

School Practices and Student Achievement

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## ABSTRACT

After implementing a statewide standardized testing program in 1998, the Virginia Department of Education realized that some schools were making great gains in student achievement while other schools continued to struggle. The Department conducted a study to identify the practices used by schools showing improvement. Six effective practice domains were identified. The current study was a follow-up to the research conducted by the Virginia Department of Education.

A questionnaire measuring the six effective practice domains: (a) curriculum alignment, (b) time and scheduling, (c) use of data, (d) professional development, (e) school culture, and (f) leadership was administered to teachers in 148 schools in Virginia; 80 schools participated. Two questions guided the study: (1) How frequently do schools use the Virginia Department of Education effective practices, and (2) what is the relationship between the use of the effective practices and school pass rates on the 3<sup>rd</sup> grade 2005 Standards of Learning (SOL) reading test?

Descriptive statistics, linear regression, and discriminant function analysis were applied to explore the relationships between the predictor variables (percentage of students receiving free or reduced-price lunch and the use of the effective practices) and the criterion variable (school pass rate on the 2005 SOL 3<sup>rd</sup> grade reading test). Academic culture and the percentage of students receiving free or reduced-price lunch accounted for significant amounts of the variance in school pass rates. The remaining five effective practice measures were not related to school pass rates. The measures may have affected the results. In most cases, one person was used as the proxy for the school, and this person may have provided a biased assessment of what was happening in the school.

## DEDICATION

This dissertation is dedicated to my beloved mother, Sallie W. Reid, January 5, 1931 – February 29, 2008. She was the wind beneath my wings.

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## CHAPTER 1

### THE PROBLEM

High-stakes accountability has been a topic of vigorous national debate and discussion among educators and educational researchers in recent years (Northwest Regional Educational Laboratory, 1998). The call for school reform over the past twenty years has resulted in a greater emphasis on the use of standardized tests. Many state policy makers, such as local and state school board members and legislators, clearly believe that these tests benefit students by providing educators with information they can use to improve the quality of instruction and provide states with information to hold educators, schools, and school districts accountable for student performance. Parents are demanding educators be held accountable for student learning, and school leaders are holding students, teachers, and staff accountable.

The standards-based reform movement has given reason to policy makers to reach directly into the instructional core of schools. The movement has made what gets taught a matter of public policy and public scrutiny. Standards-based reform localizes accountability for student learning within schools and on the people who work in them. So, how should schools and school environments be reshaped to respond to these demands? Researchers (Darling-Hammond & McLaughlin, 1995; Fullan, 1995; Lieberman, 1995; Fullan, 2005) have offered solutions, including the redesign of schools into community-like organizations. They believe that these redesigned schools hold the greatest possibilities for developing lifelong capacities for learning, doing, and relating to others. These new schools would be characterized by a shared vision that focuses on student learning, reflective practice, a decrease of solo teaching, and an increase in collaborative thinking (Louis, Kruse, & Marks, 1996; DuFour, 2004). A shared vision was found in the 90/90/90 Schools research (Reeves, 2000). The collective focus on academic achievement was pivotal to student success. Despite risk factors such as high poverty and high minority enrollment, 90 percent of the students had high performance on standards based accountability measures.

Unfortunately, the organization and culture of most schools and school districts is the same as it was in the late nineteenth and early twentieth centuries, and these schools and districts are ill equipped to meet the challenges posed by the reform efforts (Lortie, 1987). Administrators and teachers, for the most part, are still treated as solo practitioners, operating in isolation from one another during the workday (Darling-Hammond, 1997). In response to these assessments,

Marzano (2003) emphasizes the need to create organizational structures that allow authentic dialogue among teachers and administrators for the purpose of sharing practices that produce successes and reduce failures.

Criticisms of the public schools are widespread. The learning that is expected of teachers and administrators as a condition of their continued employment and licensure tends to be predicated on the traditional solo model. In order to advance in position or salary, classroom and building leaders must accrue academic credit based on university courses taken or workshops attended; any or all of which may be unconnected to the everyday work demands and realities of teaching. Most of the workplace learning takes the form of information about policies and practices delivered in settings disconnected from where the work of the organization is actually done. It is felt by some that the current structure of our schools could not be a more dysfunctional organization for the implementation of a performance-based system (Darling-Hammond, 1997). Darling-Hammond reported that the existing structure and culture of schools seem better equipped to resist learning and school improvement than to enable them. Schools have been this way for some time. What is new about the situation is that with the call for performance-based accountability the problems within the schools have become more visible to professionals, policyholders, and the public at large.

The accountability process must be viewed as a reciprocal movement (Elmore, 2000). For each measure of performance demanded of the schools by stakeholders, there must be an equal expectation for support and resources. At the present, the design of most schools and school systems is not conducive to providing support for the type of capacity building needed for an adequate response to the demands for accountability (Elmore, 2002).

The problem for policy makers, professionals, and the public is to recognize that if the accountability process is to improve the quality of the educational experience and increase the academic performance of students, changes must take place. Strategies for investing in the knowledge and skills of the professionals who are being held accountable must be developed. Educators must learn to work differently in responding to the external demands for accountability. One approach is to rebuild the school organization around a more collective effort aimed at problem solving and capacity development (Fullan, 1991; Annenberg Institute, 2003). In such an environment stakeholders share in the vision and mission of the school and influence decisions that have a positive impact on student learning. School principals must look to research

and authentic data from internal and external sources to help guide them in the rebuilding process. Now would be the time to translate the high stakes testing demands into concrete structures, processes, leadership practices, and instructional practices that educational leaders can use to bring about large scale school improvement. Such structures, processes, and practices are investigated in this study.

### Significance of the Study

According to the National Staff Development Council (2000), strengthening the skills and knowledge of principals through professional development is likely to have a more immediate effect on student achievement than any other school reform effort. The Council found three common elements in productive schools: (a) leadership style of the principal, ( b) leadership strategies that spark improvement, and (c) issues on which the principal focused. DuFour and Eaker (1998) found that using data is one of the most effective strategies for translating the good intentions of a vision into reality. Schools are likely to become professional learning communities and committed to continuous improvement only if principals use accumulated data to inform practice, identify areas of need, and celebrate successes (DuFour & Eaker). Improving the quality of school leaders and the practices that they and their staffs use to focus on student learning is one way to make a difference in education.

### Purpose of Study

Virginia principals, like others across the nation, are facing a daunting task responding to the call for high stakes testing and increased accountability. The use of rewards and sanctions for schools and school divisions in Virginia is currently based on end-of-year test results. Principals are mandated to show improved student achievement through higher test scores. Best practice guidelines have been established to help principals and superintendents provide professional development that will affect the school improvement process, but they have not been thoroughly incorporated into preparation programs. Although Virginia requires leadership preparation programs to use both the state and the Educational Leadership Constituent Council (National Policy Board for Educational Administration, 2002) standards to design programs, these programs are only now beginning to assess the effect that graduates have on student

achievement. In addition, the Virginia Department of Education is providing no support for such assessment or for the on-the-job performances of school leaders.

The Virginia Department of Education (VDOE) has identified practices that are highly correlated with high performing schools; however, support for use of these practices often comes several years after the school has experienced failure. Intervention from the state level occurs if students of the school fail to meet academic benchmarks. State assistance comes in the form of the Academic Review Process. This research-based school improvement program becomes mandated. Although effective, the reactive stance only adds to the anxiety already present within the school. A more proactive position would be to engage schools in a rebuilding and reorganizing process prior to sanctions. The absence of professional development that focuses on best practice strategies is a significant dilemma for policymakers, educators, parents, and students.

The question then arises: How do we use what we know about learning and school improvement to redesign schools prior to action by the state designating schools for school improvement intervention? It is expected that this study will provide one answer to this question. Specific school practices may be identified across many schools and divisions that promote student learning in the form of high pass rates on the 3<sup>rd</sup> grade SOL test in reading. The results may be helpful in guiding school division leaders in designing professional development programs that will prepare building level administrators to use these practices to meet the current demands for accountability.

### Research Questions

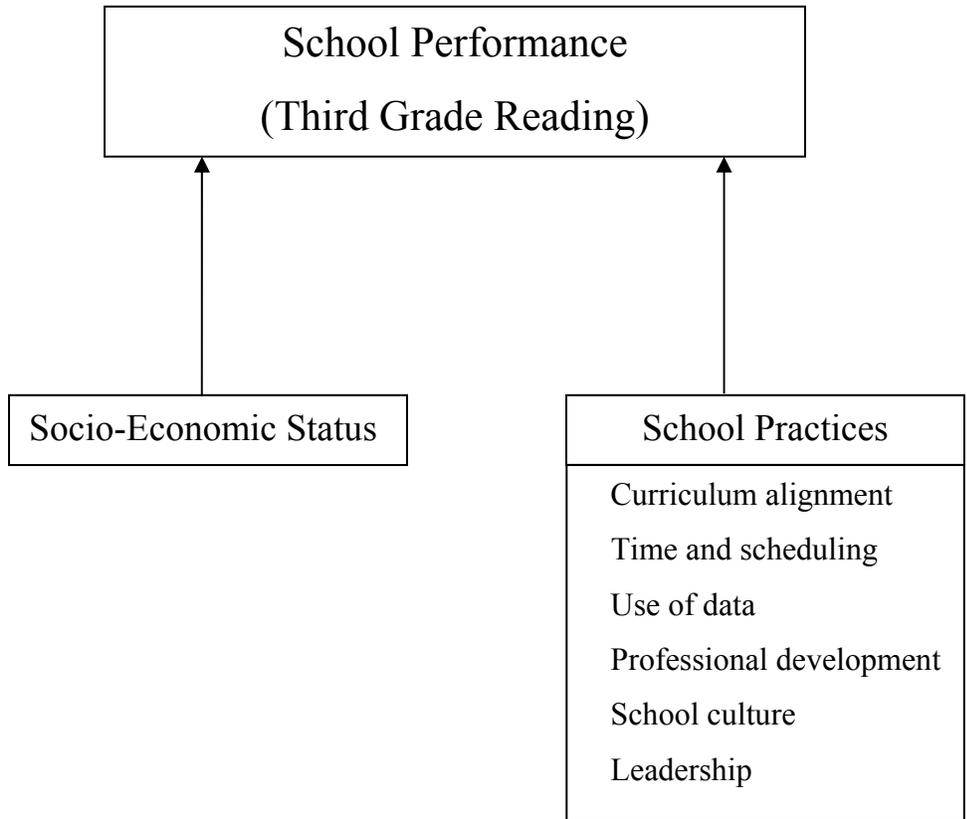
After implementing the state accountability program in 1998, the VDOE conducted research to identify the practices used by schools showing significant gains in student scores on the Standards of Learning (SOL) tests (Virginia Department of Education, 2000). The researchers identified six effective practice domains and associated activities that appeared to contribute to student achievement; however, there remained uncertainty about the relationships between these effective practices and student performance on the SOL tests. This follow up to the original study is an attempt to verify the relationships between student achievement scores on the third grade English SOL test in 2005 and the school's use of the six effective practices while

controlling for the percentage of students on free or reduced-price lunch. The questions that guided the study are:

1. How frequently do schools use the Virginia Department of Education best practices in (a) curriculum alignment, (b) time and scheduling, (c) use of data, (d) professional development, (e) school culture, and (f) leadership?
2. What are the relationships between the percentage of 3<sup>rd</sup> grade students meeting the benchmark on the 2005 Reading SOL test and the use of school practices in the following domains: (a) curriculum alignment, (b) time and scheduling, (c) use of data, (d) professional development, (e) school culture, and (f) leadership?

### Theoretical Framework

The improvement of schools is a multivariate problem. Leadership is one of those variables. Although the call for effective leadership in education is consistent (Hallinger, 1996), there is a lack of clarity as to what that looks like in the context of an effective school organization. The leader's behavior may be viewed as essential to improved student achievement; however, leadership behavior is deemed effective only if the organization it purports to lead responds to internal and external demands. Organizations as such do not learn. It is the individual inside the organization who does the learning. When the individual experiences learning as a part of a group with shared vision and goals individual learning becomes collective and translates into organizational learning. The role of the leader in building structures that facilitate collective learning is an essential component of school improvement. The theoretical framework is one conceptualization of how curriculum alignment, time and scheduling, use of data, professional development, school culture and leadership affect student achievement (see Figure 1) Definitions for the constructs in the theory are in Table 1.



**Figure 1.** A theory of school performance. Variables associated with school performance on standardized tests.

**Table 1:**  
*Definitions for Key Terms*

<i>Construct</i>	<i>Conceptual definition</i>	<i>Operational definition</i>	<i>Coding</i>
Free or reduced-price lunch	Students whose families have incomes of 130% or less of the Federal poverty guideline are eligible for free lunch; families with incomes between 131% and 185% of the poverty guideline are eligible for reduced-price lunch	Percentage of students in the school that receive free or reduced- priced lunch	Coded two ways: (a) Percentage range: 0 – 10 11 – 20 21 – 30 31 – 40 41 – 50 51 – 60 61 – 70 71 – 80 81 +  (b) Percentage of students in each participating school receiving free or reduced-price lunches
Student achievement	School results on the Virginia Department of Education Standards of Learning criterion-referenced assessment in third-grade reading for 2005	Percentage of students in a school passing the spring 2005 3 <sup>rd</sup> grade Standards of Learning reading test	0 = schools not meeting benchmark of 70% or more  1 = schools meeting benchmark of 70% or more
Curriculum alignment	The degree of match between the written , taught, and tested curriculum in third-grade reading	The mean item score for items 2, 30, 32, 37, 39, 40, 52, and 86 on the <i>School Practices Questionnaire</i> (see Appendix O).	The mean item score based on the following scale: 1 = never 2 = seldom 3 = sometimes 4 = often 5 = always

<i>Construct</i>	<i>Conceptual definition</i>	<i>Operational definition</i>	<i>Coding</i>
Time and scheduling	How the instructional day is organized to facilitate teaching and learning	The mean item score for items 1, 3, 4, 7, 24, 25, 29, and 57 on the <i>School Practices Questionnaire</i> (see Appendix O).	The mean item score based on the following scale: 1 = never 2 = seldom 3 = sometimes 4 = often 5 = always
Use of data	The transformation of numerical information into knowledge for the purpose of making school improvement decisions	The mean item score for items 6, 27, 45, 46, 47, 51, 83, and 87 on the <i>School Practices Questionnaire</i> (see Appendix O).	The mean item score based on the following scale: 1 = never 2 = seldom 3 = sometimes 4 = often 5 = always
Professional development	Activities that improve instructional practices	The mean item score for items 8, 9, 14, 15, 16, 33, 34, and 65 on the <i>School Practices Questionnaire</i> (see Appendix O).	The mean item score based on the following scale: 1 = never 2 = seldom 3 = sometimes 4 = often 5 = always
School culture	A shared belief in a corporate responsibility for student success and parental and community partnership	The mean item score for items 11, 22, 43, 59, 69, 70, 74, and 77 on the <i>School Practices Questionnaire</i> (see Appendix O).	The mean item score based on the following scale: 1 = never 2 = seldom 3 = sometimes 4 = often 5 = always
Leadership	Behaviors that influence instruction, personnel, resources, and the school environment	The mean item score for items 17, 28, 38, 49, 68, 72, 78, and 84 on the	The mean item score based on the following scale:

<i>Construct</i>	<i>Conceptual definition</i>	<i>Operational definition</i>	<i>Coding</i>
		<i>School Practices Questionnaire</i> (see Appendix O).	1 = never 2 = seldom 3 = sometimes 4 = often 5 = always

### Expected Limitations in Using an Electronic Questionnaire

Even though web questionnaires are simpler to compose and send, the first limitation for this study is the lack of interactive capabilities. If a respondent is confused by a practice, there will not be an opportunity for the researcher to provide clarification. A second limitation is the low response rates received from the web-administered questionnaires. Many go directly to spam collectors; others are easily trashed before they are opened. A third limitation may result from the level of technical sophistication that a participant may need to respond to the web questionnaire. Technical complexity may result in frustration and trashing the email carrying the URL for the questionnaire. All three limitations may have adversely affected the return and, therefore, the results of the study.

### Summary

The significance of the study, the purpose for the study, a statement of the problem, and the guiding questions in chapter one are the foundations for the study. The theory is based on best practices in school improvement with socio-economic status of the student body as a control variable. All variables are operationalized for data collection. A review of related literature is presented in chapter two. In chapter three the research design, population, selection of sample, questionnaire development, content validation, data management, and data analysis are discussed. Chapter four contains the results of the study, and chapter five has a summary of findings, conclusions, and recommendations for further research.

## CHAPTER 2

### REVIEW OF LITERATURE

The review of related literature begins with an overview of theories of leadership. A review of Virginia's Academic Review Process and the school improvement plan follow. Practices associated with use of data and professional development are reviewed at the end of the chapter.

#### The Meaning of Leadership

According to Duke (1987), the ability of leaders to keep their heads when others are losing theirs rests on three conditions. First, leaders must have some basis for judging their own performance to determine whether they are functioning effectively. Second, they need to have a vision of what the organization would look like if it were operating effectively. Third, and most importantly, leaders must know how to spend their time in ways that increase, rather than reduce, the chances of realizing the vision.

The study of leadership is not a new development. Bass (1990) recognized that discussions relating to leadership and leadership effectiveness can be traced back to Greek and Latin classics and the Old and New Testaments of the Bible. Scholars have attempted to define leadership in terms of personality traits, behaviors, responses to behaviors, interpersonal relationships, interaction patterns, role relationships, and organizational culture (Rost, 1991; Yukl, 1989). Regardless of the many definitions that have been advanced over the years, one element that is common to many of the definitions is the process of non-coercive influence (Bryman, 1992; Hemphill & Coons, 1957). This informal influence may serve not only the interest of the work group and organization, but also the leader's self-interest (House & Howell, 1992).

The definition of leadership is complicated by how leadership and management are related. There is confusion as to where the two overlap and whether the two are distinct processes. Rost (1991) and Yukl (1989) distinguish between the two by conceptualizing management as coping with the organizational structures and leadership as coping with change within the structures. The controversy over this relationship adds to one's appreciation of the complexity of the role of the school principal. When attempting to evaluate the effectiveness of a

school principal, evaluators are faced with the question: *Should management or leadership be the main focus for sustained school improvement?* A look at the definitions of both may help provide some level of clarity. Conceptually, management is an active process, whereas leadership is an interactive process. Perhaps there is reason to believe that once we move theory into practice both leadership and management can coexist in the operation of learning environments. At such a point the art of leadership and the science of management will have successfully merged.

There have been four main paradigms of leadership in the 20<sup>th</sup> century. These paradigms illustrate that there is no universal model of leadership that fits all situations. Each paradigm was created for a time and place, and it was modified to accommodate new research findings and new conditions. Each paradigm expands the understanding of the knowledge and skills of effective leaders. Collectively, the paradigms provide a multifaceted view of leadership.

Early researchers studied the traits or characteristics of leaders. These researchers tried to identify physical, personal, and social characteristics that would distinguish leaders from followers. However, after fifty years of this research, Stogdill (1948) concluded that the research had failed to produce one personality trait or set of traits that could distinguish leaders from non-leaders. Trait theory and research fell from favor in the mid-twentieth century; however, there is some renewed interest in the form of perceptions of leaders (House & Podsakoff, 1994) rather than physical and personality characteristics.

Leadership theorists moved in the 1950s and 1960s from a focus on leader traits to a focus on leader behavior. Two distinct dimensions of leader behavior emerged. A leader's behavior, argued Halpin and Winer (1957), may be focused on consideration or concern for people or initiating structure or concern for productivity. Ohio State University was the center for this research; however, other studies were conducted at the University of Michigan (Kahn & Katz, 1953). Even though this research failed to create transferable evidence of a relationship between leadership behavior and outcomes, it gave rise to situational analyses of leadership.

Fiedler (1967, 1971) argued that leadership style was innate and the situation dictated which leadership style was appropriate. This model was criticized (Ashour, 1973) for use of a coworker inventory, the least-preferred co-worker methodology of leadership measurement, to infer leadership style. The implication that leader replacement would be necessary if the situation--characterized by leader-member relations, task structure, and leader position power--completely or partially changed was challenged as well.

House (1971) built upon Fiedler's work by discarding the limited assumption of the relationship between leader traits and situations. House focused on the relationship between leader behavior and situational variables. He described four types of leadership behavior: directive, participative, supportive, and achievement oriented. The appropriate leadership behavior would be determined by the task or subordinate characteristics. The model was criticized due to the difficulty in testing the contingency of variables selected. However, smaller tests have allowed validation of elements of the model and strengthened the logic on which the model was built.

The late 1970s brought about disenchantment with the situational leadership theory and opened the door to leadership from an organizational stance. Research moved away from a focus on individual or small group to a more macro-focus on how leaders affect structure, culture, and performance. The leadership theories being argued during this period included charismatic (Conger & Kanungo, 1987), transformational (Bass, 1985; Burns, 1978), and visionary (Garner, 1990; Nanus, 1992). A common thread connected all of these theories despite different names. The leaders induced commitment and organizational citizenship by infusing ideological values and moral purpose. As the focus on leadership changed from situation to structure, culture, and performance, the United States Department of Education's National Commission on Excellence in Education published *A Nation at Risk* (National Commission on Excellence in Education, 1983). According to Gardner (1990) effective leaders are responsible for fostering change by empowering people to achieve a stated vision. The vision of the Commission on Excellence in *A Nation at Risk* report reflected Gardner's thoughts by insisting that leaders bring about significant change in the educational performance of American schools.

Blanchard and Bowles (1998) added to Gardner's work by arguing that a leader develops a strong sense of community within an organization through goals and values that guide all plans, decisions, and actions. Through these goals and values employees can see how their work is meaningful and value-driven. Collins and Porras (2002) contended that the basic characteristic that distinguishes enduring and successful corporations is a cherished core ideology while simultaneously stimulating progress and change in everything that is not part of the core ideology. To preserve the core ideology, the corporation creates organizational and strategic alignment which stimulates progress toward the envisioned future.

Collins and Porras (2002) contended that a well-conceived vision consists of two major parts: a core ideology and an envisioned future. Core ideology represents the glue that holds the organization together as it grows, expands, and works toward the envisioned future. Just as the focus on leadership theory evolved from the individual to the organization, Collins and Porras found that the key to leadership success is to work from the individual to the organization.

To obtain source credibility, leaders must adjust their views to meet the needs and demands of those affected by a proposed change. Conger and Kanungo (1998) believed that charismatic leadership requires the leader to have high levels of sensitivity to organizational issues. The leader will need to establish credibility, be likeable, and combine criticism of the status quo with a new vision appropriate to the mission. The leader must show a willingness to be a risk taker.

Greenleaf's servant leadership (1998) is in stark contrast to the power-exerting authority figure. Servant leaders are more concerned with responding to the needs of others first. By serving others, the servant leader is able to realize his or her own "healing," and this becomes the motivation for continued servant leadership (Greenleaf, 2003). The earlier control-and-command leaders (Batten, 1989) may be well suited for military leadership, but they do not fully respond, as do servant leaders, to the realities and demands of the 21<sup>st</sup> century. Rost (1991) argued that effective post-industrial leadership has three components: influence, collaboration, and purpose-centered change. This type of leadership allows influence to go in any direction (top to bottom and bottom to top). The leader-follower relationship is not based on authority; it is based on persuasion, and both the leader and follower are active in leading. Although the players are not equal, both are intent on change and mutual benefit. The changes that are sought are those of both the leader and follower.

The leadership paradigm has shifted to a focus on outstanding leadership or leadership beyond expectations (Burns, 2001; Conger & Hunt, 1999; Hunt & Dodge, 2000). This change is apparent in the concept of transformational leadership (Bass, 1995). Transformational leaders articulate a realistic vision for the organization. In education, such a realistic vision includes the use of practices that affect student achievement.

## School Improvement in Virginia

School improvement is the basis for the mandated public school accountability system in Virginia. In 1995, the Virginia Board of Education (VDOE) approved revisions to the Standards of Learning objectives. These revisions reflected higher student achievement expectations as a part of Virginia's educational reform. The Board revised its *Regulations for Establishing Standards for Accrediting Public Schools in Virginia (SOA)* in 2000 to include increased accountability and support for schools.

Research was conducted by the Virginia Department of Education (2000) to identify school practices associated with high levels of student achievement on the Standards of Learning tests (SOL). Six effective school practice categories and related activities were identified. In an attempt to aide struggling schools, the Virginia Department of Education used the effective practices in developing a comprehensive school assistance program: the Academic Review Process (Virginia Board of Education, 2005). The Academic Review Process was used in schools that were showing low levels of student achievement on the Standards of Learning tests.

In July 2002, Governor Mark Warner emphasized the importance of providing technical assistance to schools striving to meet the accountability mandates. Governor Warner said, "Children at these schools need help now—help that goes beyond simply dollars, beyond school division lines and beyond geographical and political boundaries" (Warner, 2002, p. 1). With that objective in mind, the Virginia Department of Education, with the support of the Virginia Board of Education and the General Assembly, developed and refined the Academic Review Process to provide assistance to low-performing schools. The revision made the process mandatory for schools that received the lowest state accreditation rating--accredited with warning. Specific implementation guidelines were provided, and a school improvement plan became a required component in the process.

The development of a School Improvement Plan (SIP) is a widespread feature of many high-stakes accountability systems. SIPs are a mandatory component for schools that are put on probation for low performance by the accountability agency. The plans are often viewed as central to a school's path back to healthy academic performance. As a public document, SIPs usually stand as a vivid testimony to the way schools and school districts think about the task of school improvement (Appalachian Educational Laboratory, 2003). The plans represent the espoused views of teachers, administrators, and district personnel; however, the espoused views

are not necessarily congruent with the educator's deeply held beliefs about their schools and the education of the students within (Mintrop & MacLellan, 2002).

In Virginia, the school improvement plan contains the negotiated expectations, perceptions, and agreements between the state and the school. The plan articulates how the school will demonstrate the use of practices that Virginia Department of Education has identified as related to high levels of student performance on the Standards of Learning tests. As the plan is implemented it unveils individual and organizational beliefs about the school's culture and instructional practices. The plan represents the school's attempt to systematize an improvement process. However, too often a disconnection emerges between what is written in the plan as the goals and objectives and the actual activities taking place. To help assure implementation of the written plan, the Virginia Department of Education assigns a team of support personnel to meet with the school leadership on a regular schedule. The assumption surrounding the Academic Review Process is that the more often the school uses effective practices the better students will perform on the Standards of Learning tests. An investigation into the correlation between the use of the practices and student achievement may be beneficial in shaping a response to the demands of an accountability environment today and planning for leadership for tomorrow.

