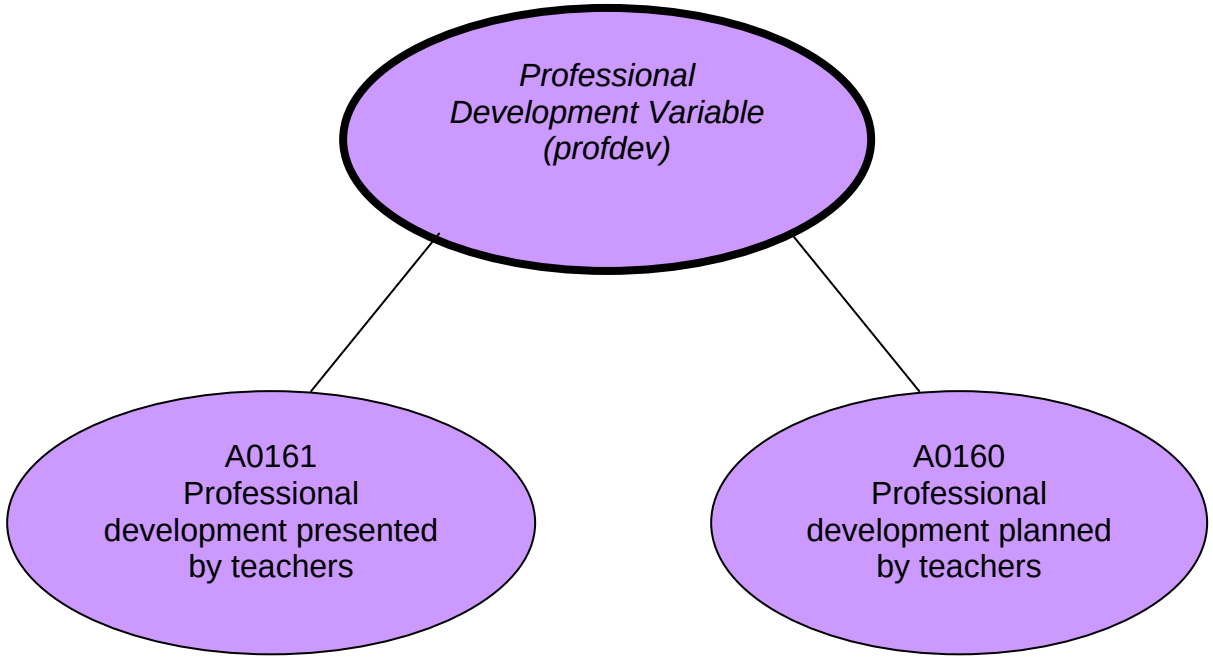
Note. The curriculum influence variable was developed by summing A0089 + A0087 + A0079 + A0081 = *curriflu.*

Figure D3. Shared Decision Making Indicator for the Policy Influence Variable



Note. The policy influence variable was developed by summing the indicators A0118 + A0125 + A0111+ A0119 + A0127 + A0104 + A0112 + A0105 + A0095 + A0097 = *policy.*

Figure D4. Shared Decision Making Indicators for the Professional Development Influence Variable



Note: The professional development variable was developed by summing A0161 and A0160 (A0161 + A0161 = *profdev*)

Table D1.

Indicators for the Shared Decision Making

1. Influence on standards-principal
2. Influence on standards-teachers
3. Influence on curriculum-principal
4. Influence on curriculum-teachers
5. Influence on professional development program-principal
6. Influence on professional development program-teachers
7. Influence on evaluation of teachers-principal
8. Influence on evaluation of teachers-teachers
9. Influence on hiring teachers-principal
10. Influence on hiring teachers-teachers
11. Influence on discipline policy-principal
12. Influence on discipline policy-teachers
13. Influence on spending-principal
14. Influence on spending-teachers
15. Prof development-planned by teachers
16. Prof development-presented by teachers

