STRUCTURE AND FUNCTIONS OF THE ACCOUNTABILITY DEPARTMENT IN
VIRGINIA SCHOOL DIVISIONS

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A Dissertation

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by

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Abstract

Dr. Daniel L. Duke, Advisor

The No Child Left Behind Act of 2001 has required school districts to perform a variety of functions in order to achieve educational accountability. Many districts have reorganized their central offices and created special units to handle these functions. Using a mixed methods research design, this study explored the structure and functions of Accountability Departments in Virginia school divisions.

The study involved two phases. The first phase consisted of two case studies and a cross-case comparative analysis in which the Accountability Departments from two Virginia school divisions were described and compared. Data were collected through on-site interviews and a review of documents. Both similarities and differences were identified for the two Accountability Departments. Moreover, evidence showed that homogeneity in their characteristics may result from the institutional isomorphic mechanisms, such as coercive and normative pressures, as well as mimetic mechanisms (DiMaggio & Powell, 1983).

In the second phase of the study, a checklist survey was administered to a sample of 32 Accountability Departments in Virginia school divisions in order to collect quantitative data on the structures and functions of these departments. The checklists were completed by the Directors of Accountability Departments. Descriptive statistical analysis showed that, for the functions on the checklist, the Accountability Departments were most similar in their involvement in state testing programs; the most differences were found in the departments' involvement in helping schools develop and identify high-quality curriculum.
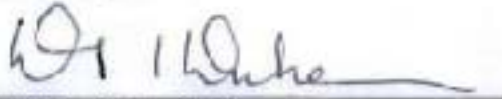
Two subgroups were identified from the sample. Subgroup 1 included 13 Accountability Departments from large school divisions. Subgroup 2 consisted of 10 Accountability Departments selected from small school divisions. A series of comparative analyses using *t* tests showed that Subgroup 1 had significantly lower involvement than Subgroup 2 in four functional areas: helping schools with curriculum, instructional strategies, parental involvement, and teacher quality.

The findings of this study were discussed in light of organization theories. The theory of institutional isomorphism helps explain certain similarities among the Accountability Departments. Variation in the departments may be associated with the size of department and school division, as suggested by the theory of structuralism. Recommendations about how to organize accountability functions at the division level were provided for practitioners, policymakers, and researchers.

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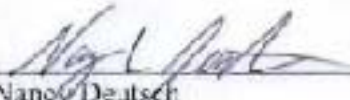
APPROVAL OF THE DISSERTATION

This dissertation, *Structure and Functions of the Accountability Department in Virginia School Divisions*, has been approved by the Graduate Faculty of the Curry School of Education in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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Daniel L. Duke, Chair

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Aug. 28, 2012 ____ Date

Dedication

This dissertation is dedicated to my family for their love and support.

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I would like to thank the following people:

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Introduction

Background

In the United States, the 1983 publication, *A Nation at Risk: The Imperative for Educational Reform*, drew wide attention to American schools by reporting the national decline in student academic achievement and recommending more rigorous and measurable standards. This report provided the rationale for the creation of high learning standards and the alignment of assessment and instruction, which were reinforced in the subsequent years. For example, in 1989, National Council of Teachers of Mathematics published *Curriculum and Evaluation Standards for School Mathematics*. Five years later, *The Goals 2000: Educate America Act* was signed into law, establishing a framework for setting academic standards and measuring student progress. The standards-driven reforms culminated in the *No Child Left Behind Act (NCLB) of 2001*.

Representing a reauthorization of the *Elementary and Secondary Education Act* (ESEA) of 1965, the NCLB was signed into law in 2002. In order to ensure that all children have access to high quality education, the NCLB requires schools, local educational agencies (LEA), and states to be accountable for improving student outcomes and closing the achievement gap between low and high performing students. Specifically, states are required to develop challenging academic standards and assessments, based on which each state is implementing an accountability system. The percent of students scoring "proficient" or above on the state standardized tests must be calculated for each

subgroup of students. Such percentages play a critical role in determining whether school districts and schools make adequate yearly progress (AYP). In addition, states and LEAs must create annual report cards to inform parents and communities about state and school progress.

Under NCLB Act of 2001 (U.S.C. § 6316 (b)), sanctions are imposed on schools which fail to make AYP. If a school does not make AYP for two or more consecutive years, it must develop and implement a comprehensive improvement plan, offer its students the options to transfer to another school, take corrective actions, and even restructure.

To support the state accountability system, the law (U.S.C. § 6312 (b) & (c)) indicates that LEAs have responsibility for reviewing the progress of each school and collecting and disseminating school performance data. It is also stated that an LEA may receive a sub-grant if it has a plan approved by the state, describing how it will help low-achieving children meet challenging learning standards. The local educational agency plan (LEA plan) should provide a description of student assessments and may also include the academic indicators adopted by the LEA and the strategies to coordinate different programs in the school district.

Through highly visible sanctions, the NCLB has imposed greater accountability on states, LEAs, and schools for continuous and substantial progress by each student group. School improvement no longer rests primarily on "individual volition or intrinsic motivation" of students and teachers (Hess, 2003, p. 57). Instead, educators are compelled to cooperate together to construct a system in which student achievement is increased through considerate and systemic planning. It is especially noteworthy that the

NCLB Act has called on district central offices to shift their work practices from the traditional managerial functions, such as transportation, facilities, purchasing, to the support of teaching and learning for all students (Honig, 2008). LEAs are compelled to work on different areas, such as curriculum, assessment, and data management, systemically to improve student achievement. Such situations require LEAs to increase their administrative capacity so as to coordinate the resources and efforts more efficiently and effectively.

Facing federal and state mandates, some LEAs have reorganized their central offices to coordinate the work and services throughout the districts, increase efficiencies in their execution, and provide clarity and cohesiveness around their outcomes. The districts take such actions as redefining the duties of existing positions and creating new positions or offices. For example, in the Cincinnati Public Schools (CPS) in Ohio, a new responsibility for the Deputy Superintendent and Accountability Officer is to lead the three newly created Turnaround Teams to improve the lowest-performing elementary schools. CPS also formed an Office of Innovations to research successful school models and recommend changes in the school systems.

Important innovations in district organizations also include the creation of individual units directly associated with accountability functions. An example of such an organizational unit is the Institute for Learning in the district central office of San Diego City Schools (SDCS) established in 1998. This Institute was charged with responsibilities for standards, curriculum, assessments, and professional development. In 2000, many duties related to accountability were assigned to the Office of Standards, Assessment, Accountability, and Compliance, one of the subdivisions under the Institute for Learning.

In the subsequent years, such a structural unit began to expand to other districts in the country. Examples include the Department of Professional Learning and Accountability (PLA) in Fairfax County Public Schools of Virginia, the Department of Planning, Program Evaluation, and Accountability in Florida's Lake County Schools, and the Accountability/Testing Division in Onslow County Schools, North Carolina.

Among the existing literature on school district reforms (e.g., Darling-Hammond et al., 2005; Duke, 2005; Elmore & Burney, 1997; Gallucci, 2008; Hightower, Knapp, Marsh, & McLaughlin, 2002; Honig, 2004, 2008, 2009a, 2009b; Stein & Coburn, 2008; Stein, Hubbard, & Mehan, 2004; Supovitz, 2006), only a few studies (e.g., Darling-Hammond et al., 2005; Duke, 2005; Hightower et al., 2002) are concerned with the district central office unit, established to address the accountability requirements. Although this structural innovation is being adopted by some districts, there is only limited information about the way the units function and their impact. The extent of variation across these units and the patterns they follow in terms of their structures and functions remain unclear.

Given that "accountability" has become a federal and state mandate, school districts are required to hold their schools accountable for student achievement. Addressing the gaps in knowledge noted above may add to our understanding of how districts adjust their structure to achieve educational accountability.

Theoretical Foundation

In the contemporary literature, theories of structuralism and institutional theory have been widely adopted to explore organizational characteristics and behaviors (e.g., Acker, 1990; Adler & Borys, 1996; DiMaggio & Powell, 1983; Jepperson, 1991;

Lunenburg & Ornstein, 2000; Meyer & Rowan, 1977; Owens, 1998; Pugh et al., 1963; Pugh, Hickson, Hinings, & Turner, 1968; Tirole, 1986). Theories of structuralism emphasize organizational structure and the highly rational logic of hierarchical control over people. The key aspects of the formal organizations (e.g., hierarchy, span of control, division of labor) are identified by theories of structuralism and provide a framework for the analysis of this study.

Institutional theory offers another perspective on organizations. According to this theory, organizations do not always behave rationally (e.g., conduct cost-benefit analysis) to maximize their own interests. The organizational structure reflects not only "technological imperatives" and "resource dependencies" (Scott, 2008, p. 427), but also institutional elements, defined as the "rules, norms, or beliefs being forged in on-going interaction" (p. 429). Reflecting this viewpoint, DiMaggio and Powell (1983) developed the theory of institutional isomorphism, arguing that certain types of organizations are more and more similar in aspects of structure, culture and goals.

In their review of literature, DiMaggio and Powell (1983) identified numerous examples of organizational isomorphism (e.g., Hirsch & Whisler, 1982; March & March, 1977; Sedlak, 1981; Swidler, 1979). To explain the absence of variation among organizations, the authors suggested three mechanisms: "(a) coercive isomorphism that stems from political influence and the problem of legitimacy; (b) mimetic isomorphism resulting from standard responses to uncertainty; and (c) normative isomorphism, associated with professionalization" (p.150). Following their discussion of the mechanisms, DiMaggio and Powell proposed 11 hypotheses (p. 154-156), describing the factors that might predict the extent to which organizations become more like each other.

The theory of institutional isomorphism is relevant to this study for the following reasons. First, the NCLB Act creates a legal environment that affects local districts' structures and behaviors. It can be considered as a "coercive" mechanism (DiMaggio & Powell, 1983, p. 150) through which isomorphism of district organizations may occur. Second, educational innovations, including the creation of new structural units, tend to have "high levels of technical uncertainty" (Rowan, 1982, p. 260), which is "a powerful force that encourages imitation" (DiMaggio & Powell, 1983, p. 151). Third, the emerging structural units are more likely to rely on professionalism to gain legitimacy and acceptance (Rowan, 1982, p. 260), and professionalism is a third source of isomorphic change (DiMaggio & Powell, 1983, p. 152). Based on the analysis above, it is reasonable to conjecture that the district central office unit created to perform accountability functions tend to become isomorphic in certain aspects.

Research Purpose

The purposes of this research are to examine the creation and evolution of Accountability Departments (defined later), describe their structures and functions, and compare these departments across Virginia school divisions. Specifically, this study aims to provide answers to the following questions.

1. How did the Accountability Departments originate?

2. How have the Accountability Departments evolved since their inception?

3. Why have the Accountability Departments changed over time?

4. What are the current characteristics of Accountability Departments, including their goals, staffing, functions, and structures?

5. How do the Accountability Departments perform their functions?

6. To what extent are the Accountability Departments similar to each other across the school divisions?

Rationale

This research study is important for the following reasons. First, there is limited information (e.g., Duke, 2005, 2010; Hightower et al., 2002) on Accountability Departments in district central offices. This research will expand the thin body of literature by generating more empirical evidence regarding the structure and functions of this unit.