#### *Components of Virginia's Academic Review Process*

The Academic Review Process is designed to help schools accredited with warning in reading, mathematics, history, or science. The focus is on school-wide processes, systems, and practices that help identify and analyze factors affecting student achievement (Virginia Board of Education, 2005). The review is not intended to focus on people, although when improvement does not occur, reconstitution of the school leadership or faculty may be recommended.

The three phases of the Academic Review are designed to intervene in schools that have been in an accreditation-with-warning status for one or more consecutive years. Phase I of the Review is intended for schools that are for the first time accredited with warning. A team with a minimum of six professionals--a lead reviewer, one Virginia Department of Education staff member, one independent contractor (must be a former educator), a school division central office representative, the school principal, and a distinguished principal from a successful school with demographics similar to that of the warned school--is assigned to the low-performing school. All team members are appointed by the Virginia Department of Education with the exception of the

division central office representative and the school principal. These two representatives are appointed by the division superintendent.

The focus of the Phase 1 Academic Review team during a visit of five days in the school is to assess the school's effectiveness in (a) curriculum alignment with the Standards of Learning, (b) use of instructional time and school scheduling, (c) use of data to make instructional and planning decisions, (d) professional development for staff, (e) development of a school culture that is receptive to improvement, and (f) use of leadership behaviors that help facilitate change. The school uses the results of a self-assessment along with feedback from the review team to develop a school improvement plan. The Review team spends one day in the school reviewing documents relevant to improvement expectations identified in the plan, interviewing the principal, and conducting classroom observations. The team spends two to five days interviewing staff and continuing classroom observations, two days interviewing the superintendent and continuing classroom observations, and a half day developing the Report of Findings and conducting exit interviews. The team uses data collected during the interviews, document review, and classroom observations to detail areas of strength, areas for improvement, and suggestions for school improvement planning. The equivalent of two days is used by the review team for follow-up to help facilitate the school's completion of the actions detailed in the Report of Findings. A copy of the Report of Findings is submitted to the Virginia Board of Education, the Virginia Department of Education, the division school board, the division superintendent, and the school principal.

Schools accredited with warning for a second year are placed in Phase 2 of the review process and follow the same schedule as Phase 1, but the emphasis is on the implementation of the school improvement plan. The purpose of interviews, document review, and observations in Phase 2 is to determine the degree to which the school improvement plan has been implemented. The team conducts regular reviews of student achievement data. The final report in Phase 2 is titled Essential Actions and contains specific activities the school is expected to conduct. The team conducts four days of follow-up activities to evaluate the implementation of the actions outlined in the Essential Actions report.

Phase 3 of the Academic Review is prescriptive in nature with status reports prepared throughout the year and a final report towards the end of the year. At a minimum, monthly follow-up visits are conducted to evaluate the implementation of the essential actions detailed in

the Phase 2 Essential Actions report. The focus is on the extent to which systems, policies, and practices are used to support curriculum alignment, use of data, effective use of instructional time, professional development, the development of a healthy school culture, and leadership activities. The review team's responsibility during the on-site visits is the collection of data pertaining to six areas: (a) school self-evaluation, (b) school-level practices, (c) division-level practices, (d) instructional practices, (e) monitoring systems, and (f) allocation of resources. The interim and final reports are submitted to the Virginia Board of Education, the Virginia Department of Education, the division school board, the division superintendent of schools, and the school principal.

Throughout the process, a key focus is on how the school uses data to identify strengths and needs. Once areas of need have been identified, how the leadership uses the information to help design professional development activities becomes an indicator of the organization's capacity to bring about change. The use of data, leadership, and professional development are pivotal in the improvement process.

### *Use of Data*

In the past, public schools have been somewhat ambivalent about the role of statistical data in the improvement of education. Principals have been confronted with a steady flow of forms to complete--attendance records, test scores, discipline reports, and numerous others. Traditionally, the system never identified what leaders were to do with all this information. Principals satisfied their data obligations by filing the information in the appropriate folder and were seldom expected to use the data in making decisions. The current accountability requirements have caused citizens and policy makers to expect schools to justify the effectiveness of their programs. School boards routinely ask to see the data used to guide administrators in making school-based decisions. State accountability testing programs and *No Child Left Behind* legislation have caused Boards to be mindful that state and federal allocations now require documented evidence that school programs lead to improvement in student achievement (Holman, 1999). Schools across the country are realizing that carefully collected, analyzed, interpreted, and applied data represent the key to improvement in education.

When standards are linked to such other components of reform as accountability, curriculum, instruction, professional development, assessments, and support mechanisms from

states and districts, higher levels of student achievement are created (Clune, 1998; Shellard, 2005). This systemic reform has gained momentum over the years and has expanded in breadth and depth (Fuhrman, 1999). Systemic reform has evolved to encompass the analysis of the components of reform at and between various organizational levels, the context in which the reform takes place, and the capacity of educational organizations to change (Clune, 1998). Systemic analysis has moved from the state level and has become an important tool for understanding how standards-based policy and practices play out at the district and school levels and influence teaching and learning in the classroom.

Researchers have studied capacity as it relates to the ability of educational organizations to achieve reform goals. Of particular interest are studies that focus on an organization's ability to learn by coordinating human, social, organizational, and structural capital and by making effective use of data. Spillane and Thompson (1997) showed that local capacity for systemic reform can be thought of as the organization's ability to learn through building human, social, and financial capital. Features of human capital include knowledge, commitment, and disposition of local reformers. Social capital is defined as professional networks, trust, and collaboration where those within the system learn from each other and from those outside the system. Financial capital refers to the local organization's ability to mobilize resources such as time, staffing, and materials for implementing change.

Systemic reform researchers have continually been interested in assessing the role of data in developing and sustaining improvement in student learning. A number of studies have shifted the analysis of capacity from a focus on using data for accountability to building the human and social capacity of schools to using data for school improvement, decision-making, and improving instruction. Data-based decision making is an important tool for educational improvement, but making data useful is one of the continuing challenges of building capacity in systemic reform (Massell, 1998). Massell understands the influence of accountability and student performance measures on teachers and administrators. Key to developing an understanding of the influence of accountability and student performance measures on teachers and administrators is the investigation of how teachers and administrators interpret and use performance data and how that translates into action. According to Massell, those who develop accountability models assume that practitioners understand what performance data means and have knowledge and skills to translate these data into appropriate action. Massell noted weaknesses in both of these

assumptions in research on the National Science Foundation's statewide systemic initiatives. Teachers and administrators are not trained to (a) interpret test statistics or the relevance of data to school improvement or (b) use data to identify strategies that will improve instruction. An important key to developing capacity for educational improvement lies in the successful development of the school as a "learning organization" (Fullan, 1993). According to Fullan, to become learning organizations, schools must overcome fragmentation in their efforts. Integral to the successful functioning of learning organizations and professional communities is the use of data and information to enhance inquiry, continuous improvement, reflection, and learning. In their guide to building professional learning communities, Eaker, DuFour, and Burnette (2002) encourage professional communities to become research based and data driven. Brandt (2003) encouraged learning organizations to gather, process, and act upon information. Murphy and Lick (2001) stressed the importance of making data-driven decisions throughout the inquiry process to inform planning, implementation, and evaluation. Schmoker (2001) revealed that schools and districts have integrated the use of data and information into their learning communities, specifically noting the importance of teachers reviewing assessment data for the purpose of improving instruction.

In schools where data-based inquiry is used, teachers have a positive change in their attitudes towards student achievement and instructional practices (Feldman & Tung, 2001). As a result, a more professional culture emerges, facilitating professional dialogue and reflective practice. Researchers (DuFour & Eaker, 1998) have shown that the use of data contributes significantly to the process of learning and improvement in professional communities and learning organizations. The literature on learning organizations and professional communities indicates that a large part of a school's capacity to be effective and improve depends on how it is organized to learn and how it uses data to guide learning and change.

Knowledge management theory (Empson, 1999) is a useful framework for determining the successful use of data in school and classroom settings. Knowledge management theory is based on the research of business schools seeking to develop better ways for organizations to manage information and learn from data. Empson (1999) contended that knowledge is a product built from data and information. Thorn (2002) used this premise to suggest that the transformation of data to knowledge is an important knowledge management strategy for decision makers at all levels of the educational system. When data are transformed into

knowledge, educational systems are better able to manage complex information, use data for decision making, and improve systemic reform efforts. Taken together, systemic reform and knowledge management theories help define what it means for a school to (a) learn from data and (b) use data effectively. In learning from data, one transforms data into information as it is interpreted in context. Data then becomes knowledge as it is shared, applied, and used to promote change.

To show the link between school-developed instructional improvement plans and the use of data, New York University in 1997 began a three-and-a-half year study of the use of data to drive school-based decisions (Siegel & Fruchter, 2002). The University selected sixty-one schools from four New York City public school districts, which were asked to implement a Performance Driven Budgeting (PDB) program. The impact of the intervention was determined by comparing the change in student achievement in PDB schools with non-PDB schools. Nine principles guided the implementation of the PDB model:

1. The measure of the effectiveness of the study is the impact on teaching and learning.
2. The most crucial leadership position in the system is the principalship.
3. The work done by teachers in the classroom is the most crucial work in the system.
4. Given greater authority to manage resources means greater responsibility and accountability for achieving results.
5. The most effective instructional strategies are employed when resources and actions are aligned to improve teaching and learning.
6. The best alignment of resources and actions occur when decisions are made closest to where teaching and learning take place.
7. The best alignment can occur when the central office leadership delegates authority to schools to make decisions within an identified framework of goals and priorities.
8. Input from teachers, support staff, administration, and parents guide key decisions that affect schools.
9. The role of central leadership is to provide services that support teachers, principals, parents, and superintendents. (p. 18)

The researchers (Siegel & Fruchter, 2002) concluded that the PDB initiative moved the top-down instructional and budgeting decision-making structure to a school-level system and integrated school, district, and central administrative efforts. The school-level decision making

drove changes throughout the districts fiscal management system. Student achievement in PDB schools improved relative to other schools.

### *Principal Leadership and Professional Development*

The principalship has undergone considerable change since the position was first established (Lucas 2001; Beck & Murphy 1993). During the past decade, researchers have found an indirect effect of principal leadership on student achievement (Halinger & Heck, 1996; Marzano, Waters, & McNulty, 2005; Smythe & Hart, 1999). Principals exert indirect effects on student achievement in several ways. They sustain shared goals for student learning (Goldring & Pasternak, 1994; Leithwood 1994). They influence the quality of instructional and organizational conditions that affect teaching practices. They shape school conditions that promote professional development. They concentrate on instruction and student outcomes and provide continuous and sustained feedback to teachers (Corcoran & Goertz, 1995; Darling-Hammond & Mclaughlin, 1996). All of these leadership behaviors are vital to school improvement.

When principals focus on teacher learning, instructional quality can be strengthened. Actions of principals associated with such a focus include establishing conditions that support regular meeting times for grade-level or departmental teams to plan instruction and reflect on practices, aligning school-wide goals with professional development, and practicing distributed leadership (Bryk, Lee, & Holland, 1993; Spillane, Halverson, & Diamond, 2001).

Principals promote collaboration and reflective inquiry when they allocate time for teachers to meet (Bryk et al., 1993). A shared commitment is strengthened when teachers and principals work together to establish goals for student learning (Hallinger & Heck, 1996; Leithwood, 1994). The alignment of shared goals with school-wide professional development increases program coherence and provides a buffer from external influences (Louis, Kruse, & Marks, 1996).

There are significant differences in the leadership of schools with strong and weak professional development programs (Louis et al. 1996). Leaders of schools with strong professional development foster social trust between themselves and staff members, thereby strengthening school capacity. This trust is enhanced when principals' beliefs and actions are consistent with established school goals, when principals consistently support teachers' work, and when they manage conflict effectively (Bryk et al., 1993). Trust and feelings of collective

responsibility are further enhanced when teachers and principals share decision making related to curriculum, hiring, and professional development (Spillane et al., 2001).

Youngs and King (2002) conducted a multi-year, qualitative study of urban elementary schools to examine the ways and extent to which principal leadership for professional development impacted three aspects of school organizational capacity: teachers' knowledge and skills, professional community, and program coherence. Nine schools that served low-income students were selected to participate. The schools shared five characteristics: (a) each school had a history of low achievement, (b) three to five years prior to participating in the study the schools had shown student progress, (c) the schools attributed their progress to sustained school-wide professional development, (d) the schools received professional development from one or more external sources, and (e) the schools used a site-based management leadership style. Three general indicators from interview data were used to draw conclusions about the extent to which principal leadership for professional development impacted aspects of school capacity: (a) principals' statements about their goals for professional development, (b) staff statements about how the principals' leadership and professional development activities impacted them, and (c) researcher observations of professional development activities and the extent to which the principal participated in them.

After reading the reports from the nine elementary schools selected to participate in the study, three members of the research team assigned ratings to several variables at each school, including principal leadership for professional development and the extent to which professional development influenced school capacity over a period of time. The researchers (Youngs & King, 2002) concluded that effective principals can sustain high levels of capacity by (a) helping teachers generate internal reform and (b) by linking teachers not only to internal resources, but by connecting their facilities to external sources for professional development. All of the schools had a high level of external professional development followed by implementation checks. Through these activities, teachers' knowledge and skills were increased, shared commitment was reinforced, and program coherence was improved. The principal's leadership was linked to teachers' efforts to reflect on instructional practices, create student outcome standards and assessments, and analyze equity in student performance.

## Summary

Significant changes that affect structure, culture and performance are needed to bring about school improvement. The changes result when leaders create cultures that support organizational learning. This learning comes from professional development and school activities directly linked to stated goals and objectives.

The role of the leader in helping the organization use data to make decisions about professional development indicates the ability of the organization to build capacity necessary for sustained school reform. The six school practices identified by VDOE are centered on the leader's ability to impact learning among faculty and staff as well as students.

## CHAPTER 3

### METHODOLOGY

Previous research conducted by the Virginia Department of Education (2000) used school achievement levels on SOL assessments to identify school practices that seemed to have a positive effect on student performance. The population for the study was all schools throughout the Commonwealth that were required to administer the Standards of Learning assessments. As a result of the study, the state created a catalogue of effective school practices as a resource for all schools. Although the study identified effective practices, several questions were identified that needed to be answered in the future. The present study responded to one of the questions: Can the differences thought to exist between effective and less effective schools be replicated quantitatively? Specifically, do schools that meet the state benchmarks differ in the application of the state-identified effective practices from schools that do not meet the state benchmarks?

The purpose of the present study was to investigate the school practices that impact student achievement. Permission was obtained from the IRB Review Board (see Appendix A) prior to conducting the study. The population, sample, instrument development and administration procedures, methods of data collection, and methods of data analysis are described in this chapter.

#### Population

The population was all schools with third grades in the Commonwealth of Virginia that come under the Accrediting Standards for Public Schools in Virginia (Virginia Department of Education, 2003). The population for the investigation was all 1,142 public schools with third-grades that had pass rates for the spring 2005 3<sup>rd</sup> grade reading Standards of Learning tests. The population was determined by extracting from the Virginia Department of Education 2005 School-by-School Standards of Learning Test Results (Data & Reports) all 3<sup>rd</sup> grade schools with SOL English (reading) test scores (Virginia Department of Education, n.d.).

#### Selection of the Sample

A random sample of 148 (13.0%) elementary schools was selected from the population as follows: A list of all elementary schools with 3<sup>rd</sup> grade classes that took the 2005 SOL English (reading) test was generated from the Virginia School Report Card (Virginia Department of

Education, n.d.). The schools were numbered 1 through 1,142. Individual paper strips were numbered 1 through 1,142 and placed in a basket. Numbers were randomly pulled from the basket and matched with the number written by the name of the school. The principal of the school was telephoned and invited to consider participation in the study. If the principal referred the researcher to the superintendent or his or her designee for permission to participate, contact was made with the superintendent or the designee through email (see Appendix B). If the superintendent or principal agreed to consider participation, the school was counted as a possible participating school. The school principal was sent, via email, information about the study. If the principal or superintendent declined participation after reading the information about the study, another number was selected and the process repeated. The random selection process continued until 148 schools were selected.

The e-mail address for each superintendent was obtained from the *Virginia Department of Education Educational Directory* (Virginia Department of Education, 2005). A four stage procedure (Salant & Dillman, 1994) was used to communicate with superintendents, principals, and teachers. First, a phone call was made to the principal to establish a personal contact (see Appendix C). Principals were made aware that their school division had given permission for the school to consider participating in a web questionnaire about school practices and student achievement. If the principal agreed to participate, he or she was asked to provide the school email address and a packet with the same information discussed via the telephone was sent to the principal (see Appendix D). A letter addressed to all 3<sup>rd</sup> grade teachers was included in the packet (see Appendix E). Principals were asked to either send the researcher the email address of each 3<sup>rd</sup> grade teacher or email the letter to the appropriate teachers. The letter to the teachers gave an overview of the questionnaire, an e-mail address for the questionnaire, the e-mail address for the researcher, and the beginning and ending dates for collection of questionnaire data. Teachers were informed that even though their principal had given permission for the study, they could decline participation (see Appendix F). The second contact was made a week after the teachers had received the introductory letter. An e-mail letter was sent to all respondents asking them to begin the Internet questionnaire. After the questionnaire had been open for two weeks, a third contact was made to schools that had either a zero teacher response rate or a low response rate. A follow-up email was sent to remind them to complete the questionnaire. All e-

mail messages included a direct link to the Internet questionnaire (Dillman, 2000). A fourth and final contact was made to respondents to thank them for participating in the study.

Although all third-grade teachers were asked to participate in each school, all except five schools had only one third-grade teacher respond. This may have been the result of miscommunication or a deliberate decision of the principal to reduce the work load on teachers. Regardless, the result was, except for the five schools that had two responses each, a single-teacher estimate of the predictor variables for the school.

### Questionnaire Development

The questionnaire was developed according to the guidelines of Salant and Dillman (1994). The questionnaire has two main features: domains and statements. The primary source of the domains and statements was the Virginia Department of Education study (Virginia Department of Education, 2000). The authors of the study identified six broad areas under which school practices were categorized. The six broad areas in the questionnaire are the domains. They are (a) curriculum alignment, (b) use of time and scheduling, (c) use of data to make instructional decisions, (d) professional development, (e) school culture, and (f) leadership. Descriptions of these domains are in Table 2.

The statements in the questionnaire were derived from the indicators or practices listed under the six major categories in the VDOE School Level Academic Review document (Virginia Department of Education, 2005). The items in the questionnaire are school practice statements. Each statement was created by the researcher to represent a practice associated with each of the six domains (see Appendix G). In the early stages of development, the researcher brainstormed ideas for items and drafted practice statements. These were reviewed, revised, and reworked until a minimum of nine items was created for each domain.

### *Content Validation*

A content validation questionnaire (see Appendix H) was developed using the domains and school practices. The practices were scattered throughout the questionnaire to prevent clustering of items from any one domain. The questionnaire was designed to measure (a) the placement of each practice under its expected domain, (b) the strength of association between the practice and the description of the domain, and (c) the clarity of each statement.

A group of forty-three Virginia Polytechnic Institute and State University doctoral students in education was administered the questionnaire. The students were employed as school and central office administrators. Respondents were asked to perform three tasks: (1) select the domain to which they felt each practice belonged, (2) rate each practice on the strength of the association of the statement with the domain (1=Very weak, 2=Weak, 3=Strong, 4=Very strong), and (3) rate each statement on clarity (1=Unclear, delete; 2=Unclear, revise; and 3=Clear, leave as written). Respondents were asked to write recommendations for revisions on the content validation questionnaire.

**Table 2:**

*Domains, Descriptors, and Number of Items in the Original School Practices Questionnaire*

Domain Number	Domain name	Description	Number of items prior to content validation
1	Curriculum alignment	This domain contains practices on pacing, curriculum guides, and assessments.	9
2	Use of time and scheduling	This domain contains practices on the number of class interruptions, implementation of specific strategies, and use of a master schedule.	15
3	Use of data	This domain contains practices on using quantitative and qualitative information and blueprints.	8
4	Professional development	This domain contains practices on activities to improve instructional skills.	11
5	School culture	This domain contains practices that promote shared belief in students, shared responsibility for student success, community partnerships,	29

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		and parental support.	
6	Leadership	This domain contains practices that identify the principal's response to instructional practices, personnel, and fiscal resources.	18

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*Note.* The items are in Appendix G.

The data from the content validation questionnaire were entered into the Statistical Package for the Social Sciences (SPSS), Version 14, for analysis. The data were analyzed to assess the match of each item with its expected domain, the strength of the association of each item with its expected domain, and the clarity of each item (see Appendix I). To be included in the final questionnaire, an item had to meet three criteria: (a) 80 % or more of the respondents had to place the item into the expected domain, (b) the mean score for the strength of the association of the item with its expected domain had to be 3.5 or higher, and (c) the mean score for the clarity of the item had to be 2.5 or higher. Out of the 90 practice items on the questionnaire, 11 items (i.e., 10, 26, 31, 36, 42, 44, 71, 76, 80, 81, and 85) did not meet the criteria for inclusion in the final questionnaire and were eliminated (see Appendix J).

The items that did not meet the criteria were eliminated from consideration for the questionnaire (see Appendix K). Items that met the criteria for inclusion were grouped under their expected domains (see Appendix L). The content validation procedure yielded eight or more valid practice items under each domain for a total of 79 items. Salant and Dillman (1999) suggested that the number of items on a questionnaire be kept low to maintain participant interest; therefore, the items were further reduced within each domain (see Appendix M). Starting with the item with the lowest percentage of respondents placing the practice within the expected domain, items were eliminated until eight items remained for each domain. The final questionnaire contained six domains with eight items within each domain for a total of 48 items (see Appendix N). These items were carefully reviewed for clarity of wording and revisions were made to personalize each item by using “My principal...” or “I ....” The 48 school practices were entered into the Virginia Tech on-line survey maker program (survey.vt.edu). Appendix O contains the final on-line questionnaire.

### *Principal Components Analysis*

Once the data were received from the participants, a principal components factor analysis was run to determine the structure underlying the items in the six school practice domains. Because of the small number of respondents (80) relative to the number of items (48), the components identified from the analysis are, at best, indicative of the underlying factor structure of the questionnaire. The data tables for the principal components analysis are in Appendix P. Twelve components accounted for 79.1 % of the variance in the items. Six of the components

accounted for 52.8 % of the variance and contained a sufficient number of items (from 4 to 13 each) to be used in further analysis. The six components that were eliminated contained from 1 to 3 items each. These six useable components were named (1) leadership and people development, (2) academic culture, (3) curriculum alignment, (4) support, (5) assessment alignment, and (6) data utilization.<sup>1</sup> A rule-of-thumb for identifying items with components was applied: Any item with a factor loading of .40 or more was considered to be correlated with the component sufficiently to be a candidate for placement in a scale measuring that component. The practices associated with leadership and people development are items 3, 7, 11, 12, 17, 20, 23, 30, 31, 36, 38, 46, and 47. These practices focus on the role of the principal and the principal's interaction with and development of staff. The practices associated with academic culture are items 4, 14, 27, 29, 32, 35, and 45. These practices focus on teacher behaviors that influence the environment in which students are instructed. The curriculum alignment practices are 1, 9, 13, 21, and 22. The focus of these items is on the use of instructional strategies. Items 15, 28, 33, 34, and 37 are support practices that help to maintain the integrity of an environment that is conducive to learning. Items in assessment alignment and use are 5, 10, 24, and 39, and the focus is on the association between what is taught and tested. The data utilization practices are items 2, 6, 8, and 19. These practices focus on the use of statistical information to make decisions about instructional planning, particularly the use of specific strategies and student remediation. For a list of the items in each of the six useable components, see Appendix Q.

Ten of the original 48 practices (items 16,18,25,26,40,41,42,43,44,and 48) were not included (see Appendix R) because they did not have factor loadings of .40 or more, they had a factor loading of .40 or more on more than one component and did not fit well conceptually in either component, or they were in one of the six components that were eliminated because of few items with loadings of .40 or more.

The communalities in Table P2 (see Appendix P) indicate the amount of variance that each item shares with all other items. The communalities for the 48 items in the analysis range

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<sup>1</sup>A rule-of-thumb for identifying items with components was applied: Any item with a factor loading of .40 or more was considered to be correlated with the component sufficiently to be a candidate for placement in a scale measuring that component. When an item met the criterion for more than one component, a decision was made to place the item in the component that had other items with closely related content or it was eliminated from further analysis.

from .52 to .89. These were considered high enough to be concerned about the measuring properties of the scales. Are they measuring different sets of practices or are they measuring one underlying construct of practice within a school. This was explored further with a bivariate correlation analysis among the mean scores of the scales formed from the principal components analysis. The correlation coefficients showed significant relationships among many of the components (see Table 3). These significant correlation coefficients indicate that the components are not clearly orthogonal. There are underlying factors that are cutting across the correlated components. Because of these correlations, the analyses were done in two ways to tease out any findings that may be present: (a) the components were treated as separate predictor variables in univariate, multiple regression, and discriminant function analyses, and (b) all items were formed into a single criterion variable as a single measure of the quality of school practices and used in univariate, multiple regression, and discriminant function analyses. This single criterion measure alleviates the problem of potentially unstable components due to the small number of cases in the principal components analysis.

**Table 3:**  
*Pearson Correlation Coefficients Among the Components in the School Practices Questionnaire*

	Academic culture	Curriculum alignment	Support	Assessment alignment and use	Data utilization
Leadership and people development	.44**	-.01	.50**	.26*	.43**
Academic culture		.13	.48**	.33**	.21
Curriculum alignment			.12	.33**	.37**
Support				.06	.24*
Assessment alignment and use					.34**

\* $p \leq .05$ . \*\* $p \leq .01$ .

### Administration of the Questionnaire

The School Practices Questionnaire was loaded into Virginia Tech's survey tool (Information Systems and Computing, 2005). The principal or 3<sup>rd</sup> grade teachers (see the sampling procedure above) of the 148 schools in the sample were emailed the web address of the School Practices Questionnaire and instructed to begin completing the instrument. Two weeks after the questionnaire was open, an email was sent to schools that had a zero or low response rate to remind them to complete the questionnaire. One week before the questionnaire closed, a final notice went out to schools with a low response rate to again remind them to complete the questionnaire and alert them to the amount of time the questionnaire would remain open. The web site for the questionnaire was closed six weeks after it was opened.