Appendix E

Frequency Distribution on Principal Response to SASS Survey Questions

Table E1

Frequency Distribution on Principal's Response to SASS Questions for Shared Decision Making Curriculum Influence

	f		*f*		*f*		*f*		*f*	
Question	No influence	%	2	%	3	%	4	%	Great influence	%
Influence on evaluation teachers-teachers	785	14.8	903	17.0	1559	29.3	1364	25.7	701	13.2
Influence on evaluation teachers-principal	43	.8	31	.6	174	3.3	889	16.7	4175	78.6
Influence on professional development programs-teachers	57	1.1	237	4.5	938	17.1	2096	39.5	1984	37.3
Influence on professional development programs-principal	36	.7	121	2.3	726	13.7	2141	40.3	2288	43.1
Influence on curriculum-teachers	75	1.4	258	4.9	944	17.8	2004	37.7	2031	38.2
Influence on curriculum-principal	53	1.0	213	4.0	1016	19.1	2248	42.3	1785	33.5
Influence on standards-teachers	74	1.4	320	6.0	1028	19.4	1882	35.4	2008	37.8
Influence on standards-principal	56	1.1	205	3.9	970	18.3	2106	39.6	1975	37.2

Table E2

Frequency Distribution on Principal's Response to SASS Questions for Shared Decision Making Policy Influence

	f		*f*		*f*		*f*		*f*	
Question	No influence	%	2	%	3	%	4	%	Great influence	%
Influence on discipline policy -principal	17	.3	32	.6	223	4.2	1459	37.5	3581	67.4
Influence on discipline policy-teachers	63	1.2	141	2.7	791	14.9	2031	38.2	2286	43.0
Influence on spending-teachers	292	5.5	629	11.8	1547	29.1	1833	34.5	1011	19.0
Influence on hiring teachers-principal	40	.8	56	1.1	202	3.8	1063	20.0	3951	74.4
Influence on hiring teachers-teachers	616	11.6	803	15.1	1479	27.8	1490	28.0	924	17.4
Influence on spending-principal	95	1.8	199	3.7	728	13.7	1792	33.7	2498	47.0