Second, this study indicates how school divisions address accountability requirements by creating new units at their central offices. This information can help district leaders make decisions on the central office restructuring in an era of accountability. Traditionally, the central offices are mainly responsible for managerial functions, such as transportation and purchasing (Honig, 2008). These functions "may prevent district leaders from focusing on their core mission" of supporting teaching and learning (Supovitz, 2006, p. 7). The current accountability policies, however, require the district leaders to shift their attention to the academic issues. Therefore, information on how central offices adjust their structures to support teaching and learning is especially important. The structural innovation (i.e., the structure and functions of the Accountability Department) described by this research can help district administrators understand how accountability functions can be supported by the new central office unit.

Furthermore, this research makes a contribution to the application of the theory of institutional isomorphism at the school district level. The study can provide empirical evidence on organizational isomorphism by describing the extent to which the

Accountability Departments are similar to each other across school divisions. The findings can suggest whether the theory of institutional isomorphism applies to school district organizations.

Limitations

The limitations of the research must be acknowledged. First, Research Questions 1-3 were informed by data from two school divisions in Virginia. Since the research questions are relatively uninvestigated in the current literature, data from the two school divisions represent an entrance into the exploration. However, more evidence still needs to be generated regarding how Accountability Departments were created and have evolved in other school districts.

In the second phase of the study, the author administered an online checklist to a sample of 32 Accountability Departments in order to generate evidence regarding the functions of the unit. The department Directors completed the checklist on a voluntary basis. Such a sampling strategy may bias the survey results because the Directors who agreed to participate may come from Accountability Departments that have certain unique characteristics. For example, those departments may be more willing to share their experiences with others. Therefore, the departments included in the sample may not be representative to the population, which undermines the "external validity" of the findings (Krathwohl, 1998, p.137). Future research can address this issue by employing a random sample.

The third limitation concerns the checklist data. The checklist includes six function categories. Each category consists of a group of activities identified based on a review of accountability policies and the case study findings. These activities are equally

weighted in the present study. However, the activities may not necessarily be of equal importance. It is likely that some activities (e.g., monitoring and observing testing and reporting test data) are more directly related to accountability outcomes than others (e.g., organizing logistic issues). Therefore, a better way to assess Accountability Departments' involvement in the accountability functions is to assign different weights to the activities on the checklist in order to indicate their relative importance.

Another limitation of the checklist data is that, due to the participants' biases, the data may not accurately reflect Accountability Departments' involvement in the functions. A strategy to reduce biases is to ask more employees from Accountability Departments to complete the checklist survey.

Definitions of Terms

School division. The Virginia Board of Education divides the Commonwealth "into school divisions of such geographical area and school-age population as will promote the realization of the standards of quality required by of Article VIII, Section 2 of the Constitution of Virginia" (§ 22.1-25). Currently, there are 132 school divisions in Virginia. In many parts of the United States, "school district" is often used instead of "school division". The two terms, "school division" and "school district" are used throughout the paper. When "school division" appears, it particularly refers to the geographic areas in Virginia.

Structure. "Structure" is defined as a set of relations between the entities (Radcliffe-Brown, 1952). It contains two aspects: a collection of units and the relations among these units. In this study, "structure" refers to the roles and units within an organization and the relationships among them.

Accountability function. This term is used to indicate the activities an organization performs and the contribution it makes to achieve educational accountability. As will be explained in Chapter 2, educational accountability can be considered as both a process and an outcome. Accordingly, there are two types of functions related to educational accountability. The first type, called "process function", is concerned with the process of how accountability can be achieved. According to NCLB, school districts are required to work on at least the following process functions[1]: curriculum and instruction, support for failing schools, parental involvement, teacher quality improvement, and program evaluation.

The second type of functions is called "outcome functions". These functions, such as managing state testing programs and reporting test data (U.S.C. § 6316 (a)(1)(A) & (C)) , aim to determine whether educational accountability has been achieved.

Table 1
Functions Required by NCLB Act

Process functions	
Curriculum and instruction	- Assisting schools in developing or identifying examples of high-quality, effective curricula (U.S.C. § 6312 (c)(1)(O)) - Providing support for school wide instructional programs (U.S.C. § 6312 (c)(1)(C))

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[1] The author does not intend to suggest any causal relationship between these functional areas and the attainment of AYP and accreditation, but to emphasize that the current accountability policies require school districts to perform these activities.

Support for failing schools	- Identifying schools for improvement, corrective action, and restructuring (U.S.C. § 6316 (b)(1)) - Approving the school improvement plan (U.S.C. § 6316 (b)(3)(A)) - Ensuring that schools identified for improvement receive technical assistance in "analyzing data" and "identifying and implementing professional development, instructional strategies, and methods of instruction" (U.S.C. § 6316 (b)(4)(B)) - Implementing public school choice and supplemental services (U.S.C. § 6312 (b)(1)(M))
Parental involvement	- Assisting schools in developing and implementing activities related to parental involvement and teacher quality improvement (U.S.C.6312 § (c)(1)(H))
Teacher quality improvement	
Program evaluation	- Evaluating school programs "with respect to parental involvement, professional development, and other activities" (U.S.C. § 6316 (a)(1)(D))
Outcome functions	
Testing and data	- Implementing a set of high-quality, yearly student academic assessments (U.S.C. 6311§ (b)(3)(A)) - Reviewing school progress based on data from the state tests (U.S.C. § 6316 (a)(1)(A)) - Using academic assessment results to improve student achievement (U.S.C. 6311§ (b)(10)(B)) - Publicizing and disseminating student assessment results to parents, teachers, principals, schools, and the community (U.S.C. § 6316 (a)(1)(C))

Among the above functions, the author further defines that the management of the Virginia Standards of Learning (SOL) tests is the "key accountability function". The SOL tests are adopted as the primary tool for assessing school progress. Both federal and state policies require each school district to coordinate the state testing program and attach highly visible consequences to the tests. Additionally, the Virginia Department of Education (VDOE) has developed formal rules and guidelines to standardize the SOL testing procedures.

Accountability Department. It is assumed that all Virginia school divisions perform the functions required by the NCLB (Table 1). It is also assumed that every school division has assigned these functions to one or more units or roles at the central office.

In this research, the author will only focus on one unit within the central office which performs accountability functions. The title of the unit must have the word "accountability" in it. If this condition is not met, the unit must be dedicated to the key accountability function – managing the state SOL tests. This unit, called the "Accountability Department", constitutes the unit of analysis of this study.

Adequate yearly progress (AYP). This term refers to the minimum level of improvement that schools and school divisions must achieve each year as required by NCLB. Each state is required to define "what constitutes adequate yearly progress of the State, and of all public elementary schools, secondary schools, and local educational agencies in the State, toward enabling all public elementary school and secondary school students to meet the State's student academic achievement standards, while working toward the goal of narrowing the achievement gaps in the State, local educational agencies, and schools" (U.S.C.6311 § (b)(2)(B)).

In Virginia, the AYP status is determined based on at least 29 indicators, called "AYP indicators" (see Table 2). In order to make AYP, a school division or a school needs to meet the benchmarks for the participation rate and pass rate in the state standardized reading and math tests. The benchmarks are set separately for all students and for each student subgroup. Additionally, Virginia elementary and middle schools must also meet benchmarks for attendance, science, writing or history, and high schools,

school divisions and the state must also meet an objective for graduation. These

additional objectives are known as "other academic indicators". Prior to the beginning of

the school year, school divisions must declare whether they will use attendance, science,

writing or history as the other academic indicator for elementary and middle schools.

Table 2
AYP Indicators

	State standardized test: reading		State standardized test: math		Other academic indicators
	Participation rate	Pass rate	Participation rate	Pass rate	
All students	No less than 95%	Vary by state/year	No less than 95%	Vary by state/year	Explained above
Economically disadvantaged students	No less than 95%	Vary by state/year	No less than 95%	Vary by state/year	
Disabled students	No less than 95%	Vary by state/year	No less than 95%	Vary by state/year	
Students with limited English proficiency	No less than 95%	Vary by state/year	No less than 95%	Vary by state/year	
Black students	No less than 95%	Vary by state/year	No less than 95%	Vary by state/year	
White students	No less than 95%	Vary by state/year	No less than 95%	Vary by state/year	
Hispanic students	No less than 95%	Vary by state/year	No less than 95%	Vary by state/year	

Accreditation. "Accreditation" means a process used by the VDOE to evaluate

the educational performance of public schools (Virginia Department of Education

[VDOE], 2011, p. 4). School accreditation ratings (i.e., Fully Accredited, Provisionally

Accredited, Accredited with Warning, and Accreditation Denied) are based on a set of

indicators. For elementary and middle schools, the indicators include student

achievement on SOL tests and other approved assessments in English, history/social

science, mathematics and science. For high schools, the ratings are based on the

achievement of students on tests in the above content areas and the point value on the Graduation and Completion Index.

Standards of Learning (SOL) tests. SOL tests refer to those criterion referenced assessments approved by the Board of Education for use in the Virginia assessment program that measure attainment of knowledge and skills required by the SOL (VDOE, 2011, p. 6). All students in tested grade levels and courses are expected to participate in the SOL tests, unless specifically exempted by state or federal law or by Board of Education regulations.

The Virginia Board of Education has defined the levels of student achievement on the SOL tests. For the SOL reading and mathematics tests for grades 3 through 8, there are four performance levels: Pass/Advanced, Pass/Proficient, Fail /Basic and Fail/Below Basic. For all science tests and for high school SOL End-of-Course (EOC) reading and mathematics tests, there are three performance levels: Pass/Advanced, Pass/Proficient, and Fail. "Pass rate" refers to the percentage of students who score proficient or above on the SOL tests. "Advanced rate" means the percentage of students who score advanced on the SOL tests.

State testing programs. State testing programs are a system used in Virginia to evaluate student achievement that includes SOL tests and additional tests (e.g., Virginia Alternate Assessment Program, Virginia Grade Level Alternative, Virginia Substitute Evaluation Program, and Virginia Modified Achievement Standards Test) which may be approved from time to time by the Board of Education (VDOE, 2011, p. 6). These assessments are administered state wide.

Division testing programs. Division testing programs refer to a system that includes assessments approved by a local school board. These assessments are not mandated by the state, but administered division wide only. The specific tests and testing procedures may vary by school division.

Degree of involvement of the Accountability Department. This term refers to the extent to which Accountability Departments are involved in the accountability functions, as perceived by the department Directors. The degree of involvement of the Accountability Department is assessed by a checklist. The Directors are asked to indicate their perceptions of their departments' involvement in each activity on a 4-point Likert-type scale on the checklist. The number "1" suggests the Accountability Department is not involved in the activity, while "4" means the department is extensively involved.

Chapter 2

Review of the Literature

In this chapter, a review of the existing literature is presented. The purpose is to define the key concepts, synthesize prior research, and outline the need for a study on Accountability Departments at the school district level. In the first section, the author delineates the evolution of the concept of "educational accountability". Next, the federal and state policies, which serve as the current bases for determining educational accountability, are described. In the third section, the author summarizes and critically analyzes previous studies of how accountability functions are being organized at the district level. In the fourth section, theories of structuralism and institutional isomorphism are examined in order to provide a theoretical framework for understanding how school districts are organized to achieve accountability.