### Scoring the Scales

A five-point numeric scale was used in the web questionnaire to allow respondents to rate their level of use of the school practices during the 2004-2005 school year. Respondents used a five point scale. The response options and weights were:

Weight	Response option
1	Never (the practice is not used)
2	Rarely (the practice is scarcely used)
3	Sometimes (the practice is occasionally used)
4	Often (the practice is commonly used)
5	Always (the practice is continually used)

The scales were scored by taking the mean of the items in each scale for each participant. The mean could range from 1 to 5 points. One meant that the participant never used any of the practices in the scale; 5 meant that the participant continually used all of the practices in the scale.

### Data Management

The survey data were transferred to SPSS Version 14. The percentage of students passing the 3<sup>rd</sup> grade reading SOL test and the percentage of students receiving free or reduced-priced

lunch for each school were gathered from the Virginia Department of Education webpage and placed in the SPSS data base. The school was labeled “0” if the percentage of students passing the 3<sup>rd</sup> grade SOL reading test failed to meet the benchmark of 70% or more passing and “1” if the school met the benchmark. If more than one teacher responded from a school, a mean score was calculated for the scales for that school. The school name was removed and replaced with a numerical identifier.

## Data Analyses

This section has two parts. The first part is a restatement of the criterion and predictor variables, and the second part is a description of the methods of data analysis.

### *The Criterion and Predictor Variables*

The variables are restated here to clarify the data analyses. There is one criterion variable, but it is measured in two ways. There are seven predictor variables. Each variable is identified and defined in this section.

### *The Criterion Variable*

The criterion variable is the percentage of students within a school passing the third grade reading assessment in the spring of 2005. This variable was treated in two ways: (a) the pass rate as a percentage of all third grade students in the school taking the reading assessment in the spring of 2005 and (b) as a designation for placing schools within one of two categories—(0) does not meet the benchmark for 2005 or (1) meets the benchmark for 2005. The percentage of students passing the third grade reading assessment was used in regression analyses, and the categorical data (0 or 1) were used in the discriminant function analysis.

### *The Predictor Variables*

The predictor variables were the percentage of students receiving free or reduced-price lunches and the mean item score on each of the six dimensions of school practice found in the principal components analysis: leadership and people development, academic culture, alignment of the curriculum, support, assessment alignment and use, and data utilization.

### *Methods of Data Analysis*

The data were analyzed in two ways. First, descriptive data are presented for all of the variables, and bivariate analyses are conducted to identify relationships between the criterion and predictor variables. Second, data are presented for the multivariate relationships between the predictor and criterion variables.

### *Descriptive and Bivariate Analyses*

Descriptive statistics are presented for each of the variables. Means, standard deviations, minimums, and maximums were calculated to show the location, distribution, and range of scores in the data. Bivariate analyses were run to assess the relationships among the predictor variables and between each of the predictor variables and the criterion variable independent of shared variance among the predictors. This exploratory analysis of the data often shows how the variables will perform in tests that adjust relationships for shared variance in multiple regression and discriminant function analyses. In this case, Pearson product moment correlation coefficients were run among all of the predictor variables and between each of the predictor variables and the criterion variable.

### *Regression and Discriminant Function Analyses*

Although the number of cases was small (80), both multiple regression and discriminant function analyses were run to explore the relationships in the data while removing the effects of shared variance within the predictor variables. The percentage of students passing the third grade reading test in the spring of 2005 was the criterion variable, and the percentage of students receiving free or reduced-price lunches and the scores on the six school practices were the predictor variables in the multiple regression analysis. The status of the school on meeting or not meeting the 2005 third grade reading benchmark (i.e., 0=does not meet benchmark for 2005, 1=meets benchmark for 2005) was the criterion, and the percentage receiving free or reduced-price lunches and the scores on the six school practices were the predictor variables for the discriminant function analyses.

## Summary

The purpose of the study was to investigate the relationship between school practices and student achievement on third grade Standards of Learning reading tests. The sample for the study was 148 schools. A 48-item questionnaire was made available on the Virginia Tech survey web site. The questionnaire was completed by 54 % of the sample or 80 schools. Eighty respondents had usable data. The data analyses and findings are presented in the following chapter.

## CHAPTER 4

### RESULTS OF THE STUDY

The purpose of this chapter is to present the analyses of the data and the results of the study. The criterion variable is the percentage of students within a school passing the third grade reading assessment in the spring of 2005. This variable was treated in two ways: (a) the pass rate as a percentage of all third grade students in the school taking the reading assessment in the spring of 2005 and (b) as a designation for placing schools within one of two categories: does not meet the benchmark for 2005 (coded 0) or meets the benchmark for 2005 (coded 1). The predictor variables were the percentage of students receiving free or reduced-price lunches and the mean item scores on the six dimensions of school practice found in the principal components analysis: leadership and people development, academic culture, curriculum alignment, support, assessment alignment and use, and data utilization. The results of the study are discussed in two parts. First the descriptive and bivariate analyses are discussed, then the multiple regression and discriminant function analyses are presented.

#### Descriptive and Bivariate Analyses

Descriptive data on the criterion variable (i.e., the third grade school pass rate on the SOL reading test in 2005) are presented first. Then, the descriptive data for the predictor variables are explored. The section ends with the presentation of data on bivariate relationships between and among the predictor and criterion variables.

#### *Descriptive Data on the Criterion Variable*

The data on pass rates are presented as the median pass rate, the mean pass rate, and the percentages meeting ( $\geq 70\%$ ) and not meeting ( $< 70\%$ ) the third grade reading benchmark for 2005 (see Table 4). More of the participating schools met the 2005 third-grade reading benchmark (78.7%) than schools with third grades in Virginia, generally (77.0%). The mean and median percentage passing indicate that the participating schools have a small over-representation of schools that met the benchmark. Further, the pass rates for participating schools are slightly more variable than those of the state as a whole. These small differences indicate that the participating schools probably do not differ greatly from the population of schools in Virginia with third grades. For percentage passing by school, see Appendix S.

**Table 4:*****Comparison of Third Grade Reading Pass Rates of the Participating Schools with All Schools in Virginia with Third Grades***

Statistic	Virginia All schools with third grades	Participating schools		
		Did not meet benchmark <sup>a</sup>	Met benchmark	Total
<i>N</i>	1,142	17 (21.3%)	63 (78.8%)	80 (100.0%)
Median pass rate	76.62	61.0	84.0	80.5
Mean pass rate	75.84	60.7	83.7	78.8
<i>SD</i>	11.62	6.0	8.5	12.4
Minimum pass rate	22.00	47.0	70.0	47.0
Maximum pass rate	100.00	69.0	98.0	98.0

*Note.* Data for Virginia schools with third grades was retrieved on October 2, 2007, from <http://www.doe.virginia.gov/VDOE/src/SOLassessments.shtml>

<sup>a</sup>The benchmark was 70% of the students.

*Descriptive Data on the Predictor Variables*

Data are presented on the predictor variables: percentage of students in the school receiving free or reduced-price lunch, the six practice scales identified from the principal components analysis, and the composite scale, which includes all of the items regardless of the scale to which they were assigned following the principal components analysis.

*Percentage of Children Receiving Free of Reduced-Price Lunches*

The mean percentage of children receiving free or reduced-price lunches in all participating schools was 47.1. The median was slightly lower at 44.5. Those schools that did not meet the benchmark had a higher proportion of children receiving free or reduced-price lunches than those schools that did meet the benchmark ( $M=67.4$ ,  $SD=18.0$  and  $M=41.7$ ,  $SD=29.1$ , respectively,  $t(41.27)=4.51$ ,  $p\leq.01$ ,  $d=1.06$ ) (see Table 5). Using the median as the measure of central tendency and the non-parametric Mann-Whitney U Test, the results did not change. A greater proportion of the children in schools that did not meet the third grade benchmark in reading received free or reduced-price lunches than the children in schools that did meet the third grade benchmark in reading ( $Mdn=74.0$  and  $Mdn=38.0$ , respectively,  $U=261$ ,  $p\leq.01$ ).

**Table 5:*****Comparison of Percentages of Children Receiving Free or Reduced-Price Lunches in Participating Schools and All Schools in Virginia with Third Grades***

Statistic	Virginia schools with third grades	Participating schools			Statistical test of differences <sup>b</sup>
		Did not meet benchmark <sup>a</sup>	Met benchmark	Total	
<i>N</i>	1,142	17 (21.3%)	63 (78.8%)	80 (100%)	
Median percentage receiving free or reduced-price lunches	39.0	74.0	38.0	44.5	Mann Whitney U Test 261.00**
Mean percentage receiving free or reduced price lunches	41.0	67.4	41.7	47.1	t-test 4.51**
<i>SD</i>	24.0	18.0	29.1	29.0	NA
Minimum percentage receiving free or reduced-price lunches	0.0	37.0	0.0	0.0	NA
Maximum percentage receiving free or reduced-price lunches	100.0	93.0	93.0	93.0	NA

*Note* . Data for Virginia schools were retrieved on October 2, 2008, from [http://www.doe.virginia.gov/ss\\_services/nutrition/resources/statistics.shtml](http://www.doe.virginia.gov/ss_services/nutrition/resources/statistics.shtml) \*\*  $p \leq .01$ .

<sup>a</sup>The benchmark was 70% of the students. <sup>b</sup>See Appendix T for details on the tests applied here.

*Scores on the Six Measures of School Practices With Bivariate Analyses of Differences Between Schools Meeting and Not Meeting the Benchmark*

Descriptive data on the other six predictor variables (the school practices) are presented in Tables 6 and 7. Both t-tests and Mann-Whitney U test (the non-parametric version of a t-test that does not require the more restrictive assumptions of the parametric t-test) were applied to detect differences between schools that met the third grade reading benchmark in 2005 and schools that did not meet the third grade reading benchmark in 2005.

When the independent samples t-test was applied, a significant difference was found between those who met the benchmark and those who did not meet the benchmark on one predictor-- academic culture ( $t_{(78)} = -2.11, p \leq .05, d = .60$ ). Schools that met the benchmark had higher academic culture scores ( $M = 4.03, SD = .48$ ) than schools that did not meet the benchmark ( $M = 3.75, SD = .46$ ). No differences were found between the two groups for leadership and people development, curriculum alignment, support for instruction, assessment alignment and use, and data utilization (see Table 6).

When the Mann-Whitney U-test was applied, there were no changes in the results. Those schools that met the benchmark had a higher mean rank (Mean rank = 43.22) on academic culture than schools that did not meet the benchmark (Mean rank=30.41) ( $U = 364, Z = -2.02, p \leq .05$ ). For all other predictor variables, the ranks of the schools that met the benchmark were not different from the schools that did not meet the benchmark (see Table 7).

Two other analyses were conducted to see if there were differences between the schools that met the benchmark and those that didn't. The practices were regrouped into leadership practices and instructional practices to see if either set of practices had a relationship to benchmark status. Leadership practices contained the leadership and people development, support, and academic culture scales. Instructional practices contained the curriculum alignment, assessment and alignment, and data utilization scales. There was no difference between the schools that met the benchmark and those that did not meet the benchmark for either the leadership or instructional practices (see Table 6 for the t-tests and Table 7 for the Mann-Whitney U-tests).

**Table 6:*****Descriptive Statistics and t-tests for the Predictor Variables with Item Data by Classification of Schools by Benchmark Status***

Predictor variable and items (practices)	Schools not meeting the benchmark					Schools that met the benchmark					t-test	
	<i>N<sup>a</sup></i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>N<sup>a</sup></i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>df</i>	Equal variances assumed
Leadership and people development	17	3.52	.81	1	5	63	3.64	.74	1	5	78	-.56
3	17	3.91	1.00	2	5	63	3.93	1.05	1	5		
7	17	3.44	1.09	2	5	63	3.52	1.01	2	5		
11	17	3.91	1.33	1	5	63	4.52	.85	2	5		
12	17	3.32	1.26	1	5	63	3.67	.95	2	5		
17	17	3.74	1.54	1	5	63	3.64	1.31	1	5		
20	17	3.79	.92	2	5	63	3.71	.85	1	5		
23	17	3.85	.83	2	5	63	3.71	.84	2	5		
30	17	3.47	1.23	1	5	63	3.56	1.09	1	5		
31	17	3.50	.79	2	5	63	3.80	.90	2	5		
36	17	3.71	.85	2	5	63	3.68	.83	2	5		
38	17	3.41	1.18	1	5	63	3.06	1.09	1	5		
46	17	3.06	1.44	1	5	63	3.06	1.30	1	5		
47	17	2.65	1.12	1	5	63	3.05	1.18	1	5		
Academic culture	17	3.75	.46	1	5	63	4.03	.48	1	5	78	-2.11*
4	17	3.74	.88	2	5	63	4.22	.73	3	5		
14	17	2.85	.93	1	5	63	2.99	1.10	1	5		
27	17	3.85	.93	1	5	63	4.12	.85	1	5		
29	17	3.971	.98	1	5	63	4.45	.87	1	5		
32	17	4.265	.90	2	5	63	4.52	.62	2	5		
35	17	3.794	.92	2	5	63	3.65	1.12	1	5		
45	17	3.735	.83	2	5	63	.720	.72	3	5		
Curriculum alignment	17	4.42	.75	1	5	63	4.50	.48	1	5	78	-.55
1	17	4.29	1.05	1	5	63	4.29	.94	1	5		
9	17	4.62	.78	2	5	63	4.78	.46	3	5		
13	17	4.41	1.00	1	5	63	4.42	.95	1	5		
21	17	4.53	.89	2	5	63	4.60	.73	2	5		

(table continues)

Table 6 (Continued)

	22	17	4.21	.53	3	5	63	4.33	.57	3	5		
Support		17	4.42	.57	1	5	63	3.74	.69	1	5	78	-.64
	15	17	3.44	1.06	1	5	63	3.54	1.01	1	5		
	28	17	3.90	.86	2	5	63	.96	.96	1	5		
	33	17	3.82	.81	3	5	63	.90	.90	2	5		
	34	17	3.59	.62	3	5	63	.98	.98	1	5		
	37	17	3.38	1.08	2	5	63	1.24	1.24	1	5		
Assessment alignment and use		17	4.24	.57	2	5	63	4.45	.43	2	5	78	-1.73
	5	17	4.82	.39	4	5	63	4.89	.32	4	5		
	10	17	4.44	.86	3	5	63	4.07	.54	3	5		
	24	17	3.88	1.05	2	5	63	4.07	.74	2	5		
	39	17	3.79	.85	2	5	63	4.07	.68	2	5		
Data utilization		17	4.18	.59	2	5	63	4.10	.54	2	5	78	.56
	2	17	4.59	.80	2	5	63	3.71	.71	2	5		
	6	17	4.15	.75	2	5	63	4.10	.61	2	5		
	8	17	4.79	.40	4	5	63	4.44	.66	2	5		
	19	17	3.91	.83	2	5	63	3.90	.72	2	5		
Leadership practices		17	3.61	.53	2.81	4.38	63	3.78	.54	2.69	4.77	78	-1.11
Instructional practices		17	4.27	.55	2.36	4.93	63	4.34	.35	3.07	5.00	78	-.59
Overall		17	3.85	.40	2.81	4.46	63	3.97	.35	3.33	4.85	78	-1.22

*Note.* The items are in Appendix O.

\* $p \leq .05$ .

**Table 7:*****Mann-Whitney U Test for Differences Between Schools Meeting and Not Meeting the Third Grade Reading Benchmark on the Predictor Variables***

Predictor variable	Benchmark status	<i>N</i>	Mean rank	Sum of ranks	Mann-Whitney <i>U</i>
Leadership and professional development	0	17	38.76	659.00	506
	1	63	40.97	2581.00	
Academic culture	0	17	30.41	517.00	364*
	1	63	43.22	2723.00	
Curriculum alignment	0	17	39.65	674.00	521
	1	63	40.73	2566.00	
Support	0	17	35.59	605.00	452
	1	63	41.83	2635.00	
Assessment alignment and use	0	17	32.82	558.00	405
	1	63	42.57	2682.00	
Data utilization	0	17	45.65	776.00	448
	1	63	39.11	2464.00	
Leadership practices	0	17	35.76	608.00	455
	1	63	41.78	2632.00	
Instruction practices	0	17	37.91	644.50	491
	1	63	41.20	2595.50	
Overall	0	17	36.41	619.00	466
	1	63	41.60	2621.00	

*Note.* For benchmark status, coding was 0=Did not meet benchmark, 1=Met benchmark.

\* $p \leq .05$ ;  $Z = -2.02$ ,  $p \leq .05$ .

*Correlational Analyses Among All Variables*

Two-tailed Pearson product moment correlation coefficients (see Table 8) and Spearman rho correlation coefficients (non-parametric) (see Table 9) were calculated to assess the relationships between and among the predictor and criterion variables.

The notable feature of the correlation coefficients in both the Pearson and Spearman matrices is that they are very much alike. Except for three of the coefficients, the coefficients were in the same direction and the levels of significance were the same. Because any inferences

to the population of schools would be doubtful due to the small number of responses and the unknown relationship of the sample to the population, the Spearman matrix is the one that should be used in interpreting the data.

Using the Spearman rho matrix in Table 9, several points can be made about the relationships between and among the variables. As expected, there is a negative relationship between the percentage of children receiving free or reduced-price lunches and the percentage of children passing the third grade reading test. About 24 per cent of the variance in the measures is held in common. Other than the percentage of free and reduced-price lunches, academic culture was the only predictor variable related to the percentage of children passing the third grade reading test, and this relationship wasn't very strong. Only about five percent of the variance in the two measures is held in common. There is considerable shared variance in the measures of school practices. Sixty percent of the correlation coefficients between and among the six practice variables (9 of 15 coefficients) were significant. Despite the results of the principal components analysis, there is considerable overlapping variance in the measures. An undetected underlying factor may well be at work; it could be an overall impression of the school by the responding teachers.

**Table 8:**

*Pearson Correlation Coefficients for Relationships Among Percentage of Students Receiving Free or Reduced-Price Lunches, Scores on the School Practices Scales, and Percentage of Students Passing the Third Grade Reading SOL Test, (N=80).*

	2	3	4	5	6	7	8	9	10	11
1. Percentage receiving free or reduced-price lunches	-.47**	-.26*	-.22	.13	-.21	-.03	.07	-.29*	.09	-.18
2. Percentage passing 3 <sup>rd</sup> grade reading test		.12	.23*	-.03	.05	.11	-.07	.16	-.01	.14
3. Leadership and professional development			.44**	-.01	.50**	.26*	.43**	.93**	.31**	.87**
4. Academic culture				.13	.48**	.33**	.21	.69**	.28*	.64**
5. Curriculum alignment					.12	.33**	.37**	.06	.78**	.30**
6. Support						.06	.24*	.71**	.20	.64**
7. Assess alignment and utilization							.34**	.28*	.67**	.48**
8. Data								.41**	.79**	.62**
9. Leadership practices									.33**	.93**
10. Instructional practices										.62**
11. Overall										

\* $p \leq .05$ . \*\* $p \leq .01$ .

**Table 9:**

*Spearman Correlation Coefficients for Relationships Among Percentage of Students Receiving Free or Reduced-Price Lunches, Scores on the School Practices Scales, and Percentage of Students Passing the Third Grade Reading SOL Test, (N=80).*

Variables	Variables									
	2	3	4	5	6	7	8	9	10	11
1. Percentage receiving free or reduced-price lunches	-.49**	-.21	-.22	.11	-.15	-.07	.04	-.24*	.05	-.17
2. Percentage passing 3 <sup>rd</sup> grade reading test		.07	.23*	-.07	.10	.13	-.05	.14	.03	.12
3. Leadership and professional development			.41**	-.15	.58**	.39**	.46**	.91**	.23*	.88**
4. Academic culture				.18	.53**	.38**	.22	.69**	.36**	.67**
5. Curriculum alignment					.08	.24*	.06	-.06	.65**	.08
6. Support						.18	.23*	.76**	.21	.73**
7. Assessment alignment and utilization							.28*	.43**	.65**	.54**
8. Data utilization								.44**	.60**	.56**
9. Leadership practices									.32**	.96**
10. Instructional practices										.50**
11. Overall										

\* $p \leq .05$ . \*\* $p \leq .01$ .

#### *Analysis of School Practices by Domain and Item*

Descriptive data were run on all practice domains and items within those domains. The scores for the teachers representing the 80 schools, regardless of whether the schools met or did

not meet benchmarks, were compiled to provide details about what the responding teachers think their schools do with respect to the practices identified in the study. These data are in Appendix U.

### Linear Regression and Discriminant Function Analyses

Two linear regressions and two discriminant function analyses were conducted to measure the relationships between the predictor variables (percentage of students receiving free or reduced-price lunches and the six school practices) and the criterion variables (school pass rate on the 2005 third-grade reading Standards of Learning test and school status on meeting or not meeting the benchmark on the 2005 third-grade reading Standards of Learning test). The first regression was run with school pass rate on the 2005 third-grade reading Standards of Learning test as the criterion variable and the percentage of free or reduced-price lunches in the school and all of the predictor variables identified in the principal components analysis-- (a) leadership and professional development, (b) academic culture, (c) curriculum alignment, (d) support, (e) assessment alignment and use, and (f) data utilization—as the predictor variables. The second regression analysis was run with school pass rate on the 2005 third-grade reading Standards of Learning test as the criterion variable and the percentage of free or reduced-price lunches in the school and the overall measure (all items considered as a unitary measure) of school practices as the predictor variables. The first discriminant function was run with school status on meeting or not meeting the benchmark on the 2005 third-grade reading Standards of Learning test as the criterion variable and the percentage of free or reduced-price lunches in the school and the six practice variables identified in the principal components analysis. The second discriminant function was run with school status on meeting or not meeting the benchmark on the 2005 third-grade reading Standards of Learning test as the criterion variable and the percentage of free or reduced-price lunches in the school and the overall measure of school practices as the predictor variables.

#### *Linear Regression Analyses*

When the percentage of free or reduced-price lunches in the school and the six practice variables were regressed on to the percentage of students passing the third-grade reading SOL test, the model accounted for 26% of the variance in the SOL reading test scores (see Table 10). The adjusted  $R^2$  of .19 indicates that there were too many predictor variables for the number of degrees of freedom in the model or that the predictor variables were insufficiently different to account for additional variance in the percentage of students passing the third-grade SOL reading

test. The regression coefficients in Table 12 indicate that only the percentage of students receiving free or reduced-price lunches was significantly related to the percentage of students passing the third-grade reading Standards of Learning test: The higher the percentage of students receiving free or reduced-price lunches, the lower the pass rate.

Colinearity statistics were run to determine the amount of overlapping variance in the predictor variables. Colinearity among predictor variables is not an issue when one is trying to predict scores on a criterion variable. It becomes an issue when one wants to understand how the predictor variables affect the variance in the criterion variable (Motulsky, 2002). Because both were of interest in this study, the colinearity statistics were examined. A rule of thumb is that VIF's (variance inflation factors) that are higher than 10 or tolerances that are less than .10 signify multicollinearity. As indicated in Table 12, neither the VIFs nor the tolerances exceeded the criterion. Colinearity does not appear to be a factor in the measurement of the variables.

**Table 10:**

*Statistics for Regression of Percentage Passing the Third Grade SOL Reading Test on Percentage Receiving Free or Reduced-Price Lunches and Six School Practices, N=80*

<i>R</i>	<i>R square</i>	<i>Adjusted R square</i>	<i>Std. error of the estimate</i>
.51 <sup>a</sup>	.26	.19	11.18

*Note.* Criterion variable: Spring 2005 3rd grade reading/literature SOL test school pass rate.

<sup>a</sup>Predictors: (Constant) percentage of students receiving free or reduced-price lunches, leadership and professional development, academic culture, curriculum alignment, support, assessment alignment and use, and data utilization.

**Table 11:**

*ANOVA for the Regression of Percentage Passing the Third Grade SOL Reading Test on Percentage Receiving Free or Reduced-Price Lunches and Six School Practices, N=80*

<i>Source</i>	<i>Sum of squares</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>p</i>
Regression	3200.66	7	457.24	3.66	.00
Residual	8997.54	72	124.97		
Total	121988.20	79			

*Note.* Criterion variable: Spring 2005 3rd grade reading SOL test school pass rate.

<sup>a</sup>Predictors: (Constant) percentage of students receiving free or reduced priced lunch; leadership and people development, academic culture, curriculum alignment, support, assessment alignment and use, and data utilization.

**Table 12:**

***Regression Coefficients, Part and Partial Correlation Coefficients, and Collinearity Statistics for the Regression of the Percentage of Students Passing the Third Grade Reading SOL Test on Percentage of Students Receiving Free or Reduced-Price Lunches, N=80***

Variable	Unstandardized coefficients		Standardized coefficients			Correlations			Collinearity Statistics	
	<i>B</i>	<i>SE</i>	Beta	<i>t</i>	<i>p</i>	Zero-order	Partial	Part	Tolerance	VIF
(Constant)	75.26	16.12		4.67	.00					
Percentage of students receiving free of reduced-price lunches	-.20	.05	-.46	-4.20	.00	-.47	-.44	-.43	.87	1.15
Leadership and professional development	-.15	2.31	-.01	-.06	.95	.12	-.01	-.01	.53	1.89
Academic culture	4.78	3.25	.19	1.47	.15	.23	.17	.15	.64	1.57
Curriculum alignment	.44	2.71	.02	.16	.87	-.03	.02	.02	.74	1.36
Support	-2.26	2.39	-.12	-.95	.35	.05	-.11	-.10	.62	1.62
Assessment alignment and use	1.59	3.19	.06	.50	.62	.11	.06	.05	.72	1.38
Data utilization	-1.51	2.66	-.07	-.53	.60	-.07	-.06	-.05	.64	1.56

*Note.* Criterion variable: Spring 2005 3rd grade reading SOL test school pass rate.

<sup>a</sup>Predictors: (Constant) percentage of students receiving free or reduced priced lunch; leadership and people development, academic culture, curriculum alignment, support, assessment alignment and use, and data utilization.

The second multiple regression was conducted by creating a single measure of school practices by taking the mean of all practice items for each school. The percentage of students passing the third-grade SOL test in reading was then regressed on this single measure of school practices and the percentage of students receiving free or reduced-price lunches. The results of this second regression analysis are in Tables 13, 14, and 15.