Table E3

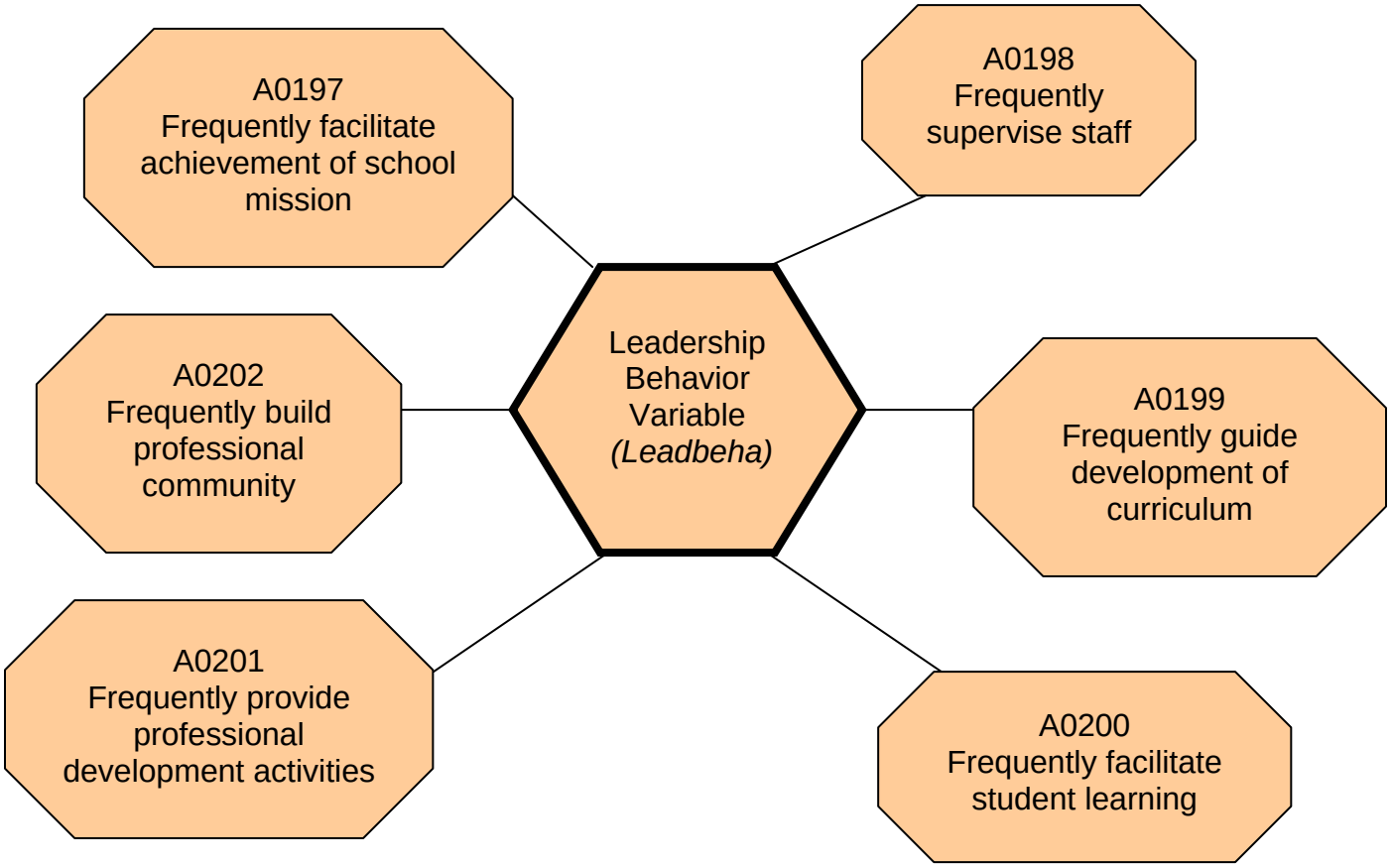
Frequency Distribution on Principal's Response to SASS Questions for Shared Decision Making

Professional Development Influence

	f		*f*		*f*		*f*		*f*	
Question	Never	%	Rarely	%	Sometimes	%	Frequently	%	Always	%
Professional development presented by teachers	50	.9	462	8.7	2101	39.6	2331	43.9	368	6.9
Professional development planned by teachers	54	1.0	347	6.5	1578	29.7	2444	46.0	889	16.7

Appendix F

Visual Representation for the Leadership Behavior Composite Variable



Note: The leadership behavior composite variable was developed by summing the values for the variable.

Example: A0197 + A0198 + A0199 + A0200 + A0201 + A0202 = *leadbeha.*

Appendix G

Frequency Distribution on Principal's Response to SASS Questions for Leadership Behavior

	f		*f*		*f*		*f*	
Question	Never	%	Once or twice a month	%	Once or twice a week	%	Every day	%
Frequently build professional community	112	2.1	1611	30.3	1537	28.9	2052	38.6
Frequently provide professional development activities	89	1.7	3173	59.7	1593	30.0	457	8.6
Frequently facilitate student learning	47	.9	864	16.3	1621	30.5	2780	52.3
Frequently guide development of curriculum	123	2.3	1730	32.6	2056	38.7	1403	26.4
Frequently supervise staff	68	1.3	728	13.7	1965	37.0	2551	48.0
Frequently facilitate achievement of school mission	95	1.8	1417	26.7	1725	32.5	2075	39.1

Appendix H

Calculation for the Overall Percent Correct Prediction

Table H1

Calculation for the Overall Percent Correct Prediction for the Null Model

Predicted Probability Equation: $P' = 1/ 1 + e^{-(a)}$

P'- represents the predicted probability that school organization features will predict school performance.

e - represents the base of the natural logarithm

a - represents the intercept

b - represents the slope of the curve (regression coefficient for independent variables)

x - represents the independent variables (school organization features)
bx1 = *S0287*; bx2 = *curriflu;* bx3 = *policy;* bx4 = *profdev,* bx5 = *size,* bx6 = *diverse,* bx7 = *spanctrl,* bx8 = *leadbeha*