Within the educational literature, there are numerous publications discussing educational accountability (e.g., Duke, Grogan, Tucker, & Heinecke, 2003; Fuhrman & Elmore, 2004; Hanushek & Raymond, 2001; Ladd, 2001; Leithwood, Edge, & Jantzi, 1999; Ryan, 2002; Wagner, 1989). The definitions of accountability vary from time to time, as do the policies and models associated with educational accountability. Heinecke, Curry-Corcoran, and Moon (2003) have listed the different definitions and components of accountability in education from the late 1970s to 2000 (pp. 17-18). To track the evolution of this concept, the author first located the works cited by Heinecke et al. (2003) in Google Scholar and education databases (e.g., Education Research Complete Database

and Education Resources Information Center Database). In the next step, the researcher searched for articles from 2000 to the present in Google Scholar and education databases, using the keywords (and their combinations) like "accountability", "assessment", "test", "history of accountability", "conceptualizing accountability", and "defining accountability".

In addition, the author conducted the search by tracking scholars' publications, references of prior works, and important documents published by education organizations, such as Council of Chief State School Officers (CCSSO). Finally, approximately 300 publications in the last three decades were identified, from which a subset of articles were selected based on their relevance to the concept of educational accountability. These articles were organized in chronological order and reviewed in the first section of this chapter.

As for the remaining sections, a similar search strategy was employed. The final search results were synthesized and evaluated. Implications of previous literature for this study were discussed.

Conceptions of Educational Accountability

In Chapter 1, the author introduced the current policy background of educational accountability in the United States. However, since education policy is largely a reflection of values which vary over time (Marshall, Mitchell, & Wirt, 1989, as paraphrased in Heinecke et al., 2003, p. 9) and the present accountability reform is "related or conditioned by previous reform movements" (p. 10), it is necessary to trace the history of U.S. accountability reforms and the social context in which they occurred to fully understand the concept of educational accountability.

A brief history of accountability in education. The present accountability movement can be traced to the early 20th century in the U.S., when the efficiency movement and scientific management began to emerge (Kuchapski, 1998). At the turn of last century, notions of "measurability, standardizations, and classification of individuals (Sacks, 1999, p. 23)" were prevalent in the industrial world and were later introduced to school systems to achieve "efficiency", a predominant American value from the 1920s through the 1950s (Heinecke et al., 2003, p. 9). During that time, efficiency and accountability were closely aligned to each other (Wise, 1979, p. 84). Teachers could achieve efficiency by teaching the prescribed content through a standardized instructional process.

In the late 1950s, the success of Sputnik served as an impetus for the second wave of the accountability movement (Kuchapski, 1998). International competition increased people's awareness of the link between education and national security and triggered criticism of American public schools. In addition, the publication of the Coleman Report in 1966 suggested that differences in educational input measures, such as teacher qualifications and per pupil expenditures, do not account for much of the variation in student outcomes (Coleman et al., 1966). As a result, student test scores became the preferred indicator for school success or failure, at least for policy makers (Bowers, 1991).

Two other important events that influenced the educational accountability movement in the 1960s were the passage of the ESEA of 1965 and the establishment of National Assessment of Educational Progress (NAEP). Aiming to increase quality and equity in education, the ESEA was accompanied by an accountability component that

called for effectiveness to be measured in terms of norm-referenced standardized tests (Heinecke et al., 2003, p. 12). Under ESEA, states received federal funds, administered the funds, collected student data, and reported the results to the federal government (Bowers, 1991). The act provided "a number of influences for more testing" (Bowers, 1991, p. 53) and "effectively mandated states to employ standardized tests" in order to receive federal aid (Sacks, 1999, p. 74).

NAEP also had a tremendous impact on educational accountability by assessing a representative sample of students nationwide in grades 4, 8, and 12 in the areas of reading, writing, math, science, history, and more. NAEP tests made it possible to compare student achievement across states and over time (National Center for Education Statistics, 2010). Many states included NAEP test items in their own state testing programs and used NAEP data to evaluate their educational programs. Moreover, the released NAEP results increased the concerns of state educational agencies about student performance and reinforced the use of standardized tests to evaluate student performance (Bowers, 1991).

Accountability continued to be a topic of interest in the 1970s. By 1978, the majority of the states mandated some form of minimum competency standards for elementary and secondary schools (Cawelti, 1978). The standards set "the minimum levels of achievement required for all students (Pipho, 1980, p. ii)". Based on these standards, at least 20 school districts designed and implemented the minimum competency testing programs to certify student mastery of basic skills before high school graduation in the late 1970s (Bowers, 1991).

The release of *A Nation at Risk: The Imperative for Educational Reform* sparked a new interest in educational accountability in the 1980s. This report attributed the national decline in "commerce, industry, science, and technological innovation" to public education (National Commission on Excellence in Education [NCEE], 1983, p. 5). It called for more testing and recommended that (a) educators and officers be held responsible for improving student achievement and (b) consequences be attached to test scores (NCEE, 1983, as paraphrased in Heinecke et al., 2003, p. 15). In response, state departments of education began to develop and use their own indicators of educational progress. Forty states enacted new testing requirements (Kuchapski, 1998). At the district level, locally developed assessments and commercially developed tests were widely used (Blust & Kohr, 1984). It is especially noteworthy that, by the early 1990s, moderate-sized districts had their own "local testing and evaluation offices"; in some larger cities, such offices had larger staffs than those of the state department of education (Bowers, 1991, p. 57). Today, such testing offices still exist in many school districts (e.g., Department of Student Assessment in Montgomery Public Schools, Alabama; Office of Testing Services in Richmond City Public Schools, Virginia, etc).

The emphasis on student testing and compiling achievement data has continued to the present day. Recent accountability reforms are characterized by at least three features. First, a systemic approach to educational accountability is stressed. Policy makers are more concerned about the mechanisms and processes by which accountability is achieved, not just the creation of academic standards and assessments alone. For example, Congress required Title I schools to develop improvement plans in 1988 (Sacks, 1999, as paraphrased in Heinecke et al., 2003, p. 16). Two years later, the National Education

Goals Panel was established to monitor progress towards the six national education goals

developed at the historic Charlottesville Education Summit (Vinovskis, 1999). This

requirement may call on local educational agencies to organize accountability in a

systemic way. School districts not only have to administer the assessments and compile

test data to determine the student learning outcomes, but are compelled to develop plans

to improve student achievement as well. Second, highly visible consequences were tied to

the accountability systems for local districts and schools. Student performance was to be

publicly reported; chronically failing schools were identified and required to take

corrective actions (U.S. Department of Education [U.S. DOE], 2001). Third, there was

strong emphasis on the "inclusion of all students". High standards were set and the

equality of outcomes was expected for all students (Linn, 2000, p. 9).

Definitions and components of educational accountability. "Accountability" is

frequently used in the contexts of governmental and corporate affairs (Fenstermacher,

1979). Scholars (e.g., Fenstermacher, 1979; Hill & Bonan, 1991) generally agree that the

term describes a relationship between two parties, in which Party A is engaged in the

activities expected by Party B. Furthermore, Party A is obliged to inform Party B of its

own performance, while Party B has the capacity to impose consequences on Party A

based on the standards of performance.

According to Lessinger (1971), President Richard M. Nixon is the first person to

have used the term "accountability" to refer to public education. In his Special Message

to the Congress on Education Reform in March, 1970, Nixon described the "new concept"

of accountability:

School administrators and school teachers alike are responsible for their

performance, and it is in their interest as well as in the interest of their pupils that

they be held accountable. Success should be measured … by the results achieved

in relation to the actual situation of the particular school and the particular set of

pupils (pp. 62-63).

Nixon continued to stress that the lack of accountability was the most serious

threat to the educational system. He called for national standards so that the local

community could obtain dependable measures of how well its school system was

performing and the productivity of schools would be strengthened.

Scholars and policymakers have defined "accountability" in various ways over the

years. Their definitions include:

1. "the continuous willingness to evaluate education, to explain and interpret the

   results with all candor and divulge the results to the public or constituencies

   that need to know them…" (Nyquist, 1971, p. 24),

2. "the continuing independent assessment of student achievement; relating

   levels of achievement to the objectives formally adopted;…and full

   dissemination of the findings and analyses to parents, teachers, and citizens"

   (Lessinger, 1973, p. 1),

3. the assurance that degrees or certificates "evidence some set of proficiencies

   achieved at some minimum level" (Cohen & Brawer, 1982, p. 237),

4. "a process by which school districts and states meet their goals" (Newman,

   King, & Rigdon, 1997, p. 47),

5. "a systemic collection, analysis and use of information to hold schools, educators and others responsible for student performance" (Husain, 1998), and

6. "the use of assessment results and other data to ensure that schools are moving in desired directions." (Council of Chief State School Officers [CCSSO], 2003, p. 3).

Accountability also has been described by specifying the components of an accountability system or model. For example, Elmore, Abelman, and Fuhrman (1996) state that an accountability model is based on: (a) an emphasis on measured student performance, (b) relatively complex systems of standards, and (c) systems of rewards and penalties and intervention strategies (p. 65). Hanushek and Raymond (2002) indicate that an accountability system consists of goals, content standards, measurement, consequences, and reporting. Similarly, CCSSO suggest that the common elements of accountability include standards, indicators of progress toward meeting those standards, analysis of data, reporting procedures, and rewards or sanctions (2003, p. 3).

These descriptions reflect the multiple dimensions of educational accountability. As noted in some definitions (Husain, 1998; Lessinger, 1973; Nyquist, 1971), accountability refers to a technical process involving such steps as developing standards, assessing student achievement, collecting data, and reporting school performance. On the other hand, some more recent definitions (Cohen & Brawer, 1982; Newman et al., 1997; CCSSO, 2003) suggest that certain goals or desired directions are expected to be accomplished or to be followed. So, the concept of accountability can refer not only to a process, but also to an outcome.

Additionally, various constituents are mentioned in some definitions (Husain, 1998; Lessinger, 1973; Newman, et al., 1997; Nyquist, 1971) including schools, districts, states, parents, teachers, citizens, and others. Each group of constituents plays a different role with its own beliefs, goals and interests, thus suggesting that communications and negotiations are necessary if accountability is to be achieved. Accountability would seem to be not merely a rational technical process, but one that deals with values, beliefs, and interests of different groups as well.

The perspectives above are consistent with the viewpoints of several scholars. Levin (1974) argues that accountability can be viewed as: (a) periodic performance reporting, (b) a technical process (e.g., setting goals, measuring performance, providing rewards and sanctions, etc.), (c) a political process in which different constituents negotiate with each other to make the educational system accountable for their own needs, and (d) an institutional process, which is more concerned with the overall institution of schooling. Bowers (1979) echoes Levin's opinion by contending that accountability is not only associated with the rational "technological approach to education" which seeks prediction and control, but also contains "a sense of obligation and judgment" (p. 316), in which social values (e.g., equity) are integrated. "Accountability", it appears, can be considered as a process, as well as an outcome, of education; it can involve a rational technical procedure as well as involve the beliefs, needs, and interests of various stakeholders.