This second model is no better than the first model in predicting the passing rate on the third-grade reading SOL test. The percentage of variance accounted for in the criterion variable—the percentage of students passing the third-grade reading SOL test—by the two predictors was 23 %, which is slightly less than the percentage accounted for by the predictors in the first model ( $R^2=.26$ ). There was a slight increase in the adjusted  $R^2$  to .21 from the adjusted  $R^2$  (.19 ) in the first model. This increase in the adjusted  $R^2$  is due to the reduction in the ratio of the number of predictor variables to the degrees of freedom. As in the first model, only the percentage of students receiving free or reduced-price lunches was a significant predictor of the pass rate on the third-grade SOL reading test. The partial correlation coefficient, when converted to a coefficient of determination, indicates that 21 percent of the variance in the third grade SOL reading test scores is accounted for by the percentage of students receiving free or reduced-price lunches—a measure of school socio-economic status. As in the first regression analysis, colinearity is not a problem in this analysis.

**Table 13:**

*Statistics for Regression of SOL Third Grade Reading Test Pass Rate on Percentage Receiving Free or Reduced-Price Lunches and the Overall Measure of School Practices, N=80*

R	R square	Adjusted R square	Std. error of the estimate
.48 <sup>a</sup>	.23	.21	11.07

*Note.* Criterion variable: Spring 2005 3rd grade reading SOL test school pass rate.

<sup>a</sup> Predictors: (Constant) Overall measure of school practices, percentage of students receiving free or reduced-price lunches.

**Table 14:**

*ANOVA for Regression of SOL Third Grade Reading Test Pass Rate on Percentage Receiving Free or Reduced-Price Lunches and the Overall Measure of School Practices, N=80*

Source <sup>a</sup>	Sum of squares	df	Mean square	F	p
Regression	2769.36	2	1384.68	11.31	.00
Residual	9428.85	77	122.45		
Total	12198.20	79			

*Note.* Criterion variable: Spring 2005 3rd grade reading SOL test school pass rate.

<sup>a</sup>Predictors: (Constant) Overall measure of school practices, percentage of students receiving free or reduced-price lunches.

**Table 15:**

*Regression Coefficients, Part and Partial Correlation Coefficients, and Collinearity Statistics for the Regression of the Percentage of Students Passing the Third Grade Reading SOL Test on Percentage of Students Receiving Free or Reduced Price Lunches and the Overall Measure of School Practices, N=80*

Variable <sup>a</sup>	Unstandardized coefficients		Standardized coefficients		t	p	Correlations			Collinearity statistics	
	B	SE	Beta				Zero-order	Partial	Part	Tolerance	VIF
(Constant)	80.73	14.33			5.64	.00					
Percentage of students receiving free or reduced-price lunches	-.20	.04	-.46		-4.56	.00	-.47	-.46	-.46	.97	1.03
Overall	1.90	3.49	.06		.55	.59	.14	.06	.06	.97	1.03

*Note.* Criterion variable: Spring 2005 3rd grade reading SOL test school pass rate.

<sup>a</sup>Predictors: (Constant) Overall measure of school practices, percentage of students receiving free or reduced-price lunches.

### *Discriminant Function Analyses*

Two discriminant function analyses were conducted to explore the data further. These analyses are more appropriate applications than linear regression in this study because of the nature of the criterion variable—the percentage of students passing the third-grade reading SOL test. This variable is at best an ordinal variable. With discriminant function analysis the criterion variable is defined as a nominal variable with two categories. In this study the criterion variable had two categories: 0=did not meet the benchmark and 1=met the benchmark for the as specified by the state. Those schools with 70% or better passing met the benchmark. In the first analysis, the percentage of students receiving free or reduced-price lunches and the six variables school

practices variables identified in the principal components analysis were used to discriminate between the two categories of the criterion variable. In the second analysis, the percentage of students receiving free or reduced-price lunches and the overall measure of school practices were used to discriminate between the two categories of the criterion variable.

Discriminant analysis is used to (a) assess the contribution of each variable in a set of predictor variables to the difference between two or more groups and (b) to create a classification equation that can be used to predict placement of cases in groups. In this study there were two groups: those that met the third-grade reading benchmark and those that did not meet the benchmark in 2005. The analysis is presented in three parts: (a) preliminary statistics for the analysis—descriptive statistics and Boxes M test for homogeneity of the variances across the predictor variables, (b) discriminant function statistics, and (c) classification statistics.

#### *Discriminant Function Analysis with All Predictor Variables*

All six school practices variables and the percentage of students receiving free or reduced-price lunches were used as predictors in this analysis. The criterion was the benchmark status of the schools—met or did not meet the third grade reading benchmark in 2005. The presentation of the data follows that of Giacometti (2005).

#### *Preliminary statistics for the analysis.*

The descriptive statistics for the variables in the analysis are in Table 16. The large lambda's and univariate F-tests indicate that with the exception of the percentage of students receiving free or reduced price lunches and academic culture there are no differences between the schools that met and those that did not meet the third grade SOL reading test benchmark in 2005. The schools that met the benchmark had small proportions of children on free or reduced-price lunches and had more favorable academic cultures. The two groups of schools did not differ on leadership and professional development, curriculum alignment, support, alignment and use of assessments, or use of data. The Lambdas indicate the proportion of variance in the criterion variable not accounted for by the predictor variable. Thus, the proportion of variance accounted for by the two variables with significant differences between the groups is 5.4% for academic culture and 13.3% for the percentage of students on free or reduced-price lunches. Because these are univariate tests, shared variance among the predictor variables is not considered. This shared variance is taken into consideration in the multivariate discriminant analysis that follows.

Data for Boxes M test for homogeneity of variances among the predictor variables are in Table 17. Results of this test indicate that the co-variance matrices across the groups are the same. The assumption of homogeneity of variance across the predictor variables is met. This is particularly important in this study because of the unequal *N*s in the two groups.

**Table 16:**

***Group Means, Wilks' Lambda (U-Statistic) and Univariate F-Ratios for Predictor Variables Classified by Met and Did Not Meet the Third Grade Reading Benchmark in 2005, N=80***

Predictor	Met ( <i>N</i> =63)		Not met ( <i>N</i> =17)		Total ( <i>N</i> =80)		Wilks' lambda	<i>F</i>	<i>df</i> (between)	<i>df</i> (total)	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>					
	Leadership and people development	3.64	.74	3.52	.81	3.61					
Academic culture	4.03	.48	3.75	.46	3.97	.48	.946	4.45	1	78	.04
Curriculum alignment	4.50	.48	4.42	.75	4.48	.54	.996	.31	1	78	.58
Support	3.74	.69	3.62	.57	3.72	.67	.995	.41	1	78	.52
Assessment alignment and use	4.45	.43	4.24	.57	4.41	.46	.963	3.00	1	78	.09
Data utilization	4.10	.54	4.18	.59	4.12	.55	.996	.31	1	78	.58
Percent age of students receiving free or reduced-price lunches	41.68	29.05	67.35	17.96	47.14	28.97	.867	11.97	1	78	.00

**Table 17:*****Test for Equality of Co-Variance Matrices Across Groups Using Box's M Test***

Group	Rank	Log determinant	Box's <i>M</i>	<i>F</i>	<i>df1</i>	<i>df2</i>	<i>p</i>
Not met	7	-3.76	45.12	1.34	28	3047.01	.11
Met	7	-1.92					
Pooled within groups	7	-1.73					

*Note.* The ranks and natural logarithms of determinants are those of the group covariance matrices of the canonical discriminant functions. The null hypothesis tested is that the covariance matrices of the canonical discriminate functions are the same.

***Discriminant function statistics.***

The eigenvalue, canonical correlation, and Wilks' lambda (see Table 18) are useful in assessing the strength and statistical significance of the prediction equation (i.e., the discriminant function). The higher the eigenvalue and the higher the canonical correlation, the greater the predictability of the equation. Wilks' lambda is the proportion of variance not accounted for by the prediction equation and is tested with the chi square. As the test indicates, the variables in the prediction equation discriminate between the schools that met the third grade reading benchmark and those that did not meet the benchmark; however, the discriminating power of the equation is not strong. The equation accounts for about 20 percent (.45<sup>2</sup>) of the variance in the benchmark status of the two groups.

**Table 18:*****Discriminant Function Statistics: Eigenvalue, Wilks' Lambda, and Chi Square, N=80***

Eigenvalue	% of variance	Canonical correlation	Wilks' lambda	$\chi^2$	<i>df</i>	<i>p</i>
.25	100.0	.45	.80	16.84	7	.02

Because the overall  $\chi^2$  test was significant, further assessment of the discriminant function equation was appropriate. This assessment is done by reviewing the structure matrix, which contains the pooled within-groups correlations between the scores on the predictor variables and the scores calculated with the canonical discriminant function (see Table 19); the standardized and unstandardized canonical discriminate function coefficients, which assess the unique proportion of variance accounted for by each predictor variable (see Table 20); and the group centroids, which are the average discriminate function scores for the two groups (see Table 21).

The structure matrix (see Table 19) contains data that permits an assessment of the association between each predictor variable and the scores calculated with the discriminant function. Because of the unequal *N*s, the correlation coefficients are calculated for each group and then the mean of these coefficients is taken as the pooled within-groups correlation coefficient. This pooled correlation coefficient is analogous to the factor loading in factor analysis. The size of the coefficient, regardless of sign, indicates the contribution of the variable to the discrimination between the two groups. The three best predictors of the discriminant function scores are percentage of students receiving free or reduced-price lunches, academic culture, and assessment alignment and use.

**Table 19:**

*Structure Matrix for Discriminating Between Schools That Met and Schools That Did Not Meet Third Grade Reading Benchmarks in 2005, N=80*

Predictor	Correlation
Percentage of students receiving free or reduced-price lunches	.78
Academic culture	-.47
Assessment alignment and use	-.39
Support	-.15
Leadership and people development	-.13
Data utilization	.13
Curriculum alignment	-.12

*Note.* These are the pooled within-groups correlations between the scores for the predictor variables and the scores calculated with the canonical discriminant function. Variables are ordered by absolute size of the correlation with the function scores.

Canonical discriminant function coefficients, both unstandardized and standardized, are useful in assessing the contribution of predictor variables to the discriminant function (see Table 20). The standardized coefficients are directly comparable to each other and confirm the findings in the structure matrix. Three variables contribute the most to the discriminant function scores: percentage of students receiving free or reduced-price lunches, academic culture, and assessment alignment and use. Only the first two, however, were large enough to be significant (see Table 16 above).

The group centroids are useful in assessing the amount of difference between the two groups (see Table 21). The centroid is the average unstandardized discriminant function score for a group, and the difference between the two centroids indicates how well the discriminant function distinguishes the two groups. The centroids indicate that the discriminant function equation is useful in separating the two groups.

**Table 20:**

*Canonical Discriminant Function Coefficients for Discriminating Between Schools That Met and Schools That Did Not Meet the Third Grade Reading Benchmark in 2005, N=80*

Predictor	Canonical discriminant function Coefficients	
	Unstandardized	Standardized
Leadership and people development	.26	.19
Academic culture	-.84	-.40
Curriculum alignment	-.35	-.19
Support	.12	.08
Assessment alignment and use	-.87	-.40
Data utilization	.51	.28
Percentage of students receiving free or reduced-price lunches	.03	.81
Constant	3.83	.00

**Table 21:**

*Group Centroids for Schools That Met and Schools That Did Not Meet the Third-Grade Reading Benchmark in 2005, N=80*

Benchmark status	Centroid
Did not meet benchmark	.96
Met benchmark status	-.26

*Classification statistics*

The proof of the value of the predictor variables in discriminating between schools that met and schools that did not meet the third grade reading benchmark in 2005 is how well the discriminant function equation correctly classifies schools according to their benchmark status. As the data in Table 22 indicate, 73.8% of the cases were correctly classified by the discriminant

function. This means if one knew the scores on the predictor variables and applied the discriminant function equation, he or she would be correct in predicting whether the school would meet or not meet the third-grade benchmark about three out of four times. Looking more closely at the classification data, the discriminant function is better at classifying schools that did not meet the third-grade benchmark (82.4%) than schools that did meet the benchmark (71.4%). In the cross validation of cases, 71.3% of the cases were correctly classified. The classification function coefficients are in Appendix V.

**Table 22:**

*Classification of Schools Meeting and Not Meeting the Third-Grade Benchmark in 2005, All Predictors, N=80*

Original benchmark status		Predicted benchmark status		Total
		Not met	Met	
All cases in the analysis				
Not met	<i>N</i>	14	3	17
	%	82.4	17.6	100.0
Met	<i>N</i>	18	45	63
	%	28.6	71.4	100.0
Cross validation				
Not met	<i>N</i>	12	5	17
	%	70.6	29.4	100.0
Met	<i>N</i>	18	45	63
	%	28.6	71.4	100.0

*Note.* 73.8 % of the schools were correctly classified. 71.3 % of the cross-validated cases correctly classified. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.

*Discriminant Function Analysis with the Overall Measure of School Practices and Percentage of Students Receiving Free or Reduced-Price Lunches as Predictor Variables*

All of the school practices were combined into a single, *overall*, measure of school practices. This overall measure and the percentage of students receiving free or reduced-price lunches were used as predictors in this analysis. The criterion was the benchmark status of the schools—met or did not meet the third grade reading benchmark in 2005.

*Preliminary statistics for the analysis*

The descriptive statistics for the variables in the analysis are in Table 23. The large lambda's and univariate F-tests indicate that differences between the schools that met and those that did not meet the third grade SOL reading test benchmark in 2005 can be accounted for by the percentage of students receiving free or reduced-price lunches and variables not included in the model. The schools that met the benchmark had fewer children on free or reduced-price lunches. The two groups of schools did not differ on the overall measure of school practices. The lambdas indicate the proportion of variance in the criterion variable not accounted for by the predictor variable. Thus, the proportion of variance accounted for by the percentage of students on free or reduced price lunches is 13.3%. Only two percent of the variance in the criterion is accounted for by the overall measure of school practices. Because these are univariate tests, shared variance among the predictor variables is not considered. This shared variance is taken into consideration in the multivariate discriminant analysis that follows.

Data for Boxes M test for homogeneity of variances among the predictor variables are in Table 24. Results of this test indicate that the co-variance matrices across the groups are the same. The assumption of homogeneity of variance across the predictor variables is met. This is particularly important in this study because of the unequal *Ns* in the two groups.

**Table 23:**

***Group Means, Wilks' Lambda (U-Statistic) and Univariate F-Ratios for Schools Classified by Met and Did Not Meet the Third Grade Reading Benchmark in 2005, with the Overall Measure of School Practices and Percentage of Students Receiving Free or Reduced-Price Lunches as Predictor Variables, N=80***

Predictor	Met ( <i>N</i> =63)		Not met ( <i>N</i> =17)		Total ( <i>N</i> =80)		Wilks' lambda	<i>F</i>	<i>df</i> (between)	<i>df</i> (total)	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>					
Overall	3.97	.35	3.85	.40	3.95	.36	.98	1.48	1	78	.23
Percentage of students receiving free or	41.68	29.05	67.35	17.96	47.14	28.97	.87	11.97	1	78	.00

reduced-  
price  
lunches

**Table 24:**

***Test for Equality of Co-Variance Matrices Across Groups Using Box's M Test for the Discriminant Function Analysis with the Overall Measure of School Practices and Percentage of Students Receiving Free or Reduced-Price Lunches as Predictor Variables, N= 80***

Group	Rank	Log determinant	Box's <i>M</i>	<i>F</i>	<i>df1</i>	<i>df2</i>	<i>p</i>
Not met	2	3.93	5.56	1.77	3	12222.74	.15
Met	2	4.62					
Pooled within groups	2	4.55					

*Note.* The ranks and natural logarithms of determinants are those of the group covariance matrices of the canonical discriminant functions. The null hypothesis tested is that the covariance matrices of the canonical discriminate functions are the same.

*Discriminant function statistics.*

The eigenvalue, canonical correlation, and Wilks' lambda (see Table 25) are useful in assessing the strength and statistical significance of the prediction equation (i.e., the discriminant function). The higher the eigenvalue and the canonical correlation the greater the predictability of the equation. Wilks' lambda is the proportion of variance not accounted for by the prediction equation and is tested with the chi square. As the test indicates, the variables in the prediction equation discriminate between the schools that met the third grade reading benchmark and those that did not meet the benchmark; however, the discriminating power of the equation is not strong (see Table 25). The equation accounts for 14 percent (.37<sup>2</sup>) of the variance in the benchmark status of the two groups.

**Table 25:**

***Discriminant Function Statistics: Eigenvalue, Wilks' Lambda, and Chi Square for the Discriminant Functional Analysis with the Overall Measure of School Practices and Percentage of Students Receiving Free or Reduced-Price Lunches as Predictor Variables, N=80***

Eigenvalue	% of variance	Canonical correlation	Wilks' lambda	$\chi^2$	<i>df</i>	<i>p</i>
.16	100.0	.37	.86	11.48	2	.00

Because the overall  $\chi^2$  test was significant, further assessment of the discriminant function equation was appropriate. This assessment was done by reviewing the structure matrix, which contains the pooled within-groups correlations between the scores on the predictor variables and the scores calculated with the canonical discriminant function (see Table 26); the standardized and unstandardized canonical discriminate function coefficients, which assess the unique proportion of variance accounted for by each predictor variable (see Table 27; and the group centroids, which are the average discriminate function scores for the two groups (see Table 28).

**Table 26:**

*Structure Matrix for Discriminating Between Schools That Met and Schools That Did Not Meet Third Grade Reading Benchmarks in 2005 for the Discriminant Function Analysis with the Overall Measure of School Practices and Percentage of Students Receiving Free or Reduced-Price Lunches as Predictor Variable, N=80*

Predictor	Correlation
Percentage of students receiving free or reduced-price lunches	.98
Overall	-.34

*Note.* These are the pooled within-groups correlations between the scores for the predictor variables and the scores calculated with the canonical discriminant function. Variables are ordered by absolute size of the correlation with the function scores.

The structure matrix (see Table 26) contains data that permits an assessment of the association between each predictor variable and the scores calculated with the discriminant function. Because of the unequal *N*s, the correlation coefficients are calculated for each group and then the mean of these coefficients is taken as the pooled within-groups correlation coefficient. This pooled correlation coefficient is analogous to the factor loading in factor analysis. The size of the coefficient, regardless of sign, indicates the contribution of the variable to the discrimination between the two groups. Again, it is the case that the best predictor of the discriminant function scores is the percentage of students receiving free or reduced-price lunches.

Canonical discriminant function coefficients, both unstandardized and standardized, are useful in assessing the contribution of predictor variables to the discriminant function (see Table 27). The standardized coefficients are directly comparable to each other and confirm the findings in the structure matrix. Again, it is noted that the percentage of students receiving free or reduced-price lunches is the primary discriminator between those schools that met the benchmark and those that did not.

The group centroids are useful in assessing the amount of difference between the two groups (see Table 28). The centroid is the average unstandardized discriminant function score for a group, and the difference between the two centroids indicates how well the discriminant function distinguishes the two groups. The centroids indicate that the discriminant function equation is useful in separating the two groups.

**Table 27:**

*Discriminant Function Coefficients for Discriminating Between Schools That Met and Schools That Did Not Meet the Third Grade Reading Benchmark in 2005 for the Discriminant Function Analysis with the Overall Measure of School Practices and Percentage of Students Receiving Free or Reduced-Price Lunches as Predictor Variables, N=80*

Predictor	Canonical discriminant function Coefficients	
	Unstandardized	Standardized
Percentage of students receiving free or reduced-price lunches	.04	.95
Overall	-.59	-.21
Constant	.69	

**Table 28:**

*Group Centroids for Schools That Met and Schools That Did Not Meet the Third Grade Reading Benchmark in 2005 for the Discriminant Function Analysis with the Overall Measure of School Practices and Percentage of Students Receiving Free or Reduced-Price Lunches as Predictor Variables, N=80*

Benchmark status	Centroid
Did not meet benchmark	.76
Met benchmark status	-.21

The proof of the value of the predictor variables in discriminating between schools that met and schools that did not meet the third-grade reading benchmark in 2005 is how well the discriminant function equation correctly classifies schools according to their benchmark status. As the data in Table 29 indicate, 67.5% of the cases were correctly classified by the discriminant function. This means if one knew the scores on the predictor variables and applied the discriminant function equation, he or she would be correct in predicting whether the school would meet or not meet the third grade benchmark about two out of three times. Looking more closely at the classification data, the discriminant function is better at correctly classifying schools that did not meet the third grade benchmark (76.5%) than schools that did meet the benchmark (68.3%). In the cross validation of cases, 68.8% of the cases were correctly classified. The classification function coefficients are in Appendix V.

**Table 29:**

*Classification of Schools Meeting and Not Meeting the Third-Grade Benchmark in 2005 for the Discriminant Function Analysis with the Overall Measure of School Practices and Percentage of Students Receiving Free or Reduced-Price Lunches as Predictor Variables, N=80*

Original benchmark status		Predicted benchmark status		Total
		Not met	Met	
Not met	<i>N</i>	13	4	17
	%	76.5	23.5	100.0
Met	<i>N</i>	20	43	63
	%	31.7	68.3	100.0
<b>Cross validation</b>				
Not met	<i>N</i>	12	5	17
	%	70.6	29.4	100.0
Met	<i>N</i>	20	43	63
	%	31.7	68.3	100.0

*Note.* 70.0 % of the original cases were correctly classified using the discriminant function. 68.8 % of the cross-validated cases were correctly classified.

In summary, the regression and discriminant function models tested are not strong predictors of the percentage of students passing the third grade reading assessment or in discriminating between schools that met or did not meet the third grade reading benchmark in 2005. Two variables appear to be useful in predicting percentage passing: percentage of students receiving free or reduced-price lunches and the academic culture of the school. When all school practices were merged into an overall measure, only the percentage of students receiving free or reduced-price lunches discriminated between those schools meeting and those schools not meeting the third grade benchmark. Possible explanations for these findings are in the following chapter.

## CHAPTER 5

### CONCLUSIONS, DISCUSSION, RECOMMENDATIONS FOR PRACTICE AND FUTURE RESEARCH, AND REFLECTIONS

The conclusions, a discussion of the methods and findings, recommendations for practice and future research, and some personal reflections on the study are in this chapter. The conclusions are derived from the findings and are focused on the two primary questions of interest in the study: How frequently do teachers and schools use the Virginia Department of Education *best practices* for instructional and school improvement, and what is the relationship between the use of these practices and school performance on the 2005 3<sup>rd</sup> grade reading SOL test. The discussion is an attempt to make meaning of the findings in view of the literature and the theory on which the study was based. A few implications for practice are set forth, and some suggestions for future research are offered. The chapter and report of the dissertation end with some reflections on the study, the research process, and the meaning of the findings.

#### Conclusions

The conclusions are presented for each of the two areas of interest in the study: the frequency of use of the *best practices* and the relationship of these practices to student performance aggregated at the school level. Discussion of the findings on which these conclusions are based will follow in the next section.

#### *Frequency of Use of the Best Practices*

When the 48 best practices were grouped according to their intercorrelations into factors using a principal components analysis, four factors were found: leadership and people development, academic culture, curriculum alignment, support, assessment alignment and use, and data utilization. Although the variation among the mean scores of these factors is relatively small (lowest mean score=3.61; highest mean score=4.48), the responding teachers did note differences that may be meaningful. Ordering the factors by means, from most observed to least observed, the factors were: curriculum alignment ( $M=4.48$ ), assessment alignment and use ( $M=4.41$ ), data utilization ( $M=4.12$ ), academic culture ( $M=3.97$ ), support ( $M=3.72$ ), and leadership and people development ( $M=3.61$ ). Using the response categories given on the questionnaire, the responding teachers, on average, observed curriculum alignment, assessment alignment and use, and data utilization as more than *commonly used* (rating of 4.00) in their schools. Practices associated with academic culture, support, and leadership and people development were, on average, more than *occasionally used* (rating of 3.00). Based on these

data, one can conclude the principals and teachers in schools are applying the *best practices* that have been found to be effective in increasing standardized test scores in Virginia.

*The Relationship Between the Use of Best Practices and Student Performance  
Aggregated at the School Level*

The question of interest was whether the application of the best practices is related to student performance aggregated at the school level on the third grade SOL reading test. Univariate and multivariate analyses resulted in two variables that are related to student performance: percentage of students receiving free or reduced-price lunches (Cohen's  $d = 1.06$ ) and academic culture (Cohen's  $d = .60$ ). The affluence of a school has long been known to affect the performance of a school on standardized tests. Academic culture or climate has been found to be associated with student performance as well. The effect coefficient for the percentage of students receiving free or reduced-price lunches for schools that met the third grade benchmark and those that did not meet the benchmark indicates that the percentage of children receiving free or reduced-price lunches in schools that did not meet the benchmark were at the 84th percentile of the schools that met the benchmark. That is, there was a higher percentage of students receiving free or reduced-price lunches in schools that didn't meet the benchmark than in schools that met the benchmark. For academic culture, the effect coefficient indicates that the mean of the schools that met the third grade benchmark was at approximately the 70<sup>th</sup> percentile of the schools that did not meet the third grade benchmark. That is a schools that met the benchmark had a higher mean score on academic culture than schools that did not meet the benchmark. However, in the multivariate analyses, the effect of academic culture washed out and only the percentage of students receiving free or reduced-price lunches remained as a significant contributor student performance aggregated at the school level.

### Discussion of the Methods and Findings

This discussion is divided into two parts. The first part contains a discussion of the statistical methods and the findings related to those methods. The second part contains a discussion of the original theory that guided the study and how that theory changed as a result of the findings.

### Discussion of Statistical Methods and Findings

The data were analyzed with bivariate (sometimes labeled univariate) and multivariate methods. Bivariate methods are applied when there is a single criterion variable and a single

predictor or independent variable. Tests for independent samples and bivariate correlations are examples of bivariate methods. Multivariate methods are applied when there are multiple criterion or predictor variables. Canonical correlations, multiple regression, and discriminant function analyses are examples of multivariate analyses. In this study, independent t-tests, Mann-Whitney U-tests (a non-parametric independent samples test), Pearson and Spearman correlations, multiple linear regression, and discriminant function analyses were applied to assess the relationships between the school practices and student performance aggregated at the school level.