$P' = 1/ 1 + e^{-(.446)(1)}$

P' = 1/1 + 1.562

P' = 39.0%

Table H2

Calculation for the Overall Percent Correct Prediction for the SSES Model

Predicted Probability Equation: $P' = 1/ 1 + e^{-(a + bX1)}$

P'- represents the predicted probability that school organization features will predict school performance.

e - represents the base of the natural logarithm

a - represents the intercept

b - represents the slope of the curve (regression coefficient for independent variables)

x - represents the independent variables (school organization features)
bx1 = *S0287*; bx2 = *curriflu;* bx3 = *policy;* bx4 = *profdev*, bx5 = *size*, bx6 = *diverse*, bx7 = *spanctrl*, bx8 = *leadbeha*

$P' = 1/ 1 + e^{-(0.446) (1) + .00(1))}$

P' = 1/1 + 1.562

P' = 39.0%

Table H3

Calculation for the Overall Percent Correct Prediction for Model 1

Predicted Probability Equation: $P' = 1/ 1 + e^{-(a + bX1 + bX2 + bX3 + bX4+ bx4)}$

P'- represents the predicted probability that school organization features will predict school performance.

e - represents the base of the natural logarithm

a - represents the intercept

b - represents the slope of the curve (regression coefficient for independent variables)

x - represents the independent variables (school organization features)
bx1 = *S0287*; bx2 = *curriflu;* bx3 = *policy;* bx4 = *profdev*, bx5 = *size*, bx6 = *diverse*, bx7 = *spanctrl*, bx8 = *leadbeha*

$P' = 1/ 1 + e^{-(.203 (1) + .00(1) +.01(1) - .010(1) + .026(1)}$

P' = 1/ 1 + 1.257

P' = 4430 (44.3%)

Table H4

Calculation for the Overall Percent Correct Prediction for Model 2

Predicted Probability Equation: $P' = 1/ 1 + e^{-(a + bX1 + bX2 + bX3 + bX4 + bx4 + bx5)}$

P'- represents the predicted probability that school organization features will predict school performance.

e - represents the base of the natural logarithm

a - represents the intercept

b - represents the slope of the curve (regression coefficient for independent variables)

x - represents the independent variables (school organization features)
bx1 = *S0287*; bx2 = *curriflu;* bx3 = *policy;* bx4 = *profdev*, bx5 = *size*, bx6 = *diverse*, bx7 = *spanctrl*, bx8 = *leadbeha*

$P' = 1/ 1 + e^{-(.195(1) - .001(1) + .010 (1) - .011 (1) + .026(1) -.004(1) -.105 (1) +.002 (1)}$

$P' = 1/ 1 + 1.12$

$P' = .4716$ (47.2%)

Table H5

Calculation for the Overall Percent Correct Prediction for Model 3

Predicted Probability Equation:

$$P' = 1/\ 1 + e^{-(a + bX1 + bX2 + bX3 + bX4 + bx4 + bx5 + bx6 + bx7 + bx8)}$$

P'- represents the predicted probability that school organization features will predict school performance.

e - represents the base of the natural logarithm

a - represents the intercept

b - represents the slope of the curve (regression coefficient for independent variables)

x - represents the independent variables (school organization features)
bx1 = *S0287*; bx2 = *curriflu;* bx3 = *policy;* bx4 = *profdev*, bx5 = *size*, bx6 = *diverse*, bx7 = *spanctrl*, bx8 = *leadbeha*

$$P' = 1/\ 1 + e^{-(.263(1) - .001(1) + .010(1) - .011\ (1) + .026\ (1) + .004(1) - .105(1) + .002(1) - .005(1))}$$

$$P' = 1/\ 1 + 1.200$$

$$P' = .4545\ (44.45\%)$$

Appendix I

Calculation for Exponent of Estimated Logistic Regression Coefficient

The exponent of the estimated logistic regression coefficient was generated by calculating the exponent value of the estimated logistic regression coefficient.