Discussion. Patterns emerge from the history of educational accountability reforms in the United States. Since the early 20th century, different values, reflecting the

corresponding social contexts, have shaped the evolution of accountability in education. These include efficiency, equity, competitiveness, control, and improvement.

As stated before, accountability used to be tightly aligned with the notion of "efficiency" characterized by "standardization" and "classification" during the early 1900s (Sacks, 1999, p. 23). As a result, students received the same prescribed instruction and were differentiated and categorized according to the predetermined standards. Just like the mass industrial production at that time, standardization made it possible to educate a large number of students within a relatively short time.

However, focusing educational accountability on efficiency is unlikely to address the needs of all students because of the variability in individual characteristics and needs. As a result, equity may be compromised. Since the 1960s, when the civil rights movement was at a peak, educational equity has become a primary focus of accountability reforms. For example, the enactment of ESEA in1965 was intended to ensure the educational needs of different student groups were identified and accommodated so that students had equal access to quality education.

"Equity" has not been the sole focus of educational accountability over the last few decades, however. It often conflicts with the concept of "competitiveness". In contrast to equity, competitiveness is associated with "efforts to boost the performance of elite students, especially in science, math, and engineering" (Hess & Rotherham, 2007). The tensions between the two values drive the development of accountability movements, with the ascendance of one taking attention from the other. For example, the accountability system was more expected to address the needs of children with low socio-economic status (SES) and close the achievement gap under Title I of the ESEA of 1965.

However, competitiveness issues arise when international competition grows more intense. Accordingly, accountability reforms focus more on testing and higher standards. Concern for disadvantaged children in the 1960s shifted to give way to interest in high academic achievers as a result of Japan's technological successes in the 1980s.

The concepts of "control" and "improvement" are both associated with educational accountability, but attention to one often results in neglect of the other. Frymier (1996) argues that, in many cases, accountability is an instrument of control rather than a vehicle for improvement. The accountability systems are constantly dealing with the relationship between control and improvement, more specifically, who should have control over what so as to improve student achievement. Control mechanisms typically include supervision, evaluation, rewards, and punishments (Duke, 2010, p. 88). Improvement, however, often requires capacity building, which may conflict with the concept of control. With the passage of the NCLB, current educational accountability systems are "reflecting a climate of control" again by attaching sanctions to student assessment results (Ryan, 2002, p. 463).

In conclusion, as a multi-dimensional concept, educational accountability has been continuously evolving during the last few decades. The meanings of the concept, as well as its forms, are reflecting various values, depending on the societal and political environments. Accountability in education has been built on different legal and policy bases and indicates different processes and goals. Having reviewed the history of educational accountability, it is now necessary to examine the current foundations for determining educational accountability.

Current Policies for Determining Educational Accountability

As described in the last section, the accountability reforms are influenced by the legal and political environments in which they it occurred. Federal and state educational agencies hold districts and schools accountable by establishing laws, regulations, and policies, as well as providing monitoring expenditures. In this section, recent policies related to educational accountability are discussed. The first part presents the federal policies, since the federal government is playing a major role in public education under the NCLB Act. The second part is focused on the accountability policies in Virginia, which is the site of this study. In light of the conclusions from the last section, three aspects of the policies are examined: (a) how the policies determine the outcomes for educational accountability; (b) how the policies determine the technical processes/mechanisms for educational accountability; and (c) the characteristics of the policies.

Accountability policies at the federal level.

Goals, processes, and indicators. As the latest reauthorization of the 1965 ESEA, the NCLB Act of 2001 represents the beginning of a new era in educational accountability. The purpose of the legislation is to ensure "all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging State academic achievement standards and state academic assessments" (U.S.C. § 6301). Accordingly, six "ESEA performance goals" are identified (U.S. DOE, 2002, p. 10167):

1. "All students will reach high standards, at a minimum attaining proficiency or better in reading and mathematics by 2013–2014.

2. By 2013–2014, all students will be proficient in reading by the end of the third grade.

3. All limited English proficient students will become proficient in English.

4. By 2005–2006, all students will be taught by highly qualified teachers.

5. All students will be educated in learning environments that are safe, drug free, and conducive to learning.

6. All students will graduate from high school."

The law also delineates how states must demonstrate accountability, including the following steps (U.S.C. § 6311 (b)(1)):

1. adopting "challenging academic content standards" in at least three subjects (i.e., mathematics, reading or language arts, and science) that "specify what children are expected to know and be able to do", "contain coherent and rigorous content", and "encourage the teaching of advanced skills" for all public elementary and secondary school students in the state,

2. developing "student academic achievement standards" that are aligned with the content standards and describe at least three levels of achievement (i.e., basic, proficient, and advanced) that determine how well children are mastering the academic content standards,

3. administering a set of high quality, yearly assessments in each of grades 3 through 8 to measure the annual performance of the state and of each local educational agency (LEA) and school against the academic standards,

4. enabling assessment results to be disaggregated by student group (e.g., gender, racial and ethnic group, English proficiency status, migrant status, etc.) and

reporting the results if the number of students in a category is sufficient to "yield statistically reliable information", and,

5. implementing consequences around the accountability goals.

In addition to the six goals and the technical process under the accountability framework, AYP is used to determine the annual performance of states, LEAs, and schools toward the goal of 100 percent of students attaining proficiency or above on state assessments by the 2013-2014 academic year. Under the NCLB (U.S.C. § 6311 (b)(2)(C)(ii) (iii), & (v)), AYP is defined by each individual state. It must be "statistically valid and reliable" and include "measurable annual objectives" that result in "continuous and substantial academic improvement for all students". Specifically, each state is required to identify "a single minimum percentage of students who are required to meet or exceed the proficient level" on the state assessments (U.S.C. § 6311 (b)(2)(G)). Such percentages are applied to all student groups, schools and LEAs in the state and may vary by subject or year. States use the percentages as their annual measurable objectives (AMO) and increase them in gradual increments until reaching 100 percent by the 2013-2014 academic year for each subject. For example, in North Carolina, the proficiency target goals (i.e., AMO) in 2007-2008 were 43.2% for reading and 77.2% for math; the goals stay the same for the next two years, but increase to 71.6% and 88.6% in 2010-2011 and will jump to 100% in 2013-2014 for the two subjects.

A state's definition of AYP also must include "graduation rates for secondary schools (defined as the percentage of students who graduate from secondary school with a regular diploma in the standard number of years) (U.S.C. § 6311 (b)(2)(C)(vi))" and one or more indicators selected by the state for middle and elementary schools (e.g.,

attendance rates). It is emphasized that school and LEA's AYP status is primarily based on achievement on academic assessments. Meeting only the state determined indicators does not necessarily mean making AYP.

Status model for determining AYP status. Currently, several models have been developed to determine a school's AYP status. The first is often known as the "status model" (U.S. DOE, 2010, p. 2). In order for a school to make AYP under this model, it must test at least 95 percent of its students in each subgroup. Additionally, the school must ensure all its students and required groupings meet or exceed the AMO. If a single subgroup fails to achieve the AMO, the school does not make AYP.

U.S. Department of Education (2010) allows states to apply other strategies, such as confidence interval, multiyear averaging, and safe harbor, within the status model to reduce the chances of incorrectly classifying schools as not making AYP. A confidence interval refers to "the range of values within which the true value is expected to fall at a given level of statistical certainty" (p. 3). Generally, the percent proficient of a certain group is affected by its true academic performance, as well as random measurement errors[2]. The confidence interval takes into account the random errors to increase statistical reliability. In Illinois, for example, the AMO in 2010 is 77.5%. The state applies a 95% confidence interval to all student groups, so for a group of 25 test-takers, the minimum performance target is only 63.8%. In other words, this group will be

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[2] Random error is caused by any factors that randomly affect measurement of the variable across the sample. For example, a student's test score may be inflated or deflated by his/her mood, health, the test environment, or other factors that are irrelevant to the student's true academic performance.

considered to make AYP if 16 (instead of 20) out of 25 students achieve proficiency or above on the state assessments.

When calculating AYP, a school can also apply the "multiyear averaging" technique by averaging the test results of the group over two or three years and comparing the average to the AMO. This method is based on the assumption that data collected from two or three years are more reliable than only one year.

 "Safe harbor" provision in the NCLB Act represents another way schools can make AYP. It states that schools with one or more subgroups not making the AMO would still be considered to have made AYP if the percentage of non-proficient students in that group declined by 10 percent or more from the preceding school year or the average percent from the prior two or three years (U.S. DOE, 2010, p. 3). But, the group still needs to make progress on one or more other indicators (e.g., graduation rate for high school or attendance rate).

The implementation of the status model has raised many concerns. Evidence shows that the stringent proficiency requirements are likely to shift teachers' attention to students closest to the proficiency threshold while students farthest below the proficiency cut score receive less attention (e.g., Neal & Schanzenbach, 2010). One possible reason is that the status model does not recognize real improvements in student achievement unless the percentages of proficient or advanced students increase in a given year (U.S. DOE, 2010, p. 4). In other words, schools whose achievement improves from the "below basic" level to the "basic" level will not be judged to make AYP.

Growth model for determining AYP status. In order to address the limitations of

the status model, the U.S. Department of Education has approved 15 states[3] to

incorporate "growth models" in school AYP determinations under the Growth Model

Pilot Project (GMPP) since November, 2005. The approved growth models in the pilot

states differ from one another in a number of ways, but generally growth models are

defined as complements or alternatives to the status model that provide additional

opportunities for schools to make AYP. As mentioned before, in some groups, students

are making substantial progress, but not yet attaining proficiency. The basic goal of

growth models is to identify such groups and classify them as making AYP.

There are at least three types of growth models being used in GMPP (CCSSO,

2009, p. 14): "trajectory models[4]", "transition models", and "projection models". The

first type is the most popular one[5]. It uses the gap between a student's baseline test score

and a proficient score in some future grade to calculate the amount of growth he or she

must attain to become proficient. The "performance gap" is then divided by the number

of years during which the student must improve to meet the proficiency standards to

indicate the annual growth he or she must achieve. Students meeting the annual growth

target will be considered "on track to proficiency" (U.S. DOE, 2010, p. 11). Students who

fail to achieve proficiency but who are "on track" are added to the number of proficient

students when determining if AYP is met. Figure 1 presents an example of the "trajectory

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[3] The pilot states are North Carolina, Tennessee, Delaware, Arkansas, Florida, Iowa, Ohio, Alaska, Arizona, Michigan, Missouri, Colorado, Minnesota, Pennsylvania, and Texas.

[4] It is also called "growth to proficiency models".