Both parametric and non-parametric tests were applied because of the nature of the criterion variable. The criterion variable was defined in two ways: the percentage of children passing the 2005 third-grade reading test and whether the school met or did not meet the benchmark for third grade reading in 2005. The percentage of children passing the 2005 third grade reading test is, at best, an ordinal measure; however, ordinal measures may perform about the same way as interval measures in statistical analyses. But, one cannot be sure about this assumption, so to check on this, both parametric and non-parametric bivariate analyses were run and both multiple linear regression and discriminant function analyses were run. The conclusion is that in this study there are no differences in the results when run either way. The percentage of children receiving free or reduced-price lunches and academic culture were related to school performance in the same way under both bivariate analyses and both multivariate analyses. They both contributed to student performance aggregated at the school level. The remaining variables were not closely enough related to the criterion variable to be useful in making predictions of student performance aggregated at the school level or in helping school leaders decide what they might do to improve that performance.

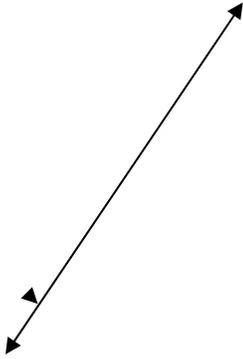
### Discussion of the Theory

As I researched the literature for the relationship between school practices and school improvement, I developed a theory to explain how curriculum alignment, time and scheduling, use of data, professional development, school culture, and leadership and people development affect student achievement (see Figure 1). The theory was based primarily on a study conducted in 2000 by the Virginia Department of Education (Virginia Department of Education, 2000). The theory had six domains of school practice that were found in the Virginia Department of Education study to be associated with effective schools. Each domain contained specific statements representing school practices. After the questionnaire was completed, a principal components analysis was applied to regroup the school practices. Six factors emerged: leadership

and people development, academic culture, curriculum alignment, support, assessment alignment and use, and data utilization. These factors were used in the final analyses. Following the analyses, a new theory (or post-study theory) of school performance was constructed to represent the relationships found in the study (see Figure 2).

The post-study theory displays the two variables that were found to be significantly related to school performance; that is, meeting or not meeting the benchmark (70%) on the 3<sup>rd</sup> grade reading Standards of Learning (SOL) test or the percentage of students passing the third grade SOL reading test. The underlying assumption in the theory is that student performance aggregated at the school level is associated with what principals and teachers do in their schools to promote student performance. This assumption is only partly true. The affluence of the school as measured by the percentage of students receiving free or reduced-price lunches is the stronger predictor of school performance in this study. Academic culture came in second and is weakly related to school performance. The specific items in the academic culture scale are useful in deciding what principals and teachers can do to improve the academic culture and student performance aggregated at the school level. They can use data to make decisions, they can work collaboratively on instructional issues, they can hold high expectations for all students, they can be diligent in using and protecting instructional time, and they can support each other. These are seven specific and identifiable practices that can be expected to affect the performance of the school.

**SCHOOL PERFORMANCE  
(Third Grade Reading)**



**Percentage of students  
receiving  
free or reduced-priced  
lunches**

**Academic Culture**

- Teachers use data to make decisions about instructional activities
- Teachers use student attendance data to make instructional decisions.
- Teachers have opportunities to participate in collaborative planning on instructional issues.
- All students in my school are expected to learn
- Teachers use the entire scheduled class time to engage students in learning.
- The academic focus in my classroom is protected from Public Address (PA) interruptions.
- Teachers in my school support each other.

Figure 2. A post-study theory of school performance.

## Implications for Practice

Other than the percentage of students receiving free or reduced-price lunches, the domain that was related to schools' benchmark status on the third grade reading SOL test was academic culture. Principals and teachers can't do anything to change the affluence of the children who arrive at their doorsteps; however, they can change the academic culture of the school by what they do every day. They can use data to make decisions, they can work collaboratively on instructional issues, they can hold high expectations for all students, they can be diligent in using and protecting instructional time, and they can support each other. Other practices may well be related to school performance; however, in this study these are the only practices that were found to be associated with school performance, and these were not particularly strong.

## Recommendations for Future Research

The study identified two factors that seem to have a high level of effect on student achievement, academic culture and percentage of students receiving free or reduced-priced lunch. It does not reasonable to believe that these are the only factors that affect third-grade reading performance aggregated at the school level. As the review of the literature indicates, there are many other factors that enter the equation. So, what happened here? Two things come readily to mind: measurement error and incomplete development of the theory. Both must be improved in future research.

## Measurement Error

Two sources of measurement error crept into this study. The first is the content of the items on the instrument. The items are worded in socially or professionally desirable ways. They are all positive, and each represents a socially or professionally desirable practice. When confronted with such items, there is a tendency to respond positively to the item, even if the practice is not readily observable. Few teachers (possibly the disgruntled ones) would give their school or principal or themselves a poor rating on a socially or professionally desirable practice. The second measurement error is due to a design flaw. Although it was expected that the questionnaire would be completed by all third-grade teachers in a school, this did not happen because the principal did not provide the email addresses for all of the teachers or all of the selected teachers did not submit completed questionnaires. In all but a few cases only one teacher responded to the questionnaire. Thus, the school's scores on the practices were based on that one

teacher's perceptions, and that's not enough to get a good estimate of the application of the practices within the school.

Future researchers must address these two issues in designing their studies. When measurement error creeps into the study, the results received are often different from those expected from the theory that was developed to guide the study. This probably happened in this study and probably was one of the reasons for the failure of the data to capture the relationships proposed in the original theory. Further testing of the theory with more accurate and complete measures would be appropriate.

### Theory Development

The theory that guided the study was derived from a single source: the 2000 Virginia Department of Education study. The study focused on practices associated with effective schools. Future researchers need to go beyond a single study to identify variables that affect school performance. Curriculum alignment, time and scheduling, use of data, professional development, school culture, and leadership and people development are all important to school performance, but there are others, and these must be considered by future researchers. Some examples are parental and family involvement in the life of the student and the school, funding policies, the availability of support personnel, the quantity and quality of professional development, among others. The point is that a more comprehensive theory of school effectiveness needs to be developed to guide future researchers.

### Reflections

I was surprised the study did not reveal a greater relationship between the school practices and school test results. I continue to hear school personnel talk about the effectiveness of the practices used in the study. There is a need to identify school practices that are able to overcome social economic factors and impact student achievement. The study should be replicated with more sensitivity to the measurement of the variables and to the theory that guides the work.

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APPENDIX A  
IRB Approval Letter



**Institutional Review Board**

Dr. David M. Moore  
IRB (Human Subjects) Chair  
Assistant Vice President for Research Compliance  
1380 Pratt Drive, Suite 2006(0497), Blacksburg, VA 24061  
Office: 540/231-4991; FAX: 540/231-0959  
email: [moored@vt.edu](mailto:moored@vt.edu)

DATE: October 11, 2005

MEMORANDUM

TO: David J. Parks ELPS 0302  
Rosa Atkins

FROM: David Moore 

SUBJECT: **IRB Expedited Approval: "School Practices that Affect Student Achievement"**  
IRB # 05-592

This memo is regarding the above-mentioned protocol. The proposed research is eligible for expedited review according to the specifications authorized by 45 CFR 46.110 and 21 CFR 56.110. As Chair of the Virginia Tech Institutional Review Board, I have granted approval to the study for a period of 12 months, effective October 11, 2005.

Virginia Tech has an approved Federal Wide Assurance (FWA00000572, exp. 7/20/07) on file with OHRP, and its IRB Registration Number is IRB00000667.

## APPENDIX B

### Letter to School Division Superintendent

Dear [Division Superintendent/Designee],

I am a doctoral candidate at Virginia Polytechnic Institute and State University and would like to request permission to conduct research in your division. As Assistant Superintendent in Caroline County Public Schools, we continually look to find and implement the school practices that will be effective in improving student achievement.

The study is a web based, 48-statement questionnaire that asks 3<sup>rd</sup> grade teachers to identify their use of various classroom and school practices. The questionnaire is estimated to take no more than 15 minutes to complete. The practices are categorized into six domains: (a) curriculum alignment, (b) time and scheduling, (c) professional development, (d) use of data, (e) school culture, and (f) leadership. Data collected from the questionnaire will be correlated with published 2005 Virginia Standards of Learning test results in 3<sup>rd</sup> grade Reading/Literature. The practices used in the questionnaire have been identified by the Virginia Department of Education as best practices for improving student achievement. A number/alpha code will be used to identify schools and participants. No identifying information about you or your school will be used in the report of the study. The research will provide information on the practices that teachers believe have an effect on student achievement.

An application to conduct research is attached (if the division requires an application). Thank you for considering my request. If you need further information, please email me at [ratkins@caroline.k12.va.us](mailto:ratkins@caroline.k12.va.us) or call, 804-633-5088.

Sincerely,

Rosa S. Atkins

Virginia Tech Doctoral Candidate

## APPENDIX C

### Overview Telephone Script

- Good morning [principal's name]
- My name is Rosa Atkins, and I am a doctoral candidate at Virginia Tech and Assistant Superintendent in Caroline County. I am conducting research for my dissertation on school practices that affect student achievement. I would like to request permission to send information to your 3<sup>rd</sup> grade teachers. The Human Subjects Review Committee at Virginia Tech has approved the research. Your division has given me permission to seek your support.
- Your 3<sup>rd</sup> grade teachers will be asked to complete a 48-statement, web-based questionnaire about practices they may or may not use. The questionnaire should take less than 15 minutes to answer. (I will give examples of the questionnaire statements if necessary).
- At no time will your school or teachers be identified by name. A number/alpha code will be used to group the participants.
- [Principal gives permission to distribute the information]
- Thank you for agreeing to allow your teachers to receive information about the study.
- I will email you a letter that will restate the information we have just discussed. The letter will ask you [principal] to send me the email address for each of your 3<sup>rd</sup> grade teachers. I will then send a letter to the teachers.
- Again, thank you for your help.

APPENDIX D

Letter to Principal

TO: [Principal]  
FROM: Rosa S. Atkins  
Virginia Polytechnic Institute and State University  
Doctoral Candidate  
RE: School Practices Study  
DATE:

Thank you for agreeing to allow information about the School Practices Study to be distributed to your 3<sup>rd</sup> grade teachers. As we discussed during our phone conversation, the School Practices Questionnaire has 48 school practice statements. Teachers will be asked to indicate the level at which the practices are used. The questionnaire data will be correlated with the published spring 2005 Standards of Learning Reading/Literature test results for your school.

Please send to [ratkins@caroline.k12.va.us](mailto:ratkins@caroline.k12.va.us) the email address for each of your 3<sup>rd</sup> grade teachers. I will contact each teacher and ask him or her to participate in the study. My committee chair and I will be the only people who will have access to the data submitted by your teachers. Participant responses and participants will be grouped by school and grade level. A number will be used to identify schools and participants. When reporting the data, only aggregate information will be published. No identifying information about you or your school will be used in the report of the study. The Human Subjects Review Committee at Virginia Tech has approved the study. Again, thank you for your support of this study. If you have questions, please don't hesitate to email or call me at 804-633-5088.

APPENDIX E

Letter to Teacher

TO: 3<sup>rd</sup> Grade Teachers  
FROM: Rosa S. Atkins, Doctoral Candidate  
Virginia Polytechnic Institute and State University  
RE: School Practices and Student Achievement Study  
DATE:

I am a doctoral candidate at Virginia Polytechnic Institute and State University conducting a study on school practices. On [date], [principal's name] gave permission to contact you to request your input in the School Practices and Student Achievement Study. In 2000 the Virginia Department of Education (VDOE) identified several school practices that have a significant impact on student achievement. The practices identified by VDOE are reflected in this research. I request your input in the study. Your responses to the questionnaire will provide information that may be helpful to other teachers and school leaders in their efforts to facilitate student learning.

Please scroll down and read the Informed Consent information. After reading the information, if you agree to participate in the study, please click questionnaire web address under the submit section. Thank you for taking the time to consider this request. If you have questions or would like additional information, please contact me at [ratkins@caroline.k12.va.us](mailto:ratkins@caroline.k12.va.us) or 804-633-5088.

APPENDIX F  
Informed Consent  
for  
Participants in Research Involving Human Subjects

**Purpose of the Research**

The purpose of the study is to collect data from 3<sup>rd</sup> grade teachers about their use of school practices that affect student achievement. Teachers from throughout the Commonwealth will be involved. Teachers from ages 21 to 65, both male and female, from all ethnic groups will participate in the research.

**Procedures**

The population from which the sample will be selected is the 1,142 elementary schools in the Commonwealth of Virginia. The sample will be 148 randomly selected schools. The sample represents 13.3% of the population. All third grade teachers in the 148 schools will be asked to respond to a 48-statement questionnaire.

Once you agree to participate, you will be instructed to access the web address and complete the questionnaire. You will be instructed to rate the use of the 48 practices in your school. The data collected from the questionnaire will be correlated with published spring 2005 Standards of Learning Reading test results. The questionnaire may be completed in any setting with a computer that is connected to the Internet. The questionnaire can be completed in one 15-minute or less session. Descriptive statistics, multiple regression, and discriminant function analysis will be used to analyze the data.

**Risks**

There are minimum risks to the participants. There is a possibility that a participant may feel that he or she is not an effective teacher if the practices are not being used. On the other hand, if the practices are being used often, he or she may feel that he or she is an effective teacher. This questionnaire in no way will determine a teacher's effectiveness based on how much or how little he or she uses the practices.

**Benefits**

Schools and school divisions may use the results to structure professional development programs. Teachers and school leaders may find the information from the study helpful in facilitating student learning. No promise or guarantee of benefits has been made to anyone to encourage them to participate.

**Extent of Anonymity and Confidentiality**

Only the investigator and her advisor/committee chair will have access to the data. Participant responses will be grouped by school and grade level. A code will be used to identify each participant. An alpha code will be paired with the school number—e.g., 1A, 1B, 1C, 2A, 2B, 2C, etc.--to identify the participant at each school. The number will represent the school and the alpha designation will represent the participant at the school. This number/alpha code will help the researcher monitor the number of schools and participants in the study. Only numbers and paired number alpha codes on forms and reports will identify the schools and respondents. When reporting data, only aggregate information will be published.

### **Compensation**

No monetary or material compensation will be offered to respondents for their participation in the study. Participation will be solely based on the individual's willingness to voluntarily complete the questionnaire.

### **Freedom to Withdraw**

Participants are free to withdraw at anytime during the study without penalty. Participants are also free not to answer any question they choose without penalty.

### **Subject's Responsibilities**

If you agree to participate in the study, your responsibility is to provide, to the best of your ability, accurate responses to the questionnaire statements.

### **Subject's Permission**

SUBMIT – I have read and understand the Informed Consent and conditions of this study. I have had all my questions answered. By clicking on the web address below, I consent to participation in the study. Please use the following **Study Code, 1A1** when asked on the questionnaire to record your study code.

<https://questionnaire.vt.edu/questionnaire/entry.jsp?id=1112191675059>

## APPENDIX G

### Compiled Practices and Domains

#### **1. Curriculum Alignment (9 items)**

2. I align assessments with the curriculum I teach.
30. My assessments reflect SOL essential knowledge and skills.
32. I use a variety of assessments to measure student progress.
37. I use the SOL Blueprint to plan for pacing my instruction
39. I use the curriculum guide from my school division.
40. I use the pacing guide provided by my school for the courses I teach.
42. I use instructional strategies that reinforce student effort.
52. I check the alignment of supplemental materials with the SOLs.
86. I use the SOL Blueprint to plan for instruction.

#### **2. Time and Scheduling (15 items)**

1. I use whole group instructional practices in my classroom.
3. I use note taking instructional strategies in my classroom.
4. I use the entire scheduled time engaging students in learning.
7. The academic focus in my classroom is protected from PA interruptions.
23. The master schedule for my school maximizes instructional time in all subject areas.
24. The master schedule for my school allows for remediation during the instructional day.
25. My classroom time is protected from interruptions.
29. I use small group instructional strategies in my classroom.
31. I use independent seatwork as an instructional strategy in my classroom.
54. Students arrive to and depart from my class in a manner that allows me to use the entire allotted class time in learning activities.
55. I use specific strategies to minimize student disruptions during lessons.
56. The academic focus in my classroom is protected from interruptions caused by pull-out programs.
57. The time in my classroom is protected from interruptions caused by discipline issues.
58. The master schedule provides time for department or grade-level planning.
80. I use cooperative learning instructional strategies in my classroom.

#### **3. Use of Data (8 items)**

6. I use data to make instructional decisions about remediation for my students.

- 27. I use data to make decisions about instructional strategies.
- 45. I analyze SOL test data.
- 46. I use the analyses of SOL test data to make instructional decisions.
- 47. I use student attendance data to make instructional decisions.
- 51. I use data to plan classroom instruction.
- 83. I use data to make decisions about instructional activities.
- 87. I use assessments on a regular basis to monitor student progress.

#### **4. Professional Development (11 items)**

- 5. I have been trained to analyze the results of weekly assessments that I administer to my students.
- 8. I have been trained to use student achievement data to modify the pacing of my instruction.
- 9. I had the opportunity to participate in peer modeling.
- 14. I had the opportunity to participate in collaborative planning for instructional issues.
- 15. I participated in professional development in core content areas.
- 16. I participated in professional development in effective instructional strategies.
- 26. I have been trained to analyze and use student discipline data.
- 33. I participated in professional development on curriculum alignment.
- 34. I participated in professional development on higher level thinking skills.
- 65. I have been trained to use assessment results that have been disaggregated by strands.
- 66. I have input into the types of professional development I receive.

#### **5. School Culture (29 items)**

- 10. I had the opportunity to participate in collaborative problem solving.
- 11. Teachers are enthusiastic about helping students in my school.
- 12. A strong emphasis is placed on collaboration in my school.
- 13. A strong emphasis is placed on shared decision making in my school.
- 18. New teachers in my school are mentored.
- 19. New teachers in my school are made to feel a part of the school community.
- 20. School staff takes an active role in improving services to students.
- 21. Instruction in my school is student centered.
- 22. Teachers are involved in the instructional decision-making process in my school.
- 43. I use instructional strategies that provide student recognition.
- 44. I provide opportunities for students to take tests similar in design to the SOL tests.

48. Beyond regularly scheduled parent conferences and report cards, I communicate with parents about their child's progress.
50. Students in my school are comfortable asking the administrative staff for help.
59. Teachers in my school support each other.
60. Teachers in my school regularly monitor student progress.
61. Students in my school receive support from staff when they have problems.
63. There is a common vision in my school.
64. There are clearly identified priorities in my school.
67. Staff in my school takes an active role in improving services to students.
69. Staff in my school communicates good news to parents about their children.
70. Parents in my school feel comfortable expressing concerns about their children.
71. Professional staff in my school deals with conflict.
73. Teachers in my school meet in teams to plan for the instructional needs of students.
74. All students in my school are expected to succeed.
75. All students in my school are expected to be well behaved.
76. My principal maintains a safe environment for students.
77. A positive feeling permeates my school.
79. Students in my school are treated with respect.
89. The school building is maintained in a clean fashion.

#### **6. Leadership (18 items)**

17. The principal takes an active leadership role in directing instruction.
28. My Principal analyzes classroom practices for improvement of instruction.
35. My principal participates in team meetings.
36. Leadership functions are shared by school staff.
38. My principal effectively allocates human resources.
41. My principal protects instructional time from interruptions.
49. My principal manages personnel issues.
53. My principal effectively allocates financial resources.
62. My principal enforces the Student Code of Conduct.
68. My principal encourages collaboration among teachers.
72. The administrative staff helps teachers make sound decisions by providing timely information.
78. My principal manages instructional issues.

81. My principal reduces the amount of time students are out of class for reasons other than instruction.
82. My principal directs appropriate remediation programs.
84. My principal evaluates the quality of instruction.
85. My principal ensures that professional development activities that are designed to raise student achievement are implemented.
88. My principal reduces teacher clerical tasks.
90. My principal gives teachers meaningful feedback about instructional practices.

APPENDIX H

Content Validation Questionnaire

**School Level Practices and Student Achievement**

**Domains:**

Domains for school level practices.

- (1) Curriculum Alignment      (3) Use of Data      (5) School Culture  
 (2) Use of Time and Scheduling   (4) Professional Development   (6) Leadership

**Association Ratings:** 1= Very weak, 2 = Weak, 3 = Strong, 4 = Very strong

**Clarity Ratings:** 1 = Very unclear, delete; 2 = Somewhat clear, revise; and 3 = Clear, leave as written

**(For any items you rate as 1 or 2 for clarity or association, please write your suggestions for improvement directly on this page.)**

Practices	Domains	Association	Clarity
1. I use whole group instructional practices in my classroom.	1 2 3 4 5 6	1 2 3 4	1 2 3
2. I align assessments with the curriculum I teach.	1 2 3 4 5 6	1 2 3 4	1 2 3
3. I use note taking instructional strategies in my classroom.	1 2 3 4 5 6	1 2 3 4	1 2 3
4. I use the entire scheduled time for instruction engaging students in learning.	1 2 3 4 5 6	1 2 3 4	1 2 3
5. I have been trained to analyze the results of weekly assessments that I administer to my students.	1 2 3 4 5 6	1 2 3 4	1 2 3
6. I use data to make instructional decisions about remediation for my students.	1 2 3 4 5 6	1 2 3 4	1 2 3
7. The academic focus in my classroom is protected from PA interruptions.	1 2 3 4 5 6	1 2 3 4	1 2 3
8. I have been trained to use student achievement data to modify the pacing of my instruction.	1 2 3 4 5 6	1 2 3 4	1 2 3
9. I had the opportunity to participate in peer modeling.	1 2 3 4 5 6	1 2 3 4	1 2 3

<b>Practices</b>	<b>Domains</b>	<b>Association</b>	<b>Clarity</b>
10. I had the opportunity to participate in collaborative problem solving.	1 2 3 4 5 6	1 2 3 4	1 2 3
11. Teachers are enthusiastic about helping students in my school.	1 2 3 4 5 6	1 2 3 4	1 2 3
12. A strong emphasis is placed on collaboration in my school.	1 2 3 4 5 6	1 2 3 4	1 2 3
13. A strong emphasis is placed on shared decision making in my school.	1 2 3 4 5 6	1 2 3 4	1 2 3
14. I had the opportunity to participate in collaborative planning for instructional issues.	1 2 3 4 5 6	1 2 3 4	1 2 3
15. I participated in professional development in core content areas.	1 2 3 4 5 6	1 2 3 4	1 2 3
16. I participated in professional development in effective instructional strategies.	1 2 3 4 5 6	1 2 3 4	1 2 3
17. The principal takes an active leadership role in directing instruction.	1 2 3 4 5 6	1 2 3 4	1 2 3
18. New teachers in my school are mentored.	1 2 3 4 5 6	1 2 3 4	1 2 3
19. New teachers in my school are made to feel a part of the school community.	1 2 3 4 5 6	1 2 3 4	1 2 3
20. School staff takes an active role in improving services to students.	1 2 3 4 5 6	1 2 3 4	1 2 3
21. Instruction in my school is student centered.	1 2 3 4 5 6	1 2 3 4	1 2 3
22. Teachers are involved in the instructional decision-making process in my school.	1 2 3 4 5 6	1 2 3 4	1 2 3
23. The master schedule for my school maximizes instructional time in all subject areas.	1 2 3 4 5 6	1 2 3 4	1 2 3
24. The master schedule for my school allows for remediation during the instructional day	1 2 3 4 5 6	1 2 3 4	1 2 3
25. The academic focus in my classroom is protected from interruptions by assemblies.	1 2 3 4 5 6	1 2 3 4	1 2 3
26. I have been trained to analyze and use student discipline data.	1 2 3 4 5 6	1 2 3 4	1 2 3

<b>Practices</b>	<b>Domains</b>	<b>Association</b>	<b>Clarity</b>
27. I use data to make decisions about instructional strategies.	1 2 3 4 5 6	1 2 3 4	1 2 3
28. My principal analyzes classroom practices for improvement of instruction.	1 2 3 4 5 6	1 2 3 4	1 2 3
29. I use small group instructional strategies in my classroom.	1 2 3 4 5 6	1 2 3 4	1 2 3
30. My assessments reflect SOL essential knowledge and skills.	1 2 3 4 5 6	1 2 3 4	1 2 3
31. I use independent seatwork as an instructional strategy in my classroom.	1 2 3 4 5 6	1 2 3 4	1 2 3
32. I use a variety of assessments to measure student progress.	1 2 3 4 5 6	1 2 3 4	1 2 3
33. I participated in professional development on curriculum alignment.	1 2 3 4 5 6	1 2 3 4	1 2 3
34. I participated in professional development on higher level thinking skills.	1 2 3 4 5 6	1 2 3 4	1 2 3
35. My principal participates in team meetings.	1 2 3 4 5 6	1 2 3 4	1 2 3
36. Leadership functions are shared by school staff.	1 2 3 4 5 6	1 2 3 4	1 2 3
37. I use the SOL Blueprint to plan for pacing my instruction.	1 2 3 4 5 6	1 2 3 4	1 2 3
38. My principal effectively allocates human resources.	1 2 3 4 5 6	1 2 3 4	1 2 3
39. I use the curriculum guide from my school division.	1 2 3 4 5 6	1 2 3 4	1 2 3
40. I use the pacing guide provided by my school for the courses I teach.	1 2 3 4 5 6	1 2 3 4	1 2 3
41. My principal protects instructional time from interruptions.	1 2 3 4 5 6	1 2 3 4	1 2 3
42. I use instructional strategies that reinforce student effort.	1 2 3 4 5 6	1 2 3 4	1 2 3
43. I use instructional strategies that provide student recognition.	1 2 3 4 5 6	1 2 3 4	1 2 3