Example: $(\text{regression coefficient})^{e}$

Appendix J

Formula for Confidence Interval

The confidence interval was generated by summing the estimated logistic regression coefficient and 1.96 (2 standard deviations), then multiplying the sum by the estimated logistic regression coefficient standard error. Finally, the exponent of the product was calculated, representing the upper end of the confidence interval.

The same procedure is used to generate the lower end of the confidence interval, except instead of adding 1.96 (2 standard deviations), you would subtract it.

Formula: $CI = a \pm 1.96*(SE)^{e}$

Appendix K

Calculation for Odds Ratio

The predicted odds is generated by multiplying the estimated logistic regression coefficient exponent.

Predicted Odds Equation

$O' = a^* bx1*bx2*bx3*bx4*bx5*bx6*bx7$

The equation for the predicted odds for Model 1 and Model 3 predicting schools that would meet district or state performance goals

Model 2

$O' = a*bx1*bx2*bx3*bx4*bx5*bx6*bx7$

$O' = 1.22(1)*1.00(1)*1.01(1)*.98(1)*1.02(1)*1.00(1)*.90(1)*1.00(1)$

$O' = 1.13$

The equation for the predicted odds ratio for the Null Model

$O' = a^e$

$O' = 1.56$

Appendix L

Calculation for the Predicted Odds Ratio

OR' = odds of predicting schools meeting performance goals/odds of predicting schools that would not meet performance goals

Model 2

OR' = 1.13/1.56

OR' =.7243

Vita

Lois M. Atkins
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EDUCATION

2005, Doctor of Education
Virginia Polytechnic Institute and State University
Educational Leadership & Policy Studies

1977, Masters of Arts
Radford University
Elementary Administration and Supervision
Psychology

1970, Bachelor of Science
Norfolk State University
Elementary Education

TEACHING & ADMINISTRATIVE EXPERIENCE

1988-2002: Fauquier County Public Schools, VA.
Elementary School Principal

1980-1988: Roanoke City Public Schools, VA.
Elementary School Principal

1977-1980: Roanoke City Public Schools, VA.
Elementary School Assistant Principal

1973-1977: Roanoke City Public Schools, VA.
First Grade Teacher

1972-1973: Montgomery County Public Schools, VA.
Title I Reading Specialist

1970-1972: Virginia Beach Public Schools, VA.
First Grade Teacher

HONORS

2002, Lois Atkins' Head Start Facility/Fauquier County Community Action

2001, Distinguished Educator of the Year/Washington Post Distinguished Educator's Awards Program

1992, Citizen of the Year/Fauquier Times-Democrat Newspaper

PROFESSIONAL PRESENTATIONS

2001, School Board and Leadership Team, Fauquier County Public Schools: Monitoring and Assessing Student Performance/Interpreting Test Data.

1999, Mary Walter Elementary School: Implementing a Balanced Literacy Program-Guided Reading; Math Their Way Manipulative Follow-up; Classroom Management.

1987, Summer Virginia State Accreditation of Elementary Schools Self-Study Annual Conference

1986, Management Institute for Aspiring Administrators, Roanoke City Schools: Student Performance Analysis/Monitoring of Instruction. Community Centers/School-Community Relations.

1984, Administrator's Conference, Roanoke City Schools: Monitoring Instruction & Student Achievement. Communicating with Staff & Parents. Scheduling to Maximize Learning.

GRANTS FUNDED

1996 - 2000, Running Start Reading Incentive Program for First Graders. Reading Is Fundamental (RIF), Coca-Cola Company, & other Corporations
1992 -1998, Tutors for Success. Central Fidelity Bank

PROFESSIONAL ORGANIZATIONS & SERVICE

2003, Member, Educational Leadership Faculty Search Committee, Virginia Tech

1985- Present, Member, Association for Supervision and Curriculum Development