[5] States adopting trajectory models include Alaska, Arizona, Arkansas, Colorado, Florida, Missouri, and North Carolina.

models". The dotted line indicates the trajectory of student achievement, with the diamond-shape dots suggesting the annual growth targets the student must meet to be "on track". The squares on the top line are the proficient levels for each grade. The middle line is the student's real achievement. At grade 4, for example, although the student is below proficiency, he or she is still on track by meeting the annual growth target, and therefore, will be classified as a proficient student.
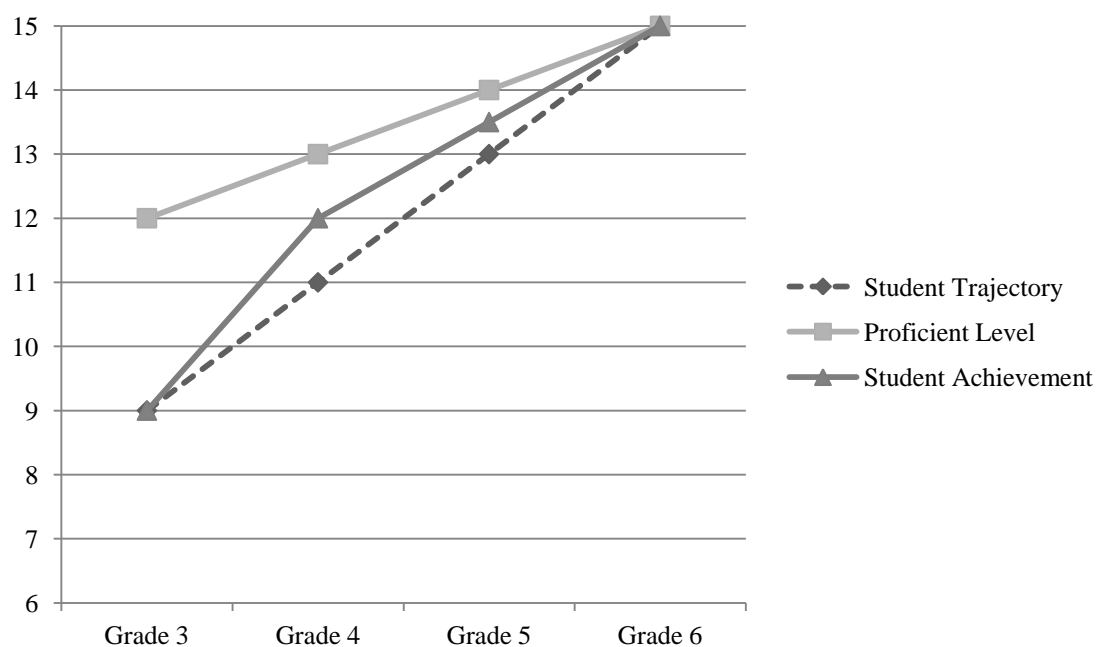
Figure 1. Illustration of How to Identify On-Track Students by Trajectory Models

Unlike the trajectory models which track student progress based on the annual growth target for each individual, transition models[6] determine academic improvement by evaluating "student transitions across performance levels or subdivisions of performance levels (CCSSO, 2009, p. 14)", such as below basic, basic, proficient, and advanced. Transition models focus on student academic performance over the last two years and identify students who move from lower to higher levels. Table 3 (U.S. DOE,

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[6] States adopting transition models include Delaware, Iowa, Minnesota, and Michigan.

2010, p. 10) illustrates how this model is used in Iowa. Students who are proficient or advanced in Year X will be classified as "on track", if they continue to be proficient or advanced in the next year. For students who score below proficiency in Year X, if they move up at least one performance level (e.g., from weak to low marginal), schools will report them as on track and count them as proficient students to increase the chance of meeting AYP.

Table 3
Illustration of How to Identify On-Track Student by Transition Models

Year X Performance Level	Year X+1 Performance Level				
	Weak	Low Marginal	High Marginal	Proficient	Advanced
Weak	Off-track	On-track	On-track	On-track	On-track
Low marginal	Off-track	Off-track	On-track	On-track	On-track
High marginal	Off-track	Off-track	Off-track	On-track	On-track
Proficient	Off-track	Off-track	Off-track	On-track	On-track
Advanced	Off-track	Off-track	Off-track	On-track	On-track

Projection models[7] are more statistically complex than the previous two. They use multiple regression techniques to predict the student's test score in some future year based on his or her current and previous scores. If the predicted score is equal to or greater than the proficiency threshold, the student will be considered on track, even if he or she is not proficient at the current grade. The number of on-track students will be added to the number of proficient students when AYP is calculated. Figure 2 shows how projection models are used to identify on-track students. In this figure, the student's score at grade 5 is below the proficient level. Based on his or her test scores at grade 3, 4, and 5, the student's growth can be estimated, as reflected by the solid line, also known as the regression line. Schools can use the regression line to predict the student achievement in some future grade. In this example, the student's predicted score at grade 6, as

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[7] States adopting projection models include Ohio, Pennsylvania, Tennessee, and Texas.

represented by the end of the dashed line, is greater than the proficiency cut score, and

therefore, he or she will be identified as an on-track student.
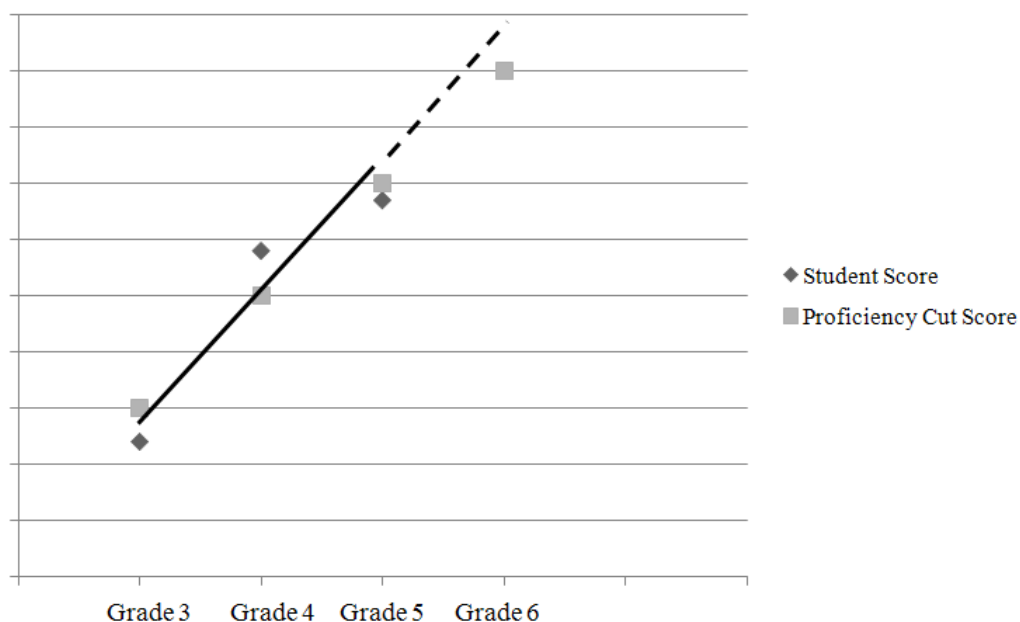
Figure 2. Illustration of How to Identify On-Track Student by Projection Models

Consequences. Along with the other elements (i.e., goals, processes, and

indicators), states are required to attach consequences to the accountability system. The

NCLB Act indicates that states should include rewards and sanctions in their

accountability plans to ensure schools and districts make AYP. To respond to the federal

law, at least 30 states offer financial incentives to raise student scores. In other states,

rewards take the forms of public recognition, professional development opportunities,

and additional supplies for teaching, etc. (CCSSO, 2007).

The NCLB also has mandated very specific sanctions for schools that fail to make

AYP for two or more consecutive years. Sanctions are varying according to the phases in

which the schools are placed.

Schools that do not make AYP for two years in a row will be placed in "Phase 1 - school improvement". These schools must (U.S.C. § 6316 (b)(3)(A)):

1. provide "written notice" to the parents of each student about the school status;

2. provide all their students with the option to transfer to another public school served by the LEA (i.e., public school choice);

3. develop a two-year school improvement plan, in consultation with parents, school staff, district staff, and outside experts, for approval by the LEA;

4. specify the responsibilities of the school, the LEA, and the State educational agency serving the school under the plan;

5. establish "specific annual, measurable objectives for continuous and substantial progress" to ensure each group of students will meet proficiency;

6. adopt strategies, policies, and practices concerning the school's core academic subjects that caused the schools to be identified for improvement;

7. adopt strategies to "promote effective parent involvement";

8. include, as appropriate, extended learning activities (e.g., before school, after school, during the summer); and

9. spend at 10 percent of its Title funding on professional development.

If such schools fail to make AYP for the third academic year, they must continue to take the same actions described above and implement "supplemental educational service" in Phase 2 (U.S.C. § 6316 (e)(1)). The term "supplemental educational services" refers to high quality, research-based tutoring and other supplemental academic enrichment services provided during the school day (U.S.C. § 6316 (e)(12)(C)).

If schools in Phase 2 fail for the fourth year, they will enter the third phase: corrective action. In this phase, schools are required to take more intense actions beyond those in Phase 2, which include (U.S.C. § 6316 (b)(7)(C)(iv)):

1. replacing the school staff who are relevant to the failure to make AYP,

2. implementing a new curriculum,

3. significantly decreasing the school level "management authority",

4. appointing an outside expert to advise the school,

5. extending the school time, and

6. restructuring the "internal organizational structure" of the school.

Schools that do not make AYP for the fifth year will have to take such actions as restructure (U.S.C. § 6316 (b)(8)(B)):

1. "reopening the school as a public charter school",

2. replacing "all or most of the staff" who are relevant to the school failure,

3. entering into a contract with an outside entity (e.g., a private management company) to operate the school,

4. turning the operation of the school over to the state educational agency, if allowed, and,

5. implementing any other major restructuring of the "school's governance arrangement that makes fundamental reforms" (e.g., changes in staffing) to improve student achievement.

Particularly, the NCLB emphasizes that LEAs are responsible for providing technical assistance for schools receiving the above sanctions (U.S.C. § 6316 (b)(4)(B)). Specifically, LEA are supposed to provide assistance in analyzing data from the state

assessments, identifying and implementing professional development and instructional strategies "based on scientifically based research", and "analyzing and revising the school's budget".

Accountability policies in Virginia. In Virginia, the educational accountability system is based on rigorous academic standards, known as the SOL, and annual SOL tests and other assessments. Before the release of the NCLB, Virginia developed SOL and kept revising it to respond to the national policies and meet students' needs (Duke & Reck, 2003, pp. 38-44). The standards for each subject are reviewed and updated every 5 to 8 years. In compliance with the federal mandates (U.S.C. § 6311 (b)(1)), Virginia Board of Education has adopted the SOL as the statewide academic content standards for each grade through K-12 in English, mathematics, science, history/social science, technology, the fine arts, foreign language, etc. The SOL reflects the public expectations for student learning and achievement by describing the curriculum framework and what each student is able to do after they have learned the content. To ensure coherence between the SOL and instruction, Virginia also develops "enhanced scope and sequence guides" to provide sample lesson plans and instructional resources to help teachers integrate the SOL in classroom teaching.