<b>Practices</b>	<b>Domains</b>	<b>Association</b>	<b>Clarity</b>
44. I provide opportunities for students to take tests similar in design to the SOL tests.	1 2 3 4 5 6	1 2 3 4	1 2 3
45. I analyze SOL test data.	1 2 3 4 5 6	1 2 3 4	1 2 3
46. I use the analyses of SOL test data to make instructional decisions.	1 2 3 4 5 6	1 2 3 4	1 2 3
47. I use student attendance data to make instructional decisions.	1 2 3 4 5 6	1 2 3 4	1 2 3
48. Beyond regularly scheduled parent conferences and report cards, I communicate with parents about their child's progress.	1 2 3 4 5 6	1 2 3 4	1 2 3
49. My principal manages personnel issues.	1 2 3 4 5 6	1 2 3 4	1 2 3
50. Students in my school are comfortable asking the administrative staff for help.	1 2 3 4 5 6	1 2 3 4	1 2 3
51. I use data to plan classroom instruction.	1 2 3 4 5 6	1 2 3 4	1 2 3
52. I check the alignment of supplemental materials with the SOLs.	1 2 3 4 5 6	1 2 3 4	1 2 3
53. My principal effectively allocates financial resources.	1 2 3 4 5 6	1 2 3 4	1 2 3
54. Students arrive to and depart from my class in a manner that allows students to be engaged in learning activities for the entire allotted time.	1 2 3 4 5 6	1 2 3 4	1 2 3
55. I use specific strategies to minimize student disruptions during lessons.	1 2 3 4 5 6	1 2 3 4	1 2 3
56. The academic focus in my classroom is protected from interruptions caused by pull-out programs.	1 2 3 4 5 6	1 2 3 4	1 2 3
57. The academic focus in my classroom is protected from interruptions caused by discipline issues.	1 2 3 4 5 6	1 2 3 4	1 2 3
58. The master schedule provides time for department or grade-level planning.	1 2 3 4 5 6	1 2 3 4	1 2 3
59. Teachers in my school support each other.	1 2 3 4 5 6	1 2 3 4	1 2 3
60. Teachers in my school regularly monitor student progress.	1 2 3 4 5 6	1 2 3 4	1 2 3

<b>Practices</b>	<b>Domains</b>	<b>Association</b>	<b>Clarity</b>
61. Students in my school receive support from staff when they have problems.	1 2 3 4 5 6	1 2 3 4	1 2 3
62. My principal enforces the Student Code of Conduct.	1 2 3 4 5 6	1 2 3 4	1 2 3
63. There is a common vision in my school.	1 2 3 4 5 6	1 2 3 4	1 2 3
64. There are clearly identified priorities in my school.	1 2 3 4 5 6	1 2 3 4	1 2 3
65. I have been trained to use assessment results that have been disaggregated by strands.	1 2 3 4 5 6	1 2 3 4	1 2 3
66. I have input into the types of professional development I receive.	1 2 3 4 5 6	1 2 3 4	1 2 3
67. Staff in my school takes an active role in improving services to students.	1 2 3 4 5 6	1 2 3 4	1 2 3
68. My principal encourages collaboration among teachers.	1 2 3 4 5 6	1 2 3 4	1 2 3
69. Staff in my school communicates good news to parents about their children.	1 2 3 4 5 6	1 2 3 4	1 2 3
70. Parents in my school feel comfortable expressing concerns about their children.	1 2 3 4 5 6	1 2 3 4	1 2 3
71. Professional staff in my school deals with conflict.	1 2 3 4 5 6	1 2 3 4	1 2 3
72. The administrative staff helps teachers make sound decisions by providing timely information.	1 2 3 4 5 6	1 2 3 4	1 2 3
73. Teachers in my school meet in teams to plan for the instructional needs of students.	1 2 3 4 5 6	1 2 3 4	1 2 3
74. All students in my school are expected to succeed.	1 2 3 4 5 6	1 2 3 4	1 2 3
75. All students in my school are expected to be well behaved.	1 2 3 4 5 6	1 2 3 4	1 2 3
76. My principal promotes and maintains a safe environment for students.	1 2 3 4 5 6	1 2 3 4	1 2 3
77. A positive feeling permeates my school	1 2 3 4 5 6	1 2 3 4	1 2 3
78. My principal manages instructional issues.	1 2 3 4 5 6	1 2 3 4	1 2 3

<b>Practices</b>	<b>Domains</b>	<b>Association</b>	<b>Clarity</b>
79. Students in my school are treated with respect.	1 2 3 4 5 6	1 2 3 4	1 2 3
80. I use cooperative learning instructional strategies in my classroom.	1 2 3 4 5 6	1 2 3 4	1 2 3
81. My principal reduces the amount of time students are out of class for reasons other than instruction.	1 2 3 4 5 6	1 2 3 4	1 2 3
82. My principal directs appropriate remediation programs.	1 2 3 4 5 6	1 2 3 4	1 2 3
83. I use data to make decisions about instructional activities.	1 2 3 4 5 6	1 2 3 4	1 2 3
84. My principal monitors and evaluates the quality of instruction.	1 2 3 4 5 6	1 2 3 4	1 2 3
85. My principal ensures that professional development activities that are designed to raise student achievement are implemented.	1 2 3 4 5 6	1 2 3 4	1 2 3
86. I use the SOL Blueprint to plan for instruction.	1 2 3 4 5 6	1 2 3 4	1 2 3
87. I use assessments on a regular basis to monitor student progress.	1 2 3 4 5 6	1 2 3 4	1 2 3
88. My principal reduces teacher clerical tasks.	1 2 3 4 5 6	1 2 3 4	1 2 3
89. The school building is maintained in a neat and clean fashion.	1 2 3 4 5 6	1 2 3 4	1 2 3
90. My principal gives teachers meaningful feedback about instructional practices.	1 2 3 4 5 6	1 2 3 4	1 2 3

APPENDIX I

Numbers and Percentages of Experts Classifying Items into Domains

**Table II: Numbers and Percentages of Experts Classifying Items into Domains of School Practices, N=43**

		Domains											
		Curriculum alignment 1		Time and scheduling 2		Use of data 3		Professional development 4		School culture 5		Leadership 6	
Item #	Expected domain	n	%	n	%	n	%	n	%	n	%	n	%
1	2	5	11.6	38	88.4								
2	1	38	88.4			5.0	11.5						
3	2	1	2.3	37	86.0	2.0	4.7	3	7.0				
4	2	3	7.0	39	90.7			1	2.3				
5	4	3	7.0			4.0	9.3	36	83.7				
6	3	2	4.7	1.0	2.3	39	90.7					1	2.3
7	2	1	2.3	36	83.7	1	2.3			2	4.7	3	7.0
8	4	1	2.3	3	7.0			39	90.7				
9	4	2	4.7					39	90.7	2	4.7		
10	5					1	2.3	26	65.1	11	25.6	3	7.0
11	5									41	95.3	2	4.7
12	5	1	2.3							37	86.0	5	11.6
13	5									37	86.0	6	14.0
14	4			1	2.3			39	90.7	3	7.0		
15	4	2	4.7					39	90.7	2	4.7		

Note: Items are in Appendix H.

(table continues)

Domains													
Item #	Expected domain	Curriculum alignment		Time and scheduling		Use of data		Professional development		School culture		Leadership	
		1	2	1	2	3	4	5	6				
		<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
16	4	1	2.3	1	2.3			39	90.7	2	4.7		
17	6											43	100
18	5							3	7.0	39	90.7	1	2.3
19	5									38	88.4	5	11.6
20	5	1	2.3	1	2.3			2	4.7	38	88.4	1	2.3
21	5	2	4.7	1	2.3					38	88.4	2	4.7
22	5									40	93.0	3	7.0
23	2	1	2.3	36	83.7			1	2.3	1	2.3	4	9.3
24	2	1	2.3	39	90.7							3	7.0
25	2	2	4.7	36	83.7					2	4.7	3	7.0
26	4					36	86.0	5	11.6			1	2.3
27	3	2	4.7			40	93.0	1	2.3				
28	6	1	2.3			2	4.7					40	93.0
29	2	1	2.3	38	88.4			3	7.0	1	2.3		
30	1	38	88.4			5	11.6						
31	2	6	14.0	28	65.1			7	16.3	2	4.7		
32	1	37	86.0	1	2.3	5	11.6						

Note: Items are in Appendix H.

(table continues)

		<b>Domains</b>											
		Curriculum alignment		Time and scheduling		Use of data		Professional development		School culture		Leadership	
		1		2		3		4		5		6	
Item #	Expected domain	n	%	n	%	n	%	n	%	n	%	n	%
33	4	5	11.6					38	88.4				
34	4							42	97.7			1	2.3
35	6									5	11.6	38	88.4
36	6									16	37.2	27	62.8
37	1	36	83.7			7	16.3						
38	6											43	100.0
39	1	38	88.4	2	4.7	2	4.7	1	2.3				
40	1	38	88.4	3	7.0	1	2.3	1	2.3				
41	6			6	14.0							37	86.0
42	1	30	69.8	8	18.6	1	2.3	1	2.3	3	7.0		
43	5			2	3.7			1	2.3	40	93.0		
44	5	33	76.7	3	7.0	4	9.3	3	7.0				
45	3					43	100.0						
46	3	2	4.7	1	2.3	39	90.7	1	2.3				
47	3	1	2.3			39	90.7	2	4.7	1	2.3		
48	5			2	4.7					40	93.0	1	2.3

Note: Items are in Appendix H.

(table continues)

		<b>Domains</b>											
		Curriculum alignment		Time and scheduling		Use of data		Professional development		School culture		Leadership	
		1		2		3		4		5		6	
Item #	Expected domain	n	%	n	%	n	%	n	%	n	%	n	%
49	6			1	2.3					1	2.3	41	95.3
50	5									39	90.7	4	9.3
51	3	2	4.7	1	2.3	38	88.4	1	2.3			1	2.3
52	1	40	93	1	2.3	2	4.7						
53	6									5	11.6	38	88.4
54	2	2	4.7	36	83.7			1	2.3	4	9.3		
55	2	1	2.3	36	83.7			3	7.0	3	7.0		
56	2	1	2.3	36	83.7					2	4.7	4	9.3
57	2	1	2.3	37	86.0			1	2.3	2	4.7	2	4.7
58	2	2	4.7	35	81.4			1	2.3	3	7.0	2	4.7
59	5							1	2.3	42	97.7		
60	5	2	4.7					1	2.3	40	93.0		
61	5					1	2.3			40	93.0	2	4.7
62	6	1	2.3							4	9.3	38	88.4
63	5									39	90.7	4	9.3
64	5									37	86	6	14.0

Note: Items are in Appendix H.

(table continues)

		<b>Domains</b>											
		Curriculum alignment		Time and scheduling		Use of data		Professional development		School culture		Leadership	
		1		2		3		4		5		6	
Item #	Expected domain	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
65	4					6	14.0	37	86.0				
66	4							37	86.0	2	4.7	4	9.3
67	5			1	2.3			1	2.3	38	88.4	3	7.0
68	6									3	7.0	40	93.0
69	5					1	2.3			41	95.3		
70	5					1	2.3			41	95.3	1	2.3
71	5			1	2.3			2	4.7	30	69.8	10	23.3
72	6			1	2.3							42	97.7
73	5			3	7.0			1	2.3	38	88.4	1	2.3
74	5									41	95.3	2	4.7
75	5							1	2.3	40	93.0	2	4.7
76	5							1	2.3	7	16.3	35	81.4
77	5									41	95.3	2	4.7
78	6									1	2.3	42	97.7
79	5							1	2.3	39	90.7	3	7.0
80	2	12	27.9	17	39.5			13	30.2	1	2.3		

Note: Items are in Appendix H.

(table continues)

		<b>Domains</b>											
		Curriculum alignment		Time and scheduling		Use of data		Professional development		School culture		Leadership	
		1		2		3		4		5		6	
Item #	Expected domain	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
81	6												
82	6	3	7.0	1	2.3							39	90.7
83	3	1	2.3			41	95.3	1	2.3				
84	6	2	4.7			1	2.3	1	2.3			39	90.7
85	6							10	23.3			33	76.7
86	1	38	88.4			5	11.6						
87	3	5	11.6			37	86.0	1	2.3				
88	6	6	14.0									37	86.0
89	5									39	90.7	4	9.3
90	6	1	2.3					1	2.3	2	4.7	39	90.7

Note: Items are in Appendix H.

APPENDIX J

Association and Clarity of Items Determined by Experts

Item #	Expected domain association <sup>a</sup>			Expected domain clarity		
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>
1. Time and Scheduling	38	3.92	.27	38	2.92	.38
2. Curriculum Alignment	38	3.89	.31	38	2.97	.16
3. Time and Scheduling	37	3.84	.44	37	2.95	.23
4. Time and Scheduling	39	3.95	.22	39	2.97	.16
5. Professional Development	36	3.83	.45	36	2.97	.17
6. Use of Data	39	3.79	.52	39	2.90	.38
7. Time and Scheduling	36	3.86	.35	36	2.89	.40
8. Professional Development	39	3.85	.49	39	2.95	.22
9. Professional Development	39	3.90	.31	39	2.97	.16
10. School Culture	NA	NA	NA	NA	NA	NA
11. School Culture	41	3.85	.42	41	2.95	.22
12. School Culture	37	3.84	.55	37	2.96	.23
13. School Culture	37	3.89	.39	37	2.92	.36
14. Professional Development	39	3.97	.16	39	2.97	.16
15. Professional Development	39	3.85	.43	39	2.97	.16
16. Professional Development	39	4.00	.00	39	2.97	.16
17. Leadership	43	4.00	.00	43	3.00	.00
18. School Culture	39	3.97	.16	39	2.95	.22
19. School Culture	38	3.89	.31	38	2.97	.16
20. School Culture	38	3.95	.32	38	2.97	.16
21. School Culture	38	3.95	.23	38	2.97	.16
22. School Culture	40	3.87	.33	40	2.95	.32
23. Time and Scheduling	36	3.89	.32	36	2.97	.17
24. Time and Scheduling	39	3.90	.38	39	2.97	.16
25. Time and Scheduling	36	3.89	.40	36	2.97	.17
26. Professional Development	NA	NA	NA	NA	NA	NA
27. Use of Data	40	3.93	.35	40	2.95	.22
28. Leadership	40	3.93	.27	40	2.95	.22
29. Time and Scheduling	38	3.89	.39	38	2.97	.16

30. Curriculum Alignment	38	3.89	.39	38	2.97	.16
31. Time and Scheduling	NA	NA	NA	NA	NA	NA
32. Curriculum Alignment	37	3.89	.31	37	2.95	.33
33. Professional Development	38	3.89	.39	38	2.92	.27
34. Professional Development	43	3.92	.27	43	2.95	.33
35. Leadership	38	3.97	.16	38	2.95	.23
36. Leadership	NA	NA	NA	NA	NA	NA
37. Curriculum Alignment	36	3.97	.17	36	2.97	.17
38. Leadership	43	3.93	.26	43	2.95	.21
39. Curriculum Alignment	38	3.95	.23	38	2.95	.23
40. Curriculum Alignment	38	3.92	.27	38	2.95	.23
41. Leadership	37	3.95	.23	37	3.00	.00
42. Curriculum Alignment	NA	NA	NA	NA	NA	NA
43. School Culture	40	3.88	.40	40	2.95	.22
44. School Culture	NA	NA	NA	NA	NA	NA
45. Use of Data	43	3.95	.21	43	2.95	.21
46. Use of Data	39	3.95	.22	39	2.95	.22
47. Use of Data	39	3.92	.27	39	2.97	.16
48. School Culture	40	3.90	.38	40	2.95	.22
49. Leadership	41	3.88	.40	41	2.95	.31
50. School Culture	39	3.87	.41	39	2.92	.27
51. Use of Data	38	3.97	.16	38	2.97	.16
52. Curriculum Alignment	40	3.92	.27	40	2.92	.27
53. Leadership	38	3.91	.29	38	2.91	.29
54. Time and Scheduling	36	3.94	.33	36	2.97	.17
55. Time and Scheduling	36	3.89	.32	36	2.94	.23
56. Time and Scheduling	36	3.92	.28	36	2.92	.28
57. Time and Scheduling	37	3.92	.36	37	2.97	.16
58. Time and Scheduling	35	3.89	.32	35	2.94	.24
59. School Culture	42	3.86	.42	42	2.90	.30
60. School Culture	40	3.95	.22	40	2.98	.16
61. School Culture	40	3.88	.40	40	3.00	.00
62. Leadership	38	3.97	.16	38	2.87	.34

63. School Culture	39	3.92	.27	39	2.92	.27
64. School Culture	37	3.89	.31	37	2.97	.16
65. Professional Development	37	4.00	.00	37	2.89	.46
66. Professional Development	37	3.92	.36	37	2.95	.23
67. School Culture	38	3.97	.16	38	2.92	.27
68. Leadership	40	3.93	.27	40	2.92	.27
69. School Culture	41	3.90	.37	41	2.95	.22
70. School Culture	41	3.95	.22	41	2.93	.26
71. School Culture	NA	NA	NA	NA	NA	NA
72. Leadership	42	3.90	.37	42	2.95	.22
73. School Culture	38	3.89	.39	38	2.97	.16
74. School Culture	41	3.95	.22	41	2.95	.22
75. School Culture	40	3.95	.22	40	2.98	.16
76. School Culture	NA	NA	NA	NA	NA	NA
77. School Culture	41	3.95	.22	41	3.00	.00
78. Leadership	42	3.95	.22	42	2.90	.30
79. School Culture	39	3.87	.41	39	3.00	.00
80. Time and Scheduling	NA	NA	NA	NA	NA	NA
81. Leadership	NA	NA	NA	NA	NA	NA
82. Leadership	39	3.95	.22	39	2.92	.35
83. Use of data	41	3.85	.48	41	2.90	.30
84. Leadership	39	3.90	.31	39	2.85	.37
85. Leadership	NA	NA	NA	NA	NA	NA
86. Curriculum Alignment	38	3.92	.27	38	2.89	.39
87. Use of Data	37	3.84	.50	37	2.92	.28
88. Leadership	37	3.89	.31	37	2.86	.42
89. School Culture	39	3.92	.35	39	2.87	.41
90. Leadership	39	3.87	.41	39	2.85	.43

*Note.* NA =Not applicable. The item was dropped because it did not meet the 80% criterion for correct placement within the expected domain.

<sup>a</sup>The strength of association and clarity were calculated on data from those who placed the item in the expected domain.

APPENDIX K  
 Items that Did Not Meet Criteria  
 for  
 Inclusion in Questionnaire (First Elimination)

Item #	School practice	Expected domain
10	I had the opportunity to participate in collaborative problem solving.	School Culture
26	I have been trained to analyze and use student discipline data.	Professional Development
31	I use independent seatwork as an instructional strategy in my classroom.	Time and Scheduling
36	Leadership functions are shared by school staff.	Leadership
42	I use strategies that reinforce student effort.	Curriculum Alignment
44	I provide opportunities for students to take tests similar in design to the SOL tests.	School Culture
71	Professional staff in my school deals with conflict.	School Culture
76	My principal maintains a safe environment for students.	School Culture
80	I use cooperative learning instructional strategies in my classroom.	Time and Scheduling
81	My principal reduces the amount of time students are out of the classroom for reasons other than instruction.	Leadership
85	My principal ensures that professional development activities that are designed to raise student achievement are implemented.	Leadership

## APPENDIX L

### Items that Met Criteria for Inclusion in School Practices Questionnaire

#### **1. Curriculum Alignment (8 items)**

- 2. I align assessments with the curriculum I teach.
- 30. My assessments reflect SOL essential knowledge and skills.
- 32. I use a variety of assessments to measure student progress.
- 37. I use the SOL Blueprint to plan for pacing my instruction
- 39. I use the curriculum guide from my school division.
- 40. I use the pacing guide provided by my school for the courses I teach.
- 52. I check the alignment of supplemental materials with the SOLs.
- 86. I use the SOL Blueprint to plan for instruction.

#### **2. Time and Scheduling (13 items)**

- 1. I use whole group instructional practices in my classroom.
- 3. I use note taking instructional strategies in my classroom.
- 4. I use the entire scheduled time engaging students in learning.
- 7. The academic focus in my classroom is protected from PA interruptions.
- 23. The master schedule for my school maximizes instructional time in all subject areas.
- 24. The master schedule for my school allows for remediation during the instructional day.
- 25. My classroom time is protected from interruptions.
- 29. I use small group instructional strategies in my classroom.
- 54. Students arrive to and depart from my class in a manner that allows me to use the entire allotted class time in learning activities.
- 55. I use specific strategies to minimize student disruptions during lessons.
- 56. The academic focus in my classroom is protected from interruptions caused by pullout programs.
- 57. The time in my classroom is protected from interruptions caused by discipline issues.
- 58. The master schedule provides time for department or grade-level planning.

#### **3. Use of Data (8 items)**

- 6. I use data to make instructional decisions about remediation for my students.
- 27. I use data to make decisions about instructional strategies.
- 45. I analyze SOL test data.
- 46. I use the analyses of SOL test data to make instructional decisions.
- 47. I use student attendance data to make instructional decisions.

- 51. I use data to plan classroom instruction.
- 83. I use data to make decisions about instructional activities.
- 87. I use assessments on a regular basis to monitor student progress.

#### **4. Professional Development (10 items)**

- 5. I have been trained to analyze the results of weekly assessments that I administer to my students.
- 8. I have been trained to use student achievement data to modify the pacing of my instruction.
- 9. I had the opportunity to participate in peer modeling.
- 14. I had the opportunity to participate in collaborative planning for instructional issues.
- 15. I participated in professional development in core content areas.
- 16. I participated in professional development in effective instructional strategies.
- 33. I participated in professional development on curriculum alignment.
- 34. I participated in professional development on higher level thinking skills.
- 65. I have been trained to use assessment results that have been disaggregated by strands.
- 66. I have input into the types of professional development I receive.

#### **5. School Culture (25 items)**

- 11. Teachers are enthusiastic about helping students in my school.
- 12. A strong emphasis is placed on collaboration in my school.
- 13. A strong emphasis is placed on shared decision making in my school.
- 18. New teachers in my school are mentored.
- 19. New teachers in my school are made to feel a part of the school community.
- 20. School staff takes an active role in improving services to students.
- 21. Instruction in my school is student centered.
- 22. Teachers are involved in the instructional decision-making process in my school.
- 43. I use instructional strategies that provide student recognition.
- 48. Beyond regularly scheduled parent conferences and report cards, I communicate with parents about their child's progress.
- 50. Students in my school are comfortable asking the administrative staff for help.
- 59. Teachers in my school support each other.
- 60. Teachers in my school regularly monitor student progress.
- 61. Students in my school receive support from staff when they have problems.
- 63. There is a common vision in my school.
- 64. There are clearly identified priorities in my school.
- 67. Staff in my school takes an active role in improving services to students.

- 69. Staff in my school communicates good news to parents about their children.
- 70. Parents in my school feel comfortable expressing concerns about their children.
- 73. Teachers in my school meet in teams to plan for the instructional needs of students.
- 74. All students in my school are expected to succeed.
- 75. All students in my school are expected to be well behaved.
- 77. A positive feeling permeates my school
- 79. Students in my school are treated with respect.
- 89. The school building is maintained in a clean fashion.

**6. Leadership (15 items)**

- 17. The principal takes an active leadership role in directing instruction.
- 28. My principal analyzes classroom practices for improvement of instruction
- 35. My principal participates in team meetings.
- 38. My principal effectively allocates human resources.
- 41. My principal protects instructional time from interruptions.
- 49. My principal manages personnel issues.
- 53. My principal effectively allocates financial resources.
- 62. My principal enforces the Student Code of Conduct.
- 68. My principal encourages collaboration among teachers.
- 72. The administrative staff helps teachers make sound decisions by providing timely information.
- 78. My principal manages instructional issues.
- 82. My principal directs appropriate remediation programs.
- 84. My principal evaluates the quality of instruction.
- 88. My principal reduces teacher clerical tasks.
- 90. My principal gives teachers meaningful feedback about instructional practices.

APPENDIX M

Items that Did Not Meet the Criteria for  
Inclusion in the School Practices Questionnaire (Second Elimination)

Domain	Item #	School practice
Time and Scheduling	23	The master schedule for my school maximizes instructional time in all subject areas.
	54	Students arrive to and depart from my class in a manner that allows me to use the entire allotted class time in learning activities.
	55	I use specific strategies to minimize student disruptions during lessons.
	56	The academic focus in my classroom is protected from interruptions caused by pullout programs.
	58	The master schedule provides time for department or grade-level planning.
Professional Development	5	I have been trained to analyze the results of weekly assessments that I administer to my students.
	66	I have input into the types of professional development I receive.
School Culture	12	A strong emphasis is placed on collaboration in my school.
	13	A strong emphasis is placed on shared decision making in my school.
	18	New teachers in my school are mentored.
	19	New teachers in my school are made to feel a part of the school community.
	20	School staff takes an active role in improving services to students.
	21	Instruction in my school is school centered.
	48	Beyond regularly scheduled parent conferences and report cards, I communicate with parents about their child's progress.
School Culture	50	Students in my school are comfortable asking the administrative staff for help.
	60	Teachers in my school regularly monitor student progress.
	61	Students in my school receive support from staff when they have problems.

Domain	Item #	School practice
	63	There is a common vision in my school.
	64	There are clearly identified priorities in my school.
	67	Staff in my school takes an active role in improving services to students
	73	Teachers in my school meet in teams to plan for the instructional needs of students.
	75	All students in my school are expected to be well behaved.
	79	Students in my school are treated with respect.
	89	The school building is maintained in a clean fashion.
Leadership	35	My principal participates in team meetings.
	41	My principal protects instructional time from interruptions.
	53	My principal effectively allocates financial resources.
	62	My principal enforces the Student Code of Conduct.
	82	My principal directs appropriate remediation programs
	88	My principal reduces teacher clerical tasks.
	90	My principal gives teachers meaningful feedback about instructional practices.

## APPENDIX N

### Final Practices by Domain for the School Practices Questionnaire

#### **1. Curriculum Alignment (8 items)**

- 2. I align assessments with the curriculum I teach.
- 30. My assessments reflect SOL essential knowledge and skills.
- 32. I use a variety of assessments to measure student progress.
- 37. I use the SOL Blueprint to plan for pacing my instruction
- 39. I use the curriculum guide from my school division..
- 40. I use the pacing guide provided by my school for the courses I teach.
- 52. I check the alignment of supplemental materials with the SOLs.
- 86. I use the SOL Blueprint to plan for instruction.

#### **2. Time and Scheduling (8 items)**

- 1. I use whole group instructional practices in my classroom.
- 3. I use note taking instructional strategies in my classroom.
- 4. I use the entire scheduled time engaging students in learning.
- 7. The academic focus in my classroom is protected from PA interruptions.
- 24. The master schedule for my school allows for remediation during the instructional day.
- 25. My classroom time is protected from interruptions.
- 29. I use small group instructional strategies in my classroom.
- 57. The time in my classroom is protected from interruptions caused by discipline issues.