The SOL assessments were first created in the 1990s to link the content standards to student achievement so that educators can determine whether students meet the expectations (Duke & Reck, 2003, pp. 45-46). Under the NCLB, the SOL tests have been adopted as the statewide assessments that measure student performance against the SOL. Students are assessed in English and mathematics in grades 3 to 8 and in science and history in grades 3, 5, and 8. The SOL tests are also administered at the end of certain

high school level courses. Most SOL assessments (78%) are now implemented online, and online testing will be the primary delivery mode for all SOL assessments by 2013. As mandated by the law (U.S.C. § 6311 (b)(1)(D)), Virginia Board of Education has defined three levels of student achievement: basic, proficient, and advanced, and established the cut scores for each level. Along with the SOL tests, Virginia has published the "test blueprints" that explains how tests should be constructed and used so as to serve as a guide to test developers, educators, parents, and students.

In Virginia's accountability system, accreditation ratings and AYP are assigned to each school. The accreditation rating is a state designation that reflects a school's overall achievement on SOL tests and other statewide assessments in English, history/social science, mathematics, and science. Each school is assigned one of the ratings: "Fully Accredited", "Accredited with Warning", "Accreditation Denied", and "Conditionally Accredited", based on student pass rates on the state tests from the previous academic year or from the last three years. Pass rates are calculated by adding the percentages of students who perform at the proficient and advanced levels together. The following table presents the pass rate benchmarks for a school to get fully accredited. If the pass rates are below the benchmarks, the school will receive an "accredited with warning" rating. A school may hold this rating for no more than three consecutive years. Schools that fail to meet the requirements for full accreditation for four consecutive years will be denied accreditation. The "conditionally accredited" rating will be assigned to new schools or reconstituted schools.

Table 4
2010-2011 School Year Pass Rate Benchmarks for Full Accreditation[8]

Subject	Grade 3	Grade 4-5	Grades 6-12
English	75%	75%	70%
Mathematics	70%	70%	70%
Science	50%	70%	70%
History	50%	70%	70%

AYP is a federal accountability designation that has been integrated into the

Virginia accountability system. Virginia is implementing the status model for

determining school AYP status. The "safe harbor" approach is adopted, as suggested by

the NCLB Act, but the "confidence interval" and "multiyear averaging" techniques are

not applied when calculating AYP. Table 5 presents the AMO for reading and math for

each academic year. Unlike the accreditation benchmark which is relatively stable over

time, AMO increases almost every year until it reaches 100% in 2013-2014. Furthermore,

the accreditation rating is based on overall student achievement, but AYP is calculated

for the whole school and for each student subgroup. Therefore, it is possible that fully

accredited schools fail to make AYP. In the 2009-2010 academic year, 98% of schools

get full accreditation, but only 72% of the total schools make AYP.

Table 5
Annual Measurable Objectives from 2007-2008 to 2013-2014[9]

	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2007-2008
Reading and Language Arts	60.7%	61.0%	61.0%	65.0%	69.0%	77.0%
Math	58.4%	59.0%	59.0%	63.0%	67.0%	75.0%
	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
Reading and Language Arts	81.0%	85.0%	89.0%	93.0%	97.0%	100%
Math	79.0%	83.0%	87.0%	91.0%	95.0%	100%

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[8] Retrieve from

http://www.doe.virginia.gov/statistics_reports/school_report_card/accountability_guide.shtml#accreditation

[9] See: http://www.doe.virginia.gov/statistics_reports/school_report_card/accountability_guide.shtml#ayp

In addition to the AMO in reading and mathematics, NCLB (U.S.C. § 6311 (b)(2)(D)) requires states develop other indicators for academic growth. In Virginia, elementary and middle schools must select one of the following as the "other indicator": attendance, science, writing, and history/social science. High schools must include graduation rate as the "other academic indicator".

To meet the federal mandates, Virginia includes consequences in the state accountability system. The sanctions specified in the NCLB (U.S.C. § 6316 (b)(3)(A)) are imposed on schools that fail to achieve AYP in the same content area for two or more consecutive years. Sanctions are also imposed on schools that fail to achieve full accreditation (VDOE, 2009):

Schools that receive the "Accredited with Warning" rating "undergo academic reviews[10] and are required to adopt and implement school improvement plans". Schools that are warned in English and/or mathematics are required to "adopt instructional programs proven by research to be effective in raising achievement in these subjects".

If a school is denied accreditation, its local school board must submit a proposed "corrective action plan" to the Board of Education "describing the steps to be taken to raise achievement to state standards". At the same time, the school must provide written notice to "parents and other interested parties" about the school's accreditation rating and the corrective action plan and invite them to comment on the plan. The Board of Education will consider the proposed plan "in developing a memorandum of understanding with the local school board". When the school is implementing the

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[10] A process for helping schools and school divisions identify and analyze instructional and organizational factors affecting student achievement

corrective action plan, the local board must report the status of implementation in detail to the Board of Education. In any school division where more than one third of its schools are denied accreditation, the Board of Education "may take action" "against the local school board due to the failure of the local board to maintain accredited schools".

Discussion. In the current policy context, educational accountability is defined as both an outcome and a process. The federal law not only identifies six performance goals that all public schools must achieve, but also specifies the process through which each state must demonstrate accountability (e.g., develop standards and tests, administer tests, report student performance). In the accountability framework, academic content standards, achievement standards, and statewide assessments are the critical components, and student achievement growth on state tests (which is used to determine AYP) is a primary measure for school and district performance.

As noted in the last section, the present accountability policies reflect "a climate of control" (Ryan, 2002, p. 463). According to the NCLB Act, the state educational agencies are playing a major role by determining academic standards and tests and imposing sanctions on schools that fail to meet the state standards. Correspondingly, schools and districts have relatively less autonomy and must comply with the federal and state mandates.

Moreover, the federal government supports "a business model of accountability" (Duke, 2010, p. 105) to control the quality of schooling. Schools that do not make AYP for two or more years in a row are required to provide opportunities for its students to transfer to another school, or even reopen as a charter school. Such a requirement, known as the "public school choice" (U.S.C. § 6316 (b)(1)(E)), is based on the assumption that,

if the consumers are free to choose any product or service that meets their needs, the service providers are pushed to improve the quality of their services, or they will be eliminated by the market. Consumers, however, do not always have equal access to the information about product qualities or the alternatives they can have in the market (Garn, 2001). When it comes to educational accountability, students with high SES are probably in a better position to make school choice than low SES students, because high SES families can afford more educational resources, and hence, have more alternatives to choose from. With this perspective, the market-driven mechanism is very likely to increase the gap between different student groups and "perpetuate education inequity" (Duke, 2010, p. 105).

Despite the possible negative impacts caused by the "public school choice" provision, the NCLB Act has directed much attention to equality of student learning outcomes and closing achievement gaps by applying the same academic standards to all students and holding schools accountable for the performance of each student subgroup. Schools will have to face sanctions, even if only one of their subgroups is chronically performing below the proficient level. In addition, the law calls on states to give priority to LEAs that serve low-achieving students when allocating funds (U.S.C. § 6303 (c)(1)) and requires LEAs to give priority to providing supplemental educational services to lowest-achieving children (U.S.C. § 6316 (b)(10)(C)). In other words, the law promotes educational equity by providing supplementary educational resources and imposing harsh sanctions.

It is noteworthy that the accountability policies emphasize continuous and substantial academic improvement for all students, but do not clarify how to define

academic growth and how to achieve it. Although the definition of AYP is provided, it is unclear how each state determines the annual measurable objectives year by year. Is it reasonable to increase the proficiency target goals every year until they reach 100%, like the AMOs in Virginia (see Table 5)? Or, is it more appropriate to have the same goals for a few consecutive years, like North Carolina? How should states take into account the factors affecting student achievement (e.g., changing demographics) when setting AMOs? Currently, the federal government is trying to explore such issues by initiating the Growth Model Pilot Project (GMPP). In addition to the unclear definition, there are also concerns about the approach to accountability for school improvement. Many provisions in the law primarily rests on the premise that strong external pressures can motivate schools to improve their performance, while very limited information is offered to indicate how to increase the internal capacities of students, schools, and districts to grow continuously, especially for those performing at the proficient and advanced levels.

Another important feature of the accountability requirements is that local school districts are charged with greater responsibilities for student academic achievement. For Virginia school divisions, high stakes were first attached to the state testing program when the new Standards of Accreditation was adopted by the Board of Education in 1997. To meet the new standards, the division central offices have been compelled to adjust their structures and functions to increase student achievement. More specifically, three steps are essential to student performance improvement: (a) identifying the areas of improvement, (b) identifying programs that are effective and/or ineffective for improving the weak areas, and (c) implementing effective programs and modifying/eliminating ineffective programs. The accomplishment of these steps mainly depends on continuous

and systemic review of data from a range of aspects of the school division. Student assessment data are especially important for diagnosing problems and determining program effectiveness. Also, it may be useful for school districts to research the programs implemented in other sites and/or develop new programs to address the districts' own situations.

The functions related to the steps mentioned above at least include data analysis, program evaluation, and research. Although not explicitly required, these functions might be performed by some school divisions in Virginia after the adoption of the new Standards of Accreditation in 1997. It is assumed that, all school districts have been conducting data analysis and program evaluation, since the NCLB Act mandated these functions in 2002. The list below includes a group of activities school districts are required to perform by the NCLB:

1. assisting schools in developing or identifying examples of high-quality, effective curricula (U.S.C. § 6312 (c)(1)(O)),

2. providing technical assistance and support to school wide instructional programs (U.S.C. § 6312 (c)(1)(C)),

3. reviewing school progress based on data from the state tests (U.S.C. § 6316 (a)(1)(A)),

4. publicizing and disseminating student assessment results to parents, teachers, principals, schools, and the community (U.S.C. § 6316 (a)(1)(C)),

5. identifying schools for improvement, corrective action, and restructuring (U.S.C. § 6316 (b)(1)),

6. approving the school improvement plan (U.S.C. § 6316 (b)(3)(A)),

7. ensuring that schools identified for improvement receive technical assistance in "analyzing data" and "identifying and implementing professional development, instructional strategies, and methods of instruction" (U.S.C. § 6316 (b)(4)(B)).

8. working in consultation with schools as the schools develop and implement their plans or activities related to parental involvement and teacher quality improvement (U.S.C.6312 § (c)(1)(H)), and

9. reviewing the effectiveness of the actions and activities the schools are carrying out "with respect to parental involvement, professional development, and other activities" (U.S.C. § 6316 (a)(1)(D)).

Undoubtedly, demands for greater educational accountability have given rise to various changes in the existing organizational structures, functions, practices, and personnel at different levels. In the next section, the author will focus on the school district central office and examine how it acts to accomplish the tasks associated with the accountability policies.

District Efforts to Organize Accountability

Overview of studies on district reforms in the era of accountability. A report published by the Center for the Study of Teaching and Policy (CTP) (Honig, Copland, Rainey, Lorton, & Newton, 2010) points out that, student learning gains depend not only on what happens in schools but on "how school district central offices create and implement supports for change". However, the existing literature shows that, much more is known about how central offices fail to facilitate improvement in teaching and learning than about "what they do when they create conditions that might help to realize desired

results" (p. 5). Such gaps in knowledge may stem from the historical roles of central offices. As Honig (2008) indicates, district central offices primarily performed managerial functions rather than dealing with instructional issues in the past.

With the development of high-stakes accountability policies, school districts have been called on to provide various support for student academic growth, from managing achievement data to reviewing school improvement plans. Evidence shows that a significant association ($p < .05$) exists between the accountability mandates and district support for teaching and learning after controlling for the teacher and school characteristics (Opfer, Henry, & Mashburn, 2008), which means that districts may have taken actions to respond to the federal and state requirements.

Many researchers (e.g., Elmore & Burney, 1997; Gallucci, 2008; Hightower et al., 2002; Honig, 2004, 2008, 2009a, 2009b; Stein & Coburn, 2008; Stein et al., 2004; Supovitz, 2006) have explored what school districts actually do (and how they do it) to increase student academic achievement. Usually, the research studies take three to five years to track the district's reform processes. Case studies are often used to collect qualitative data through observations, documents, and interviews with teachers and administrators. Sample sizes are small, typically less than 10. The sites selected for study are usually districts implementing new system-wide policies and programs, like the Balanced Literacy Program in New York City's Community School District #2 (Elmore & Burney, 1997) and the Chicago High School Redesign Initiative in Chicago Public Schools (Kahne, Sporte, Torre, & Easton, 2006, 2008). Rich descriptions are provided on the characteristics and challenges of school districts, as well as the actions of central offices and the changes in schools and classrooms that took place in the processes.

From these data, researchers seek to identify the effective district practices that hold principals and teachers accountable for student performance. These practices include establishing student data systems (e.g., Massell & Goertz, 2002, pp. 54-58; Supovitz, 2006, pp. 129-155), evaluating instructional programs (e.g., Detroit Public Schools; Council of the Great City Schools [CGCS], 2008), using technology to facilitate teacher recruitment (e.g., New Haven United School District of California; Snyder, 2002, pp. 96-98), developing incentive systems for teachers and principals based on student learning (e.g., Denver Public Schools; CGCS, 2009), adopting new approaches to district-school relations (e.g., Honig, 2004; Stein & Coburn, 2008), providing professional development (e.g., Gallucci, 2008; Stein & D'Amico, 2002, pp. 61- 75; Supovitz, 2006, pp. 80-96). Furthermore, the authors interpret their findings using different theories.

Although the specifics may vary, a common purpose of the theories is to explain how the district-level policies and programs are connected to the changes in teaching and learning at the school and even the individual level. For example, Gallucci (2008) draws on Vygotskian socio-historical notions of development to trace the links between district professional development structures, individual teachers' learning, and district decision making regarding "new and revised supports for professional learning (p. 548)". In another study (Honig, 2009b), theories of organizational innovation and learning are used to investigate the reforms in two district central offices. The author uses the term "bridging" to indicate such district actions as "policy and practice development, capacity building, and communicating requirements (p. 396)", since these activities, as the concept of "bridging" suggests, aim to increase the flow of information between schools and central offices (p. 392). Generally speaking, theories enable researchers to organize,

conceptualize, and explain their observations, and thus, provide a basis for judgments and suggestions.

It seems premature at this point to assert "causal, conditional, or temporal relations among district strategies and related conditions" (Anderson, 2003, p. 8). As noted, most of the current studies are based on a small group of school districts that implement reforms. These districts may not be representative of the whole population. Reform strategies that lead to positive changes in one district may not work in another. For example, developing a coherent formal policy framework to guide program implementation may produce success in some districts, but may not be effective in districts whose central office administrators have limited capacity to lead change (Corcoran, Fuhrman, & Belcher, 2001). The conclusions of these studies therefore need to be interpreted in light of the particular environments in which data were obtained.

Researchers (e.g., Gallucci, 2008; Honig, 2003; Honig et al., 2010) have provided background information about their data collection sites, such as district size, demographics, policy context, and operating budget. Some (e.g., Darling-Hammond et al., 2003; Duke, 2005; Elmore & Burney, 1997) have even elaborated on the district's existing capacity to facilitate change, like the leadership team and the central office structure. It has been found that the district pre-existing conditions may influence the effects of district reforms in a number of ways. In a comparative study of San Diego City Schools (SDCS) and the Community District #2 in New York (Stein et al., 2004), the researchers found that district size played an important role in the reform. With a larger student population, there was a greater need for principals and staff developers in SDCS, which meant "district leadership could not be as selective in San Diego as in District #2"

when recruiting people. The training of teacher developers was not as "deep, long-term, or theory-based" as needed (p. 181). The large size of the district also made it more difficult for good ideas from classroom teachers and principals to be noticed by district leaders in SDCS. Student demographics may affect the district improvement efforts, too. In San Diego, there are a large number of Mexican-American students who do not speak English as their first language and often travel back and forth between Mexico and San Diego. These students have developed "a strong, unified voice, complaining that the needs and culture of Spanish-speaking students are not taken into account (p. 186)" by the new curriculum. With different student demographics, District #2 did not have such a problem when implementing the same curriculum.

In addition to district size and student demographics, the district structure is another factor that may facilitate or hinder reform implementation. It is pointed out that the organizational structure "enables employees to undertake a variety of specialized functions" that are aligned with the organizational goals. Without structure, employees may duplicate functions, disregard organizational priorities, or work in different directions (Duke, 2010, p. 79). With this perspective, some attention has been paid to the effects of structural change on district reform processes and outcomes (e.g. Duke, 2005; Grossman & Thompson, 2004; Hightower, 2002a; Stein & Coburn, 2008). A study by Stein and Coburn (2008) shows that structures that support bidirectional communication between the central office and schools may foster teachers' learning. It also indicates that the creation of a new unit may raise coordination problems across different divisions at the central office. Another study (Grossman & Thompson, 2004) examines the role of

curriculum specialist in two districts and suggests that close alignment between the role and the schools may enable the flow of teacher conversation.

Under the current NCLB Act, more and more districts have realized the importance of structures for supporting the accountability functions. As mentioned in the first chapter, some districts have created new units or roles at the central offices to deal with the accountability requirements (U.S.C. § 6312 (c)(1)(C)(N)(M); U.S.C. § 6316 (b)(3)(A); U.S.C. § 6316 (b)(4)(B)). This study focuses on one unit at the central office, called "Accountability Department", which performs the accountability functions. Investigation of these departments may offer insights into the role of school district in achieving educational accountability from a structural perspective.

Empirical studies of the structural renewal at the district central office. Only a handful of works (e.g., Darling-Hammond et al., 2005; Duke, 2005) are concerned with the structure of the district accountability services. They have focused on the Accountability Departments, as well as other units that perform instructional functions, and examined their origins, assumptions, personnel, and practices.

Studies of San Diego City Schools. Among the limited publications, studies of the reform of San Diego City Schools (SDCS) (e.g., Darling-Hammond et al., 2003, 2005; Hightower et al., 2002; Hightower, 2002a) have gained wide attention. Data for the studies were collected through semi-structured interviews and focus groups with relevant people from 1998 to 2001 (Hightower, 2002b, p. 77). Although the NCLB mandates had not been established at that time, the SDCS reform could be viewed as a response to growing local demand for accountability. Furthermore, SDCS was subject to the accountability rules that California developed in the 1990s. Schools were rewarded or

sanctioned based on their student achievement under the state accountability framework (Darling-Hammond et al., 2003, p. 24).

Facing the problems of low student performance, the fragmented organizational structure of the district, and little trust between the local community and central office (Hightower, 2002b, p. 77), the SDCS' new leadership team initiated changes based on the assumption that the district efforts should concentrate on instruction and teachers' practice (pp. 78, 80). Such a notion was reflected by the redesign of district "bureaucratic structure" (Hightower, 2002a, p. 8). Previously, there were seven divisions that reported directly to the superintendent, with two of them responsible for teaching and learning and the other five dealing with administrative, business, and legal issues. Moreover, five area superintendents, each in charge of a set of cluster leaders, and 14 academic programs reported to the Deputy Superintendent for Educational and School Services (Darling-Hammond et al., 2003, p. 66). After they took office in the summer of 1998, the new Superintendent and the Chancellor of Instruction created the Accountability Department. Called the Institute for Learning, the new unit was designed to provide support for "curriculum, teaching strategies, and professional development of teachers and principals". All non-instructional issues were addressed by the other three divisions, Office of the Superintendent, Administrative and Operational Support, and Center on Collaborative Activities (p. 17).

As a key subdivision of the central office, the Institute for Learning was designed to perform educational accountability functions and transform the reform agendas into real changes of the school district. The district leaders abolished the existing "feeder pattern arrangement" run by area superintendents and trained seven principals to become

district-wide "instructional leaders" (IL). The ILs worked under the Institute for Learning

and reported to the Chancellor of Instruction. Each of them led a heterogeneous group,

composed of about 25 principals and mixed by "school level, experience, and school

achievement levels", called "Learning Communities" (Hightower, 2002a, p. 10). The ILs

received specialized training offered by the University of Pittsburgh's Learning Research

and Development Center (LRDC) and developed plans for coaching principals. School

leaders were required to attend monthly "Principals' Conferences" sponsored by the

Institute for Learning to learn about the exemplary instructional practices, discuss

program implementation, analyze student data, and even take "fieldtrips" to local

classrooms (p. 10). The principals also interacted with the ILs through "WalkThroughs"

on a more personal, context-specific basis (p. 15). "WalkThroughs" were a school

accountability and review process, in which ILs visited their schools at least three times a

year to "observe classroom practice, evaluate site progress, and assist principals in

identifying specific instructional support needs" (Darling-Hammond et al., 2003, p. 18).

The model of ILs and Learning Communities allowed principals to work together with

their peers and the trained experts on school reforms by providing multiple channels for

communication and collaboration.

Other activities for which the Institute for Learning was responsible included

introducing the Literacy Framework and the Principles of Learning to school

administrators, developing new curriculum for math and science, providing ongoing

training for literacy peer coaches, adopting assessments for determining student progress,

supporting special education, etc. (Darling-Hammond et al., 2003, p. 27; Hightower,

2002a, pp. 11-14). The position of peer coach was newly created to help the principal and

staff to design professional development activities to assist teachers in understanding and implementing Literacy Framework in each school (Hightower, 2002a, p. 13).

It is noteworthy that the district invested disproportionately in the lowest-performing schools, also known as "Focus Schools". These schools were identified based on the state ranking system, to close achievement gap. Each Focus School got an additional full-time peer coach, extended instructional time, enhanced parent training and involvement programs, four full-time math specialists, and increased allocations for classroom materials (p. 13).

In the spring of 2000, the forementioned initiatives and strategies were institutionalized through the enactment of the Blueprint for Student Success in a Standards Based System, a "policy package" passed by the SDCS school board. Under the Blueprint funding from different sources was consolidated to provide sustainable support for schools, especially those serving the lowest-achieving students. The majority of the money went directly into the programs specified in the Blueprint (e.g., peer coach program, literacy and math framework), significantly decreasing the school's autonomy in the use of funds and ensuring that the reform efforts were implemented as planned at the school level (Darling-Hammond et al., 2003, p. 16).