#### **3. Use of Data (8 items)**

- 6. I use data to make instructional decisions about remediation for my students.
- 27. I use data to make decisions about instructional strategies.
- 45. I analyze SOL test data.
- 46. I use the analyses of SOL test data to make instructional decisions.
- 47. I use student attendance data to make instructional decisions.
- 51. I use data to plan classroom instruction.
- 83. I use data to make decisions about instructional activities.
- 87. I use assessments on a regular basis to monitor student progress.

#### **4. Professional Development (8 items)**

- 8. I have been trained to use student achievement data to modify the pacing of my instruction.
- 9. I had the opportunity to participate in peer modeling.
- 14. I had the opportunity to participate in collaborative planning for instructional issues.
- 15. I participated in professional development in core content areas.

- 16. I participated in professional development in effective instructional strategies.
- 33. I participated in professional development on curriculum alignment.
- 34. I participated in professional development on higher level thinking skills.
- 65. I have been trained to use assessment results that have been disaggregated by strands.

**5. School Culture (8 items)**

- 11. Teachers are enthusiastic about helping students in my school.
- 22. Teachers are involved in the instructional decision-making process in my school.
- 43. I use instructional strategies that provide student recognition.
- 59. Teachers in my school support each other.
- 69. Staff in my school communicates good news to parents about their children.
- 70. Parents in my school feel comfortable expressing concerns about their children.
- 74. All students in my school are expected to succeed.
- 77. A positive feeling permeates my school.

**6. Leadership (8 items)**

- 17. The principal takes an active leadership role in directing instruction.
- 28. My Principal analyzes classroom practices for improvement of instruction
- 38. My principal effectively allocates human resources.
- 49. My principal manages personnel issues.
- 68. My principal encourages collaboration among teachers.
- 72. The administrative staff helps teachers make sound decisions by providing timely information.
- 78. My principal manages instructional issues.
- 84. My principal evaluates the quality of instruction.

APPENDIX O

On-Line School Practices Questionnaire

Date:

Please enter the name of your school:

Use the following scale to rate your use of the school practices in items 1 – 48:

Weight	Response option
1	Never (the practice is not used)
2	Rarely (the practice is scarcely used)
3	Sometimes (the practice is occasionally used)
4	Often (the practice is commonly used)
5	Always (the practice is continually used)

1. I use the SOL Blueprint to help pace my instruction.

Never  Rarely  Sometimes  Often  Always

2. I use data to make instructional decisions about remediation for my students.

Never  Rarely  Sometimes  Often  Always

3. My principal takes an active leadership role in directing instruction.

Never  Rarely  Sometimes  Often  Always

4. I use data to make decisions about instructional activities.

Never  Rarely  Sometimes  Often  Always

5. I align assessments with the curriculum I teach.

Never  Rarely  Sometimes  Often  Always

6. I use data to plan classroom instruction.

Never  Rarely  Sometimes  Often  Always

7. My principal evaluates the quality of instruction.

Never  Rarely  Sometimes  Often  Always

8. I analyze classroom assessment data.

Never  Rarely  Sometimes  Often  Always

9. My assessments reflect SOL information from the essential skills and knowledge section of the Virginia Department of Education curriculum guide.

Never  Rarely  Sometimes  Often  Always

10. I use assessments on a regular basis to monitor student progress.

Never  Rarely  Sometimes  Often  Always

11. My principal encourages collaboration among teachers.  
 Never     Rarely     Sometimes     Often     Always
12. My principal assists teachers who are not performing well.  
 Never     Rarely     Sometimes     Often     Always
13. I use the pacing guide provided by my school for the courses I teach.  
 Never     Rarely     Sometimes     Often     Always
14. I use student attendance data to make instructional decisions.  
 Never     Rarely     Sometimes     Often     Always
15. My principal assists teachers who are having difficulty following the curriculum guide.  
 Never     Rarely     Sometimes     Often     Always
16. I use a variety of assessments to measure student progress.  
 Never     Rarely     Sometimes     Often     Always
17. My principal takes an active leadership role in directing instruction.  
 Never     Rarely     Sometimes     Often     Always
18. I use the SOL Blueprint to plan for instruction.  
 Never     Rarely     Sometimes     Often     Always
19. I use data to make decisions about instructional strategies.  
 Never     Rarely     Sometimes     Often     Always
20. The administrators provide teachers timely information.  
 Never     Rarely     Sometimes     Often     Always
21. I use the curricular guides from my school division.  
 Never     Rarely     Sometimes     Often     Always
22. I use data from the analyses of classroom assessments to make instructional decisions.  
 Never     Rarely     Sometimes     Often     Always
23. My principal effectively allocates human resources.  
 Never     Rarely     Sometimes     Often     Always
24. I check the alignment of supplemental materials with the SOLs.  
 Never     Rarely     Sometimes     Often     Always
25. I use note taking instructional strategies in my classroom.  
 Never     Rarely     Sometimes     Often     Always
26. Teachers are enthusiastic about helping students in my school.  
 Never     Rarely     Sometimes     Often     Always
27. I have opportunities to participate in collaborative planning on instructional issues.  
 Never     Rarely     Sometimes     Often     Always

28. My classroom time is protected from interruptions.

\_\_\_\_\_ Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Always

29. All students in my school are expected to succeed.

\_\_\_\_\_ Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Always

30. I receive training on how to use assessment results that have been disaggregated by strand.

\_\_\_\_\_ Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Always

31. I participate in professional development on effective instructional strategies.

\_\_\_\_\_ Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Always

32. I use the entire scheduled class time engaging students in learning.

\_\_\_\_\_ Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Always

33. A positive feeling permeates my school.

\_\_\_\_\_ Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Always

34. Teachers are involved in the instructional decision-making process in my school.

\_\_\_\_\_ Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Always

35. The academic focus in my classroom is protected from Public Address (PA) interruptions.

\_\_\_\_\_ Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Always

36. I participate in professional development in core content areas.

\_\_\_\_\_ Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Always

37. The master schedule for my school allows for student remediation during the instructional day.

\_\_\_\_\_ Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Always

38. I participate in professional development on higher level thinking skills.

\_\_\_\_\_ Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Always

39. I use instructional strategies that provide for student recognition.

\_\_\_\_\_ Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Always

40. I use small group instructional strategies in my classroom.

\_\_\_\_\_ Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Always

41. Parents in my school feel comfortable expressing concerns about their children.

\_\_\_\_\_ Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Always

42. I have opportunities to participate in peer modeling.

\_\_\_\_\_ Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Always

43. Staff in my school communicates good news to parents about their children.

\_\_\_\_\_ Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Always

44. The time in my classroom is protected from interruptions caused by discipline issues.

\_\_\_ Never \_\_\_ Rarely \_\_\_ Sometimes \_\_\_ Often \_\_\_ Always

45. Teachers in my school support each other.

\_\_\_ Never \_\_\_ Rarely \_\_\_ Sometimes \_\_\_ Often \_\_\_ Always

46. I participate in professional development on curriculum alignment.

\_\_\_ Never \_\_\_ Rarely \_\_\_ Sometimes \_\_\_ Often \_\_\_ Always

47. I receive training on how to use student achievement data to modify the pacing of my instruction.

\_\_\_ Never \_\_\_ Rarely \_\_\_ Sometimes \_\_\_ Often \_\_\_ Always

48. I use whole group instructional strategies in my classroom.

\_\_\_ Never \_\_\_ Rarely \_\_\_ Sometimes \_\_\_ Often \_\_\_ Always

**Thank you for completing the *School Practices Questionnaire*.**

APPENDIX P

Statistics for the Principal Components Analysis

**Table P1: Pearson Product Correlation Coefficients Among Items in the School Practices Questionnaire**

<i>Item correlation</i>	1	2	3	4	5	6	7	8	9	10	11	12	13
1	1	.58(**)	-.10	.29(*)	.13	.32(**)	-.12	.20	.51(**)	.16	-.03	-.09	.41(**)
N	80	80	80	80	80	80	79	80	80	80	80	80	80
2		1	-.06	.37(**)	.32(**)	.48(**)	.00	.53(**)	.59(**)	.41(**)	-.05	-.01	.37(**)
N		80	80	80	80	80	79	80	80	80	80	80	80
3			1	.16	-.21	-.00	.46(**)	.01	-.20	-.22	.21	.46(**)	-.06
N			80	80	80	80	79	80	80	80	80	80	80
4				1	.08	.56(**)	.43(**)	.07	.24(*)	.09	.66(**)	.52(**)	.14
N				80	80	80	79	80	80	80	80	80	80
5					1	.30(**)	.00	.31(**)	.52(**)	.60(**)	-.08	-.04	.21
N					80	80	79	80	80	80	80	80	80
6						1	.14	.39(**)	.31(**)	.19	.29(**)	.16	.17
N						80	79	80	80	80	80	80	80
7							1	.21	-.06	-.18	.47(**)	.53(**)	-.17
N							80	80	80	80	80	80	80
8								1	.28(*)	.16	-.21	-.04	.05
N								80	80	80	80	80	80
9									1	.55(**)	.04	.11	.47(**)
N									80	80	80	80	80
10										1	-.05	-.02	.26(*)
N										80	80	80	80
11											1	.68(**)	.04
N											80	80	80
12												1	.06
N												80	80
13													1
N													80

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

(table continues)

\* Correlation is significant at the 0.05 level (2-tailed).

Table P1 (continued)

*Pearson Product Correlation Coefficients Among Items in the School Practices Questionnaire*

<i>Item correlation</i>	14	15	16	17	18	19	20	21	22	23	24	25	26
14	1	.20	.14	.13	.19	.18	-.00	.06	-.03	.17	.01	.33(**)	.06
N	80	80	80	80	78	79	80	79	80	80	79	79	80
15		1	.11	.43(**)	.09	.36(**)	.40(**)	.13	.06	.55(**)	.32(**)	.24(*)	-.07
N		80	80	80	78	79	80	79	80	80	79	79	80
16			1	-.07	.06	.35(**)	-.23(*)	.00	-.25(*)	.05	.18	.50(**)	.33(**)
N			80	80	78	79	80	79	80	80	79	79	80
17				1	.36(**)	.03	.56(**)	-.03	.29(*)	.64(**)	.32(**)	.25(*)	.09
N				80	78	79	80	79	80	80	79	79	80
18					1	.32(**)	.18	.11	.17	-.05	.38(**)	.35(**)	-.14
N					78	77	78	77	78	78	77	77	78
19						1	.00	-.01	.05	.19	.38(**)	.25(*)	-.05
N						79	79	78	79	79	78	78	79
20							1	-.08	.31(**)	.43(**)	.30(**)	.08	-.08
N							80	79	80	80	79	79	80
21								1	.18	-.10	-.07	-.05	-.09
N								79	79	79	78	78	79
22									1	.25(*)	.22	-.12	.22(*)
N									80	80	79	79	80
23										1	.37(**)	.09	.32(**)
N										80	79	79	80
24											1	.09	.20
N											79	78	79
25												1	.12
N												79	79
26													1
N													80

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

(table continues)

\* Correlation is significant at the 0.05 level (2-tailed).

Table P1 (continued)

*Pearson Product Correlation Coefficients Among Items in the School Practices Questionnaire*

<i>Item correlation</i>	27	28	29	30	31	32	33	34	35	36	37	38	39
27	1	-.03	.61(**)	.05	-.04	.41(**)	.31(**)	.48(**)	.45(**)	-.15	.17	-.18	.20
N	80	80	80	80	80	80	80	80	80	80	80	80	80
28		1	-.05	.32(**)	-.01	-.33(**)	.07	.20	.41(**)	.22(*)	.29(**)	-.00	-.25(*)
N		80	80	80	80	80	80	80	80	80	80	80	80
29			1	.27(*)	.39(**)	.47(**)	.44(**)	.51(**)	.29(**)	.08	.04	.186	.22
N			80	80	80	80	80	80	80	80	80	80	80
30				1	.52(**)	-.21	.33(**)	.37(**)	-.00	.32(**)	.23(*)	.57(**)	.03
N				80	80	80	80	80	80	80	80	80	80
31					1	-.03	.33(**)	.24(*)	.32(**)	.65(**)	.04	.79(**)	.24(*)
N					80	80	80	80	80	80	80	80	80
32						1	-.06	.03	.24(*)	-.07	-.28(*)	.02	.52(**)
N						80	80	80	80	80	80	80	80
33							1	.78(**)	.06	.07	.25(*)	.34(**)	-.14
N							80	80	80	80	80	80	80
34								1	.28(*)	.11	.38(**)	.26(*)	-.03
N								80	80	80	80	80	80
35									1	-.10	.25(*)	-.21	-.04
N									80	80	80	80	80
36										1	.13	.58(**)	.28(*)
N										80	80	80	80
37											1	.01	.08
N											80	80	80
38												1	.23(*)
N												80	80
39													1
N													80

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

\* Correlation is significant at the 0.05 level (2-tailed).

((table continues))

Table P1 (continued)

*Pearson Product Correlation Coefficients Among Items in the School Practices Questionnaire*

<i>Item correlation</i>	40	41	42	43	44	45	46	47	48
40	1	.12	.01	.03	-.02	.06	.21	.30(**)	-.06
N	80	80	80	80	80	80	80	80	80
41		1	.22(*)	.28(*)	.26(*)	.11	.11	.20	-.06
N		80	80	80	80	80	80	80	80
42			1	.14	.31(**)	-.14	.03	.20	.14
N			80	80	80	80	80	80	80
43				1	.13	.10	.29(**)	.26(*)	.07
N				80	80	80	80	80	80
44					1	-.17	.19	.02	-.10
N					80	80	80	80	80
45						1	.14	.35(**)	-.07
N						80	80	80	80
46							1	.70(**)	-.12
N							80	80	80
47								1	.01
N								80	80
48									1
N									80

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

\* Correlation is significant at the 0.05 level (2-tailed).

*Note.* Items are in Appendix O.

**Table P2: Communalities**

Item	Initial	Extraction
1. I use the SOL Blueprint to help pace my instruction.	1.000	.782
2. I use data to make instructional decisions about remediation for my students.	1.000	.826
3. My principal takes an active leadership role in directing instruction.	1.000	.706
4. I use data to make decisions about instructional activities.	1.000	.890
5. I align assessments with the curriculum I teach.	1.000	.822
6. I use data to plan classroom instruction.	1.000	.803
7. My principal evaluates the quality of instruction.	1.000	.727
8. I analyze classroom assessment data.	1.000	.735
9. My assessments reflect SOL information from the essentials skills and knowledge section of VDOE curriculum.	1.000	.790
10. I use assessments on a regular basis to monitor student progress.	1.000	.774
11. My principal encourages collaboration among teachers.	1.000	.831
12. My principal assists teachers who are not performing well.	1.000	.839
13. I use the pacing guide.	1.000	.747
14. I use student attendance data to make instructional decisions..	1.000	.602
15. My principal assists teachers who are having difficulty following the curriculum guide.	1.000	.829
16. I use a variety of assessments to measure student progress.	1.000	.774
17. My principal takes an active leadership role in directing instructions.	1.000	.875
18. I use the SOL Blueprint to plan for instruction.	1.000	.832
19. I use data to make decisions about instructional strategies.	1.000	.879
20. The administrators provide teachers timely information.	1.000	.716
21. I use the curricular guides from my school division.	1.000	.781
22. I use data from the analyses of classroom assessments to make instructional decisions.	1.000	.809
23. My principal effectively allocates human resources.	1.000	.744
24. I check the alignment of supplemental materials with the SOLs.	1.000	.721
25. I use note taking instructional strategies in my classroom.	1.000	.804
26. Teachers are enthusiastic about helping students in my school.	1.000	.839
27. I have opportunities to participate in collaborative planning on instructional issues.	1.000	.854
28. My classroom time is protected from interruptions.	1.000	.893
29. All students in my school are expected to succeed.	1.000	.869
30. I received training on how to use assessment results that have been disaggregated by standard.	1.000	.816
31. I participate in professional development on effective instructional strategies.	1.000	.866
32. I use the entire scheduled class time engaging students in learning.	1.000	.871
33. A positive feeling permeates my school.	1.000	.849
34. Teachers are involved in the instructional decision making process in my school.	1.000	.861
35. The academic focus in my classroom is protected from Public Address (PA) interruptions.	1.000	.832
36. I participate in professional development in core content areas.	1.000	.757

Item	Initial	Extraction
37. The master schedule for my school allows for student remediation during the instructional day.	1.000	.780
38. I participate in professional development on higher level thinking skills.	1.000	.852
39. I use instructional strategies that provide for student recognition.	1.000	.741
40. I use small group instructional strategies in my classroom.	1.000	.872
41. Parents in my school feel comfortable expressing concerns about their children.	1.000	.655
42. I have opportunities to participate in peer modeling.	1.000	.646
43. Staff in my school communicates good news to parents about their children.	1.000	.762
44. The time in my classroom is protected from interruptions caused by discipline issues.	1.000	.814
45. Teachers in my school support each other.	1.000	.764
46. I participate in professional development on curriculum alignment.	1.000	.824
47. I received training on how to use student achievement data to modify the pacing of my instruction	1.000	.770
48. I use whole group instructional strategies in my classroom	1.000	.520

Note. Extraction method:: principal component analysis.

**Table P3: Total Variance Explained by the Components**

Component	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	9.488	19.767	19.767	9.488	19.767	19.767	8.184	17.049	17.049
2	5.493	11.444	31.212	5.493	11.444	31.212	4.567	9.514	26.563
3	4.486	9.345	40.557	4.486	9.345	40.557	3.337	6.952	33.515
4	4.270	8.895	49.452	4.270	8.895	49.452	3.269	6.810	40.325
5	2.766	5.761	55.214	2.766	5.761	55.214	3.032	6.317	46.642
6	2.432	5.067	60.281	2.432	5.067	60.281	2.957	6.160	52.802
7	1.975	4.115	64.396	1.975	4.115	64.396	2.462	5.128	57.930
8	1.724	3.592	67.988	1.724	3.592	67.988	2.407	5.016	62.946
9	1.572	3.274	71.262	1.572	3.274	71.262	2.061	4.294	67.240
10	1.365	2.844	74.106	1.365	2.844	74.106	1.977	4.118	71.358
11	1.337	2.784	76.890	1.337	2.784	76.890	1.957	4.078	75.436
12	1.038	2.162	79.052	1.038	2.162	79.052	1.736	3.616	79.052
13	.989	2.061	81.113						
14	.950	1.979	83.092						
15	.897	1.869	84.961						
16	.748	1.558	86.520						
17	.713	1.486	88.006						
18	.619	1.290	89.296						
19	.568	1.183	90.479						
20	.470	.979	91.458						
21	.435	.906	92.364						
22	.397	.828	93.191						
23	.369	.769	93.960						
24	.337	.703	94.663						
25	.325	.678	95.340						

Table P3 (Continued)

Component	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
26	.322	.671	96.011						
27	.248	.517	96.528						
28	.218	.455	96.983						
29	.193	.402	97.384						
30	.178	.371	97.756						
31	.166	.346	98.102						
32	.152	.316	98.418						
33	.132	.276	98.693						
34	.122	.255	98.948						
35	.107	.222	99.171						
36	.087	.182	99.353						
37	.071	.148	99.501						
38	.054	.112	99.613						
39	.037	.076	99.689						
40	.032	.067	99.756						
41	.030	.063	99.819						
42	.026	.054	99.873						
43	.022	.046	99.919						
44	.013	.026	99.946						
45	.011	.024	99.969						
46	.009	.019	99.988						
47	.004	.009	99.998						
48	.001	.002	100.000						

Note. Extraction method: principal components analysis.

**Table P4: Rotated Principal Components Matrix**

Item	Component											
	1	2	3	4	5	6	7	8	9	10	11	12
1	-.168	.001	.599	.102	-.045	.497	-.132	.061	.032	-.336	.002	-.022
2	-.120	.069	.420	.104	.216	.689	.017	-.111	.075	-.284	-.011	-.020
3	.410	-.008	.027	.531	-.364	-.052	-.004	-.207	.007	.237	-.143	-.010
4	.48	.50	.32	-.08	-.05	.40	-.16	-.04	-.03	.01	-.02	.33
5	-.01	-.06	.10	-.03	.85	.22	-.07	-.13	-.00	.05	.03	-.12
6	.31	-.05	.21	-.0801	.21	.62	-.04	.10	-.04	-.02	-.35	.32
7	.75	.16	-.17	.06	-.10	.19	.02	.04	.07	.14	-.05	-.16
8	.05	-.26	-.01	.06	.20	.71	.21	-.13	.10	.11	.03	-.16
9	-.01	.09	.60	.05	.50	.23	.04	.16	-.04	-.25	.03	-.14
10	-.16	.08	.28	.10	.77	.00	.05	.02	-.03	-.07	.05	.23
11	.66	.49	.14	-.12	-.04	-.03	-.12	.01	-.27	.04	-.14	.06
12	.69	.39	.10	.28	-.00	-.04	-.16	.09	-.18	.01	-.23	-.11
13	.01	-.11	.78	.13	.16	.13	.06	-.04	-.22	-.14	-.02	-.02
14	.19	-.44	.17	-.04	-.04	-.04	-.02	.17	-.28	.37	-.17	.26
15	.34	.05	.10	.54	.15	.11	.12	.08	.03	.37	-.38	-.28
16	.08	-.09	-.08	-.14	.12	.03	.16	.78	.04	.16	.23	.05
17	.78	.19	.09	.28	-.27	-.06	-.22	-.11	-.04	.11	-.04	-.03
18	.33	.39	.39	-.11	-.06	.23	-.26	.29	-.03	-.16	-.29	.30
19	.16	.15	.09	.03	.04	.61	.44	.39	-.05	.23	-.22	.04
20	.57	.07	-.07	.35	.16	.01	-.30	-.30	.14	.16	-.14	-.03
21	-.126	-.045	.833	-.057	.079	-.012	.021	-.051	.108	.197	-.074	-.011
22	.309	.156	.454	.073	.215	.195	-.072	-.500	-.046	-.103	.320	.154
23	.620	-.040	-.076	.358	-.091	-.034	.154	-.154	.070	.361	.095	-.149
24	.500	.397	-.002	.032	.493	.058	.160	.195	.023	.026	-.033	-.006
25	.396	-.299	.114	.110	-.202	-.021	-.077	.684	-.022	-.104	-.037	.074

Table P4 (Continued)

Item	Component											
	1	2	3	4	5	6	7	8	9	10	11	12
26	.159	-.017	-.023	.070	.107	-.125	.121	.158	-.179	.028	.841	.028
27	-.081	.759	-.023	.327	.092	.134	.122	-.175	-.153	.083	-.227	-.099
28	.110	-.121	.246	.407	-.435	-.101	-.052	.203	.578	.175	-.153	-.090
29	.360	.781	-.172	.119	.020	-.102	.171	-.006	-.065	.136	-.022	-.147
30	.702	.016	.035	.135	-.147	.401	-.033	.101	.227	-.036	.160	.177
31	.813	.010	-.105	-.006	-.048	-.046	.117	.281	-.250	.105	.129	.078
32	-.146	.666	.132	-.324	.084	-.003	.477	-.091	-.137	-.031	.146	-.016
33	.462	.369	-.158	.471	-.032	-.177	-.273	-.195	-.095	-.121	.257	.138
34	.398	.501	.021	.525	-.012	-.079	-.196	-.256	.099	-.104	.096	.187
35	-.182	.504	.256	.266	-.069	.022	-.033	-.278	.489	.078	-.115	-.258
36	.654	-.224	.164	.104	.026	-.157	.306	.149	.064	-.018	-.227	.209
37	-.033	-.059	.076	.826	.059	.172	.008	.006	.070	-.113	.106	.162
38	.856	-.075	-.051	-.124	-.015	-.019	.029	.048	-.018	-.125	.244	.126
39	.099	.161	.103	-.141	.447	.108	.650	-.029	-.115	-.031	.006	.161
40	.077	.099	-.072	.060	-.139	.098	.886	.118	-.014	.013	.115	-.075
41	.113	.132	-.181	-.020	-.106	-.046	.010	.067	.135	.723	.010	.180
42	-.110	-.041	.094	.391	.302	.295	-.140	.246	.100	.423	.141	.058
43	.145	-.092	-.080	.151	.061	-.004	.029	.040	-.004	.203	.057	.808
44	-.009	-.266	-.061	.129	.049	.059	-.068	-.030	.799	.241	-.106	.061
45	.228	.734	-.080	-.298	.048	-.206	.001	-.071	-.020	-.001	.140	.089
46	.723	-.150	-.168	-.210	.289	-.057	.224	.077	.137	-.025	-.101	.186
47	.681	.225	-.092	-.095	.154	.204	.174	.060	-.011	.024	.319	.191
48	-.016	-.081	.221	.324	.012	-.137	.033	-.085	-.511	.261	.048	.002

Note. Principal components analysis with varimax rotation. Items are in Appendix O.

## APPENDIX Q

### Realignment of School Practices With Domains After Principal Components Analysis

Domain	Item #	School Practice
Leadership and people development	3	My principal takes an active leadership role in instruction.
	7	My principal evaluates the quality of instruction.
	11	My principal encourages collaboration among teachers.
	12	My principal assists teachers who are not performing well.
	17	My principal takes an active role in directing instruction.
	20	The administrators provide teachers with timely information
	23	My principal effectively allocates human resources.
	30	Teachers receive training on how to use assessment results that have been disaggregated by strand.
	31	Teachers participate in professional development on effective instructional strategies.
	36	Teachers participate in professional development in core content areas.
	38	Teachers participate in professional development on higher level thinking skills.
	46	Teachers participate in professional development on curriculum alignment.
	47	Teachers receive training on how to use student achievement data to modify the pacing of my instruction.
	Academic culture	4
14		Teachers use student attendance data to make instructional decisions.
27		Teachers have opportunities to participate in collaborative planning on instructional issues.
29		All students in my school are expected to learn
32		Teachers use the entire scheduled class time to engage students in learning.
35		The academic focus in my classroom is protected from Public Address (PA) interruptions.
Curriculum alignment	45	Teachers in my school support each other.
	1	Teachers use the SOL Blueprint to help pace instruction.

	9	Teacher assessments reflect SOL information from the essential skills and knowledge section of the Virginia Department of Education curricular guides.
	13	Teachers use the pacing guide provided by the school for the courses they teach.
	21	Teachers use the curricular guides from the school division.
	22	Teachers use data from the analysis of classroom assessments to make instructional decisions.
Support	15	My principal assists teachers who are having difficulty following the curricular guides.
	28	Classroom time is protected from interruptions.
	33	A positive feeling permeates our school.
	34	Teachers are involved in the instructional decision-making process in my school.
	37	The master schedule for my school allows for student remediation during the instructional day.
Assessment alignment and use	5	Teachers align assessments with the curriculum they teach.
	10	Teachers use assessments on a regular basis to monitor student progress.
	24	Teachers check the alignment of supplemental materials with the SOLs
	39	Teachers use instructional strategies that provide for student recognition.
Data utilization	2	Teachers use data to make instructional decisions about remediation for students.
	6	Teachers use data to plan classroom instruction.
	8	Teachers analyze classroom assessment data.
	19	Teachers use data to make decisions about instructional strategies.

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## APPENDIX R

### Items Not Included After Principal Components Analysis

Original Domain	Item #	School Practice
Professional development	16	I participate in professional development in effective instructional practices.
	26	I have been trained to analyze and use student discipline data.
School culture	18	New teachers in my school are mentored.
	43	I use instructional strategies that provide for student recognition.
	44	I provide opportunities for students to take tests similar in design to the SOL tests.
	48	Beyond regularly scheduled parent conferences and report cards, I communicate with parents about their child's progress.
Time and scheduling	25	My classroom time is protected from interruptions.
Curriculum Alignment	40	I use the pacing guide provided by my school for the courses I teach.
	42	I use instructional strategies that reinforce student effort.
Leadership	41	My principal protects instructional time from interruptions.

APPENDIX S

Tables Supporting Descriptive Analyses

**Table S1: School Pass Rates on the Third Grade SOL Reading Test, 2005, N = 80**

School	Passrate	School	Pass rate	School	Pass rate	School	Pass rate	School	Pass rate
1	70.00	17	79.00	33	78.00	49	70.00	65	75.00
2	84.00	18	81.00	34	82.00	50	83.00	66	97.00
3	90.00	19	78.00	35	81.00	51	57.00	67	95.00
4	97.00	20	86.00	36	70.00	52	68.00	68	66.00
5	61.00	21	83.00	37	68.00	53	96.00	69	87.00
6	61.00	22	83.00	38	76.00	54	89.00	70	98.00
7	82.00	23	95.00	39	72.00	55	69.00	71	63.00
8	62.00	24	86.00	40	71.00	56	98.00	72	95.00
9	70.00	25	60.00	41	80.00	57	91.00	73	95.00
10	85.00	26	94.00	42	89.00	58	63.00	74	73.00
11	86.00	27	49.00	43	89.00	59	75.00	75	85.00
12	87.00	28	80.00	44	89.00	60	61.00	76	87.00
13	77.00	29	87.00	45	93.00	61	93.00	77	47.00
14	91.00	30	72.00	46	73.00	62	98.00	78	83.00
15	70.00	31	78.00	47	56.00	63	72.00	79	60.00
16	89.00	32	76.00	48	78.00	64	84.00	80	78.00
								Participant mean pass rate	78.8
								Commonwealth mean pass rate	75.8

**Table S2: Distribution of Pass Rates on the Third Grade SOL Reading Test, Virginia, 2005, N = 80**

Range	<u>N</u>	<u>%</u>	<u>M</u>	<u>SD</u>
40 – 50	2	2.5		
51 – 60	2	2.5		
61 – 70	18	22.5		
71 – 80	18	22.5		
81 – 90	24	30.0		
91 +	16	20.0		
Total	80	100.0	78.8	12.4

**Table S3: Percentage of Students Receiving Free or Reduced-Price Lunches by School, 2005, N = 80**

School	Percentage receiving free or reduced-price lunches	School	Percentage receiving free or reduced-price lunches	School	Percentage receiving free or reduced-price lunches	School	Percentage receiving free or reduced-price lunches
1	58	25	74	49	56	73	3
2	40	26	3	50	21	74	22
3	39	27	83	51	74	75	34
4	79	28	81	52	82	76	37
5	37	29	3	53	0	77	52
6	37	30	59	54	88	78	79
7	90	31	80	55	85	79	93
8	50	32	27	56	8	80	93
9	81	33	55	57	11		
10	62	34	47	58	59		
11	38	35	59	59	77		
12	23	36	12	60	80		
13	55	37	55	61	37		
14	48	38	51	62	2		
15	84	39	74	63	41		
16	87	40	37	64	36		
17	38	41	43	65	24		
18	12	42	23	66	1		
19	46	43	43	67	2		
20	41	44	37	68	64		
21	4	45	90	69	5		
22	93	46	10	70	77		
23	29	47	19	71	87		
24	21	48	82	72	2		
						Participating schools' mean percentage receiving free or reduced-price lunches	47.1
						Commonwealth mean percentage receiving free of reduced-price lunches	41.0

APPENDIX T

Data for Bivariate Statistical Tests

**Table T1: Statistics for the Mann Whitney U Test for Differences in the Ranks of the Percentage of Students Receiving Free or Reduced-Price Lunches for Schools Meeting the Benchmark and Schools Not Meeting the Benchmark in Third Grade Reading, Virginia, 2005**

Benchmark status	<i>N</i>	Mean rank	Sum of ranks	U statistic
Did not meet	17	56.65	963.00	261.00**
Met	63	36.14	2277.00	
Total	80			

\*\* $p \leq .01$ .

**Table T2: t-test Statistics for Differences in Percentages of Students Receiving Free or Reduced-Price Lunches for Schools Meeting the Benchmark and Schools Not Meeting the Benchmark in Third Grade Reading, Virginia, 2005**

<i>Benchmark status</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>	<i>df</i>	<i>t</i>
Did not meet	17	67.35	17.96	4.36	41.27	4.51**
Met	63	41.68	29.05	3.66		
Total	80					

<sup>a</sup>Variances of the two groups differed (Levene's  $F(16,62)=4.34$ ;  $p=.04$ ). \*\* $p \leq .01$ .

## APPENDIX U

### Descriptive Data for Domains and Items within Domains

#### Leadership and People Development at the School Level

There are two parts to this component: leadership within the school and support for professional development of teachers. Items 3, 7, 11, 12, 17, 20, and 23 are associated with the leadership of the school. Items 30, 31, 36, 38, 46, and 47 are associated with support for the professional development of teachers within the school. All items were measured with a five point frequency-of-observed-behavior scale ranging from 1=never to 5= always (see Table U1).

Two leadership items stand out from the rest: the principal's encouragement of teachers to collaborate (see Item 11) and the principal's active role in instruction (see Item 3). The remaining leadership items were rated in the middle of the scale ( $M$ s between 3.50 and 3.73) with relatively constricted variation ( $SD$ s between .83 and 1.36). The distributions of the scores within items indicate that sizeable proportions (13.9 % to 48.9%) of the respondents observed their principals sometimes, rarely, or never performing the leadership behaviors identified in the items. The evidence indicates that over half of the principals often or always use all of the effective leadership practices

Two professional development items stand out from the rest: professional development on content (see Item 36) and professional development on instructional practices (see Item 31). Teachers tended to agree that these elements of professional development were observed in their schools ( $M$ s = 3.69 and 3.73, respectively, and  $SD$ s = .82 and .88 respectively). The remaining professional development items were rated in the middle of the scale ( $M$ s between 2.96 and 3.54) with standard deviations ranging from 1.10 to 1.33. The distributions of the scores within items indicate that the best practices associated with professional development weren't observed as frequently as one might expect, given the emphasis placed on this area in the literature on effective schools. Large proportions of the teachers (37.6% to 75.1%) observed the professional development on the specific topics identified in the items to be in place sometimes, rarely, or never. The item with the highest percentage of teachers observing the practice to be in place sometimes, rarely, or never (75.1%) was *Teachers participate in professional development on how to use test data to pace instruction* (see Item 47).

**Table U1: School Scores on Leadership and People Development**

Item number	Item content	Response <sup>a</sup>	Frequency	%	<i>N</i>	<i>M</i>	<i>SD</i>	Min	Max
3	My principal takes an active leadership role in instruction.	Never	1	1.3	80	3.93	1.03	1	5
		Rarely	11	13.8					
		Sometimes	6	7.5					
		3.5	1	1.3					
		Often	35	43.8					
		4.5	1	1.3					
		Always	25	31.3					
		Missing	0	0					
Total	80	100.0							
7	My principal evaluates the quality of instruction.	Never	0	0	79	3.50	1.02	2	5
		Rarely	15	18.8					
		2.5	1	1.3					
		Sometimes	23	28.8					
		3.5	1	1.3					
		Often	23	28.8					
		4.5	1	1.3					
		Always	15	18.8					
		Total	79	98.8					
		Missing	1	1.3					
Total	80	100.0							

(table continues)

Table U1 (Continued)

Item number	Item content	Response <sup>a</sup>	Frequency	%	<i>N</i>	<i>M</i>	<i>SD</i>	Min	Max
11	My principal encourages collaboration.	Never	1	1.3	80	4.39	.99	1	5
		Rarely	7	8.8					
		Sometimes	3	3.8					
		Often	16	20.0					
		4.5	3	3.8					
		Always	50	62.5					
		Missing	0	0					
		Total	80	100.0					
12	My principal assists teachers who are not performing well.	Never	1	1.3	80	3.59	1.02	1	5
		Rarely	12	15.0					
		2.5	2	2.5					
		Sometimes	18	22.5					
		3.5	1	1.3					
		Often	30	37.5					
		Always	16	20.0					
		Missing	0	0					
Total	80	100.0							
17	My principal takes an active role in directing instruction.	Never	9	11.3	80	3.66	1.36	1	5
		Rarely	9	11.3					
		2.5	1	1.3					
		Sometimes	8	10.0					
		3.5	1	1.3					
		Often	24	30.0					
		4.5	1	1.3					
		Always	27	33.8					
Missing	0	0							
Total	80	100.0							

(table continues)

Table U1 (Continued)

Item number	Item content	Response <sup>a</sup>	Frequency	%	<i>N</i>	<i>M</i>	<i>SD</i>	Min	Max
20	The administration provides timely information.	Never	1	1.3	80	3.73	.86	1	5
		Rarely	3	3.8					
		Sometimes	28	35.0					
		Often	32	40.0					
		4.5	1	1.3					
		Always	15	18.8					
		Missing	0	0					
		Total	80	100.0					
23	My principal effectively allocates human resources.	Never	0	0	80	3.73	.83	2	5
		Rarely	4	5.0					
		Sometimes	29	36.3					
		Often	30	37.5					
		4.5	2	2.5					
		Always	15	18.8					
		Missing	0	0					
		Total	80	100.0					
30	Teachers receive training on how to use strand data.	Never	2	2.5	80	3.54	1.11	1	5
		Rarely	13	16.3					
		Sometimes	25	31.3					
		Often	20	25.0					
		Always	20	25.0					
		Missing	0	0					
		Total	80	100.0					

(table continues)

Table U1 (Continued)

Item number	Item content	Response <sup>a</sup>	Frequency	%	<i>N</i>	<i>M</i>	<i>Sd</i>	Min	Max
31	Teachers participate in professional development on using effective instructional strategies.	Never	0	0	80	3.73	.88	2	5
		Rarely	7	8.8					
		Sometimes	23	28.8					
		3.5	1	1.3					
		Often	33	41.3					
		Always	16	20.0					
		Missing	0	0					
Total	80	100.0							
36	Teachers participate in professional development in core content areas.	Never	0	0	80	3.69	.82	2	5
		Rarely	4	5.0					
		Sometimes	31	38.8					
		3.5	1	1.3					
		Often	29	36.3					
		4.5	1	1.3					
		Always	14	17.5					
Missing	0	0							
Total	80	100.0							
38	Teachers participate in professional development on use of higher level thinking instructional strategies.	Never	7	8.8	80	3.40	1.1	1	5
		Rarely	4	5.0					
		Sometimes	31	38.8					
		3.5	1	1.3					
		Often	24	30.0					
		Always	13	16.3					
		Missing	0	0					
Total	80	100.0							

(table continues)

Table U1 (Continued)

Item number	Item content	Response <sup>a</sup>	Frequency	%	<i>N</i>	<i>M</i>	<i>SD</i>	Min	Max		
46	Teachers participate in professional development on use of curriculum alignment strategies.	Never	14	17.5	80	3.06	1.33	1	5		
		Rarely	12	15.0							
		2.5	1	1.3							
		Sometimes	20	25.0							
		3.5	1	1.3							
		Often	19	23.8							
		Always	13	16.3							
		Missing	0	0							
Total	80	100.0									
47	Teachers participate in professional development on how to use test data to pace instruction.	Never	11	13.8	80	2.96	1.17	1	5		
		Rarely	12	15.0							
		Sometimes	37	46.3							
		Often	9	11.3							
		Always	11	13.8							
		Missing	0	0							
		Total	80	100.0							

*Note.* Exact item content is in Appendix O.

<sup>a</sup>Response data are aggregated to the school level. Numeric responses indicate that more than one teacher responded in some schools. The numeric value is the average of the teachers' scores in those schools.

#### School Scores on Academic Culture

Five items in academic culture stand out: the use of data to make instructional decisions, opportunities to participate in collaborative planning, the assumption that students are expected to succeed, use of the entire class period for learning, and support for fellow teachers (see Table U2). (see items 4, 27, 29, 32, and 45). A large proportion of teachers use these practices often or always (70.1% to 93.8%) with low variation in the scores (*SDs* between .69 to 1.08). A smaller proportion of the teachers rated the remaining two items, use of attendance data to make instructional decisions and classroom protection from public address announcements, as significant practices (30.1% and 67.5%).

**Table U2: School Scores on Academic Culture**

Number	Item content	Response	Frequency	%	<i>N</i>	<i>M</i>	<i>SD</i>	Min	Max
4	Teachers use attendance data to make instructional decisions.	Never	0	5.0	80	4.17	.76	2	5
		Rarely	1	32.5					
		Sometimes	14	1.3					
		3.5	1	31.3					
		Often	34	21.3					
		Always	30	8.8					
		Missing	0	0					
Total	80	100.0							
14	Teachers have opportunities to participate in collaborative planning.	Never	4	5	80	2.96	1.05	1	5
		Rarely	26	32.5					
		2.5	1	1.3					
		Sometimes	25	31.3					
		Often	17	21.3					
		Always	7	8.8					
		Total	80	100.					
27	Teachers have opportunities to participate in collaborative planning	Never	2	2.5		4.06	.87	1	5
		Rarely	2	2.5					
		Sometimes	9	11.3					
		3.5	1	1.3					
		Often	41	51.3					
		4.5	1	1.3					
		Always	24	30.0					
Total	80	100.0							

Table U2 (Continued)

Number	Item content	Response	Frequency	%	<i>N</i>	<i>M</i>	<i>SD</i>	Min	<i>Max</i>
29	Students in my school are expected to succeed.	Never	2	2.5	80	4.35	.91	1	5
		Rarely	0	0					
		Sometimes	11	13.8					
		3.5	1	1.3					
		Often	20	25					
		4.5	1	1.3					
		Always	45	56.3					
		Missing	0	0					
Total	80	100.0							
32	Teachers use the entire class time to engage students in learning.	Never	0	0	80	4.46	.69	2	5
		Rarely	2	2.5					
		Sometimes	3	3.8					
		Often	30	37.5					
		4.5	2	2.5					
		Always	43	53.8					
		Missing	0	0					
		Total	80	100.0					
35	The academic focus in my classroom is protected from Public Address interruptions	Never	4	5.0	80	3.70	1.07	1	5
		Rarely	8	10.0					
		2.5	1	1.3					
		Sometimes	13	16.3					
		Often	36	45.0					
		4.5	2	2.5					
		Always	16	20.0					
		Missing	0	0					
Total	80	100.0							
45	Teachers support each other.	Never	0	0	80	4.23	.78	2	5
		Rarely	1	1.3					
		Sometimes	14	17.5					
		3.5	1	1.3					
		Often	29	36.3					
		4.5	1	1.3					
		Always	34	42.5					
		Missing	0	0					
Total	80	100.0							

*Note.* Exact item content is in Appendix O.

<sup>a</sup>Response data are aggregated to the school level. Numeric responses indicate that more than one teacher responded in some schools. The numeric value is the average of the teachers' scores in those schools.

### School Scores on Curriculum Alignment

All five items in curriculum alignment stand out as high-use elements (see Table U3). Teachers tended to agree that use of blueprints to pace instruction, alignment of essential skills and assessments, use of pacing and curricular guides, and use of assessment analyses were often or always observed in their schools (85.1% to 97.6%). The items were rated in the upper end of the scale (*M*s between 4.31 and 4.74) with *SD*s between .56 and .96. The item with the least range in the rating was use of assessment analyses in making instructional decisions (see item 22).

**Table U3: School Scores on Curriculum Alignment**

Item number	Item content	Response	Frequency	%	<i>N</i>	<i>M</i>	<i>SD</i>	Min	Max
1	Teachers use SOL Blueprint to pace instruction.	Never	2	2.5	80	4.33	.96	1	5
		Rarely	3	3.8					
		Sometimes	6	7.5					
		3.5	1	1.3					
		Often	23	28.8					
		Always	45	56.3					
		Missing	0	0					
Total	80	100.0							
9	Teacher assessments reflect the essential skills and knowledge from VDOE standards.	Never	0	0	80	4.74	.54	2	5
		Rarely	1	1.3					
		Sometimes	1	1.3					
		Often	15	18.8					
		4.5	1	1.3					
		Always	62	77.5					
		Missing	0	0					
Total	80	100.0							
13	Teachers use pacing guides.	Never	2	2.5	80	4.43	.95	1	5
		Rarely	4	5.0					
		Sometimes	2	2.5					
		Often	22	27.5					
		Always	50	62.5					
		Missing	0	0					
		Total	80	100.0					

Item number	Item content	Response	Frequency	%	<i>N</i>	<i>M</i>	<i>SD</i>	Min	Max
21	Teachers use school curricular guides.	Never	0	0	79	4.59	.76	2	5
		Rarely	3	3.8					
		Sometimes	4	5.0					
		Often	15	18.8					
		4.5	1	1.3					
		Always	56	70.0					
		Total	79	98.8					
		Missing	1	1.3					
Total	80	100.0							
22	Teachers use the results of assessment analyses in making instructional decision.	Never	0	0	80	4.31	.56	3	5
		Rarely	0	0					
		Sometimes	4	5.0					
		Often	47	58.8					
		4.5	1	1.3					
		Always	28	35.0					
		Missing	0	0					
		Total	80	100.0					

*Note.* Exact item content is in Appendix O.

<sup>a</sup>Response data are aggregated to the school level. Numeric responses indicate that more than one teacher responded in some schools. The numeric value is the average of the teachers' scores in those schools.

### School Scores on Support

The scores for the items in Support stand out as more evenly distributed than any other domain (see Table U4). The scores indicate that slightly more than half of the teachers observed the five elements often or always and slightly less than half observed the elements sometimes, rarely or never. The means ranged from 3.52 to 4.08 with little variability (*SDs* between .88 and 1.20). When compared to the other elements, a positive feeling permeates our school, was observed more often (70%). In Curriculum Alignment teachers observed the use of pacing guides often or always (90%), while in Support they sometimes, rarely or never observe principals assisting teachers who are having difficulty using the pacing guides.

**Table U4: School Scores on Support**

Item number	Item content	Response	Frequency	%	<i>N</i>	<i>M</i>	<i>SD</i>	Min	Max
15	My principal assists teachers who are having difficulty following the pacing guide	Never	3	3.8	80	3.52	1.02	1	5
		Rarely	8	10.0					
		Sometimes	27	33.8					
		3.5	1	1.3					
		Often	27	33.8					
		Always	14	17.5					
		Missing	0	0					
		Total	80	100.0					
28	Classroom time is protected from interruptions.	Never	3	3.8	80	3.59	.95	1	5
		Rarely	4	5.0					
		2.5	1	1.3					
		Sometimes	27	33.8					
		Often	32	40.0					
		4.5	1	1.3					
		Always	12	15.0					
		Missing	0	0					
Total	80	100.0							
33	A positive feeling permeates our school.	Never	0	0	80	4.08	.88	2	5
		Rarely	2	2.5					
		Sometimes	22	27.5					
		Often	24	30.0					
		Always	32	40.0					
		Missing	0	0					
		Total	80	100.0					

Table U4 (Continued)

Item number	Item content	Response	Frequency	%	<i>N</i>	<i>M</i>	<i>SD</i>	Min	Max
34	Teachers are involved in the instructional decision-making process.	Never	2	2.5	80	3.84	.92	1	5
		Rarely	1	1.3					
		2.5	1	1.3					
		Sometimes	24	30.0					
		Often	31	38.8					
37	The master schedule allows for remediation during the instructional day.	Never	3	3.8	80	3.66	1.20	1	5
		Rarely	16	20.0					
		2.5	1	1.3					
		Sometimes	14	17.5					
		3.5	2	2.5					
		Often	22	27.5					
		Always	22	27.5					
		Missing	0	0					
Total	80	100.0							

*Note.* Exact item content is in Appendix O.

<sup>a</sup>Response data are aggregated to the school level. Numeric responses indicate that more than one teacher responded in some schools. The numeric value is the average of the teachers' scores in those schools.

### School Scores on Assessment Alignment and Use

Although all four of the items in assessment alignment and use were rated at the high end of the scale, one item stands out (see Table U5): teachers align assessments with the taught curriculum (see item 5) was rated at the top of the scale. All respondents agreed that the element was observed often or always (100%). Respondents showed little variance in the rating ( $M=4.88$  and  $SD=.33$ ). The other elements have slightly higher variance ( $M$ s between 4.01 and 4.68 and  $SD$ s between .63 and .82).

**Table U5: School Scores on Assessment Alignment and Use**

Item number	Item content	Response	Frequency	%	<i>N</i>	<i>M</i>	<i>SD</i>	Min	Max
5	Teachers align assessments with the taught curriculum.	Never	0	0	80	4.88	.33	4	5
		Rarely	0	0					
		Sometimes	0	0					
		Often	10	12.5					
		Always	70	87.5					
		Missing	0	0					
		Total	80	100.0					
10	Teachers use assessments on a regular basis to monitor student progress.	Never	0	0	80	4.68	.63	2.5	5
		Rarely	0	0					
		2.5	1	1.3					
		Sometimes	5	6.3					
		Often	13	16.3					
		Always	61	76.3					
		Missing	0	0					
Total	80	100.0							
24	Teachers check the alignment of supplemental materials. with the curriculum.	Never	0	0	79	4.06	.82	2	5
		Rarely	3	3.8					
		Sometimes	15	18.8					
		Often	35	43.8					
		4.5	1	1.3					
		Always	25	31.3					
		Total	79	98.8					
Missing	1	1.3							
Total	80	100.0							

Table U5 (Continued)

Item number	Item content	Response	Frequency	%	<i>N</i>	<i>M</i>	<i>SD</i>	Min	Max
39	Teachers use strategies to provide for student recognition.	Never	0	0	80	4.01	.72	2	5
		Rarely	3	3.8					
		Sometimes	11	13.8					
		3.5	1	1.3					
		Often	46	57.5					
		4.5	1	1.3					
		Always	18	22.5					
		Missing	0	0					
Total	80	100.0							

*Note.* Exact item content is in Appendix O.

<sup>a</sup>Response data are aggregated to the school level. Numeric responses indicate that more than one teacher responded in some schools. The numeric value is the average of the teachers' scores in those schools.

#### School Scores on Data Utilization

Three of the four items in Data Utilization stand out (see Table U6). Large proportions of teachers rated three elements as often or always observed: teachers analyze classroom assessment data, teachers use data to make decisions about remediation, and teachers use data to plan classroom instruction (95.1%, 91.4% and 88.9% respectively). The *SDs* were tightly grouped (*SDs* between .63 and .74). The other item, teachers use data to make decisions about the use of instructional strategies, was rated in the middle of the scale,  $M=3.90$ .

**Table U6: School Scores on Data Utilization**

Item number	Item content	Response	Frequency	%	<i>N</i>	<i>M</i>	<i>SD</i>	Min	Max
2	Teachers use data to make instructional decisions about student remediation.	Never	0	0	80	4.51	.73	2	5
		Rarely	2	2.5					
		Sometimes	5	6.3					
		Often	23	28.8					
		4.5	1	1.3					
		Always	49	61.3					
		Missing	0	0					
		Total	80	100.0					
6	Teachers use data to plan for classroom instruction.	Never	0	0	80	4.11	.64	2	5
		Rarely	2	2.5					
		Sometimes	6	7.5					
		3.5	1	1.3					
		Often	51	63.8					
		4.5	1	1.3					
		Always	19	23.8					
		Missing	80	100.0					
Total									
8	Teachers analyze classroom assessment data.	Never	0	0	80	4.52	.63	2	5
		Rarely	1	1.3					
		Sometimes	3	3.8					
		Often	28	35.0					
		4.5	3	3.8					
		Always	45	56.3					
		Missing	0	0					
		Total	80	100.0					
19	Teachers use data to make decisions about the use of instructional strategies.	Never	0	0	79	3.9	.74	2	5
		Rarely	3	3.8					
		Sometimes	16	20.0					
		3.5	2	2.5					
		Often	43	53.8					
		Always	15	18.8					
		Total	79	98.8					
		Missing	1	1.3					
Total	80	100.0							

*Note.* Exact item content is in Appendix O.

<sup>a</sup>Response data are aggregated to the school level. Numeric responses indicate that more than one teacher responded in some schools. The numeric value is the average of the teachers' scores in those schools.

APPENDIX V

Classification Function Coefficients for the Discriminant Function Analyses

**Table V1: Classification Function Coefficients for the Classification of Schools that Met and Schools That Did Not Meet the 2005 Benchmark in Reading When All Predictors are Included**

Variable	Meeting State Benchmark	
	Not met	Met
Leadership and people development	-.49	-.80
Academic culture	9.43	10.45
Curriculum alignment	7.70	8.12
Support	3.97	3.82
Assessment and alignment and use	12.12	13.17
Data utilization	4.34	3.72
Percent age of students receiving free or reduced-price lunches	.09	.06
(Constant)	-79.55	-83.78

*Note.* These are Fisher's linear discriminant functions.

**Table V2: Classification Function Coefficients for the Classification of Schools that Met and Schools That Did Not Meet the 2005 Benchmark in Reading When the Overall Measure of Practices and the Percentage of Students Receiving Free or Reduced-Price Lunches Were Used as Predictors**

Variables	Meeting State Benchmark	
	Not met	Met
Percentage of students receiving free or reduced – price lunches	.15	.11
Overall	31.03	31.60
(Constant)	-65.36	-65.76

*Note.* These are Fisher's linear discriminant functions.