In terms of the district response to the accountability requirements, several features are worth mentioning. First, in the context of "high-stakes, student outcome-oriented state accountability policies (Darling-Hammond et al., 2003, p. 21)", the district leaders chose to focus on capacity building, rather than merely relying on the external pressure to supply the motivation for raising student achievement. A large amount of resources were invested to improve the "human capital (p. 53)". Professional

development opportunities were provided in order to improve school leadership and quality of teaching. Second, the top-down, centralized reform in SDCS reflected the notion that "control" was not the ultimate goal, but the approach to improvement. Although schools had less discretion over how to spend funds and teachers were granted less autonomy in what to teach and how to teach, the district central office developed a clear vision and focus, as well as professional standards, to make sure each individual was committed to the "common norms of practice and methods" for improvement (p. 13). Third, the district held principals and teachers accountable for academic growth by creating a sense of ownership and responsibility linked to student learning. Specifically, ILs and peer coaches were required to work with a group of schools on a long-term basis to provide continual assistance in identifying and addressing school needs. Teachers were accountable for increasing their teaching knowledge and skills by actively attending professional development activities (p. 21).

Generally speaking, the restructuring of SDCS' central office, especially the creation of the Accountability Department (i.e., Institute for Learning), made it possible that resources and efforts were focused on instructional functions and the programs were implemented under close supervision of the Chancellor of Instruction (who led the Institute for Learning). Instead of working in independent units, people were compelled to collaborate with each other to maintain coherence among different academic programs and practices in the new centralized structure. In contrast to the previous "area superintendent" model, which "bred inequities of knowledge and power" (Hightower, 2002a, p. 9), the new design promoted equity in education by encouraging mobilization of knowledge across schools and providing additional inputs for the lowest achieving

schools. Furthermore, the central office continually created opportunities that enabled individuals to learn and build capacities to lead and teach, and eventually, resulted in growth in student learning.

     A study of Fairfax County Public Schools. Another study of the central office organization was conducted by Duke (2005) in Virginia's Fairfax County Public Schools (FCPS), a large suburban school system. In the book-length work, the author analyzed how FCPS dealt with such challenges as enrollment change, public accountability, and local politics in the last few decades. A full chapter of the book is devoted to how the district organizational structure has evolved to accommodate to the external and internal changes since the early 1990s.

     Similar to SDCS, FCPS experienced a shift from the arrangement of Area superintendents to the model of Cluster Directors (pp. 142-144). With the launch of division-wide programs, like Project Excel, the area-superintendent structure began to reveal many shortcomings: overlapping responsibilities between Area offices and the central administration, lack of alignment across the subunits of the school system, and difficulties in monitoring and supervising school practice for the central office. To address these limitations, the district leaders divided the school system into eight Clusters instead of three or four areas. Every Cluster, headed by a director, consisted of three high schools and a set of elementary and middle schools that fed into them. A team of specialists selected from the major departments of the central office was assigned to each Cluster office to support its work. Compared with the Area arrangement, the new structure significantly "reduced the number of schools that had to compete for resources

and services" (p. 143) and increased the efficiency and flexibility of the central

administration to respond to local school needs.

The eight Clusters and another two units, Instructional Services and Special

Services, were supervised by Chief Academic Officer (CAO), a role created in 2003 to

concentrate exclusively on student performance and instructional improvement. CAO and

the units under his/her direction constituted the Academic branch of the central office,

primarily performing instructional functions like professional development for teachers

and principals (Duke, 2005, pp. 145-150).

Another branch, called the Operations branch, was headed by the Chief Operating

Officer (COO). Subdivisions related to the administrative issues and the Accountability

Department, called the Department of Educational Accountability (DEA), fell under the

leadership of COO (Duke, 2005, pp. 150-152). The DEA became a new addition to this

branch in 2001, when many accountability issues were raised with the adoption of the

SOL and the statewide annual assessments in Virginia. In a district the size of Fairfax,

there is a great demand for effective coordination of different programs, comprehensive

data management, and close supervision for school improvement. The DEA was formed

to support data-driven decision making and improve quality control (pp. 152-153).

The DEA was composed of five subdivisions, the Office of Student Testing

(OST), the Office of Educational Planning (OEP), the Office of Program Evaluation

(OPE), the Office of Minority Student Achievement (OMSA), and the Special Project

Administration (SPA). Each had its own responsibilities related to educational

accountability (Duke, 2005, pp. 154-156). The OST performed the core functions of the

DEA: providing testing materials and state-mandated tests, maintaining and reporting

student performance data, and helping teachers to identify learning deficits. The data generated from the OST were compiled by the OEP to assist the development of the division-wide improvement plan for the School Board and Superintendent. The OPE monitored program implementation across the school division and provided the School Board with easy access to the program information through the Quality Program Assurance System (QPAS). QPAS included "program mission and goals, number of locations or sites, groups targeted for impact, staffing, organizational structure, program budget, and program evaluation results (p. 155)". These data allowed the district leaders to make informed decisions regarding the continuation, expansion, and improvement of the programs. The OMSA worked with Cluster Directors to address minority student achievement issues. The SPA provided technical support for the assistant superintendent in charge of the DEA, monitored progress toward the division targets, and conducted Staff Satisfaction Survey.

Through the work of the DEA, two large databases were constructed in Fairfax, the Education Decision Support Library (EDSL) and Instructional Management System (IMS). The EDSL served as a "data warehouse" to inform administrators and teachers of the performance and disciplinary actions of each individual student, as well as student groupings and school characteristics (Duke, 2005, p. 155). The IMS indicated how students were progressing with the curriculum guidelines. It also included a "test-item bank" to help teachers construct sample tests and offered them a collection of research-based "best practices" (p. 156).

Comparisons between the structural reforms in SDCS and FCPS. Notably, disparities exist between the SDCS and the FCPS in terms of how accountability

functions were organized. They both created the Accountability Department (i.e., the Institute for Learning in SDCS and the DEA in FCPS) under the central office, but the new units differ from each other in a variety of ways. As noted before, the Institute for Learning aimed to achieve accountability by capacity building. And thus, it sponsored many training programs for teachers and principals. Unlike SDCS, the DEA in Fairfax was not responsible for professional development. Instead, this function was performed by the Staff Development and Training (SDT), a unit under the Academic branch of the central office.

The Institute for Learning in San Diego focused on both academic content standards and student assessments. But, as a department under the Operations branch, the DEA of FCPS was more concerned with student tests and data management than academic standards, which fell under the scope of work of the Instructional Services.

Additionally, the Institute for Learning directly worked with local schools through the Instructional Leaders (IL). FCPS also had professional roles (i.e., Cluster Directors) similar to the ILs, but such positions were not included in the DEA. The DEA, for much of the time, interacted directly with the School Board members and the superintendent. Such a distinction is likely to be caused by the different missions and functions of each division. The Institute for Learning spends much time on staff development, which requires regular and continual communications with school teachers. In contrast, the DEA compiles and analyzes student data in order to facilitate district leaders' decision making.

Discussion. It appears that there are only a few studies concerning the Accountability Department at the district level (e.g., Duke, 2005; Hightower, 2002a). The

reason for the scarcity of information is not clear, but it might be due to the fact that the structural unit is relatively new, created after the state and federal accountability policies have been developed around the year of 2002. Though the relevant works are limited, they have informed this study in several ways.

The research on SDCS and FCPS described the structures, activities (e.g., training principals and managing student data), personnel, programs (e.g., "Principal Conference" and "WalkThroughs" in San Diego), and products (e.g., the EDSL in FCPS) of the Accountability Departments. These aspects will be considered in this investigation.

Attention also should be directed to the relationships of the Accountability Department with other units and with local schools so as to develop a systemic perspective on the district's organizational structure. Such relationships may reflect how the central office structure supports communication and coordination to achieve the district goals. In the Fairfax case, for instance, the OMSA under the Accountability Department worked with Cluster Directors and other departments to address the needs of minority students (Duke, 2005, p. 154). The Accountability Department also provides support for the SDT to train teachers and principals (p. 148).

Neither of the studies explored how the Accountability Department has evolved since its inception. In Fairfax, the name of the Accountability Department has been changed to the Department of Professional Learning and Accountability and the OMSA has been eliminated from this division. The structural changes may have been caused by a variety of factors, such as a shift in policy and district leadership and change in student demographics. Information on how the organization of accountability services evolves over time is considered in this study.

The studies of SDCS and FCPS, as well as other research, have implications for this study's methodology, too. Certain district characteristics, like size and student demographics, may have an impact on the implementation of the system-wide programs and initiatives (Stein et al., 2004). Such factors will be considered when selecting school divisions for study. Data collection methods used in previous research including interviews and document analysis are adopted in this research.

Finally, organization theories have been employed in the previous literature to explain the district's organizational structure and behaviors. Some scholars (e.g., Meyer, Scott, & Strang, 1987; Miles & Guiney, 2000) have portrayed school districts as formal, bureaucratic systems that are characterized by centralization, hierarchy, division of labor, and pre-established rules and procedures. Another group of scholars (e.g., Elmore & Burney, 1997; Honig, 2003, 2009b, Stein & Coburn, 2008; Stein & D'Amico, 2002) highlight the potential of districts to be powerful agents of instructional renewal. This set of studies view the district reform as a process of organizational learning which involves non-routine challenges with "means-ends ambiguity" (Honig, 2009b, p. 391) and informal roles and interactions (Stein & Coburn, 2008). Hightower (2002a) points out that each of the two images of school district uses a different lens for analysis, but both contribute to the field's understanding of districts. The two perspectives, bureaucratic and learning-centric, are considered in the current research to reflect a more comprehensive picture of the Accountability Department.

Theories Related to Organizing Accountability

Theories of structuralism. Many scholars (e.g., Duke, 2010, p. 84; Elmore & Burney, 1997; Honig, 2003, 2009b, Stein & Coburn, 2008; Stein & D'Amico, 2002)

point out that, school districts possess certain bureaucratic characteristics. It is plausible to assume that, as a sub-unit of a district central office, the Accountability Department might contain some standard bureaucratic features. Moreover, numerous federal interventions in public schooling including the accountability policies are designed to implement the basic ideas of classic bureaucratic strategies (e.g., rational planning and management; Owen, 1998, p. 14). Therefore, theories of bureaucracies, also known as structuralism (p.18), are important for this study.

The pioneering work on modern bureaucracies is credited to the German sociologist, Max Weber (e.g., Pugh et al., 1963; Lunenburg & Ornstein, 2000, p. 27). In his work, *Economy and Society*, Weber (1968) describes the characteristics of a modern bureaucracy (pp. 956-1005) distinct from other organizations. Generally speaking, bureaucracy has a "rational" character (p. 1002) reflected by its structure and management. An ideal bureaucracy has a clearly established "office hierarchy system of super- and sub-ordination". There is a "supervision" of lower offices by higher ones and "regulated channels" of appeal (p. 957). Officials hold positions in the hierarchy to perform duties related to the impersonal and functional purposes of office. The positions reflect the rational specialization of functions and the rule of expert knowledge. Management of the office is based on such rules and without regard for individual differences among organization members (p. 958).

Researchers (e.g., Acker, 1990; Adler & Borys, 1996; Lunenburg & Ornstein, 2000; Owen, 1998, p. 14; Pugh et al., 1963; Pugh et al., 1968; Tirole, 1986) have attempted to apply Weber's theory to study modern organizations. It is believed that whether an organization can be defined as bureaucratic depends on the extent to which

that organization is based on procedures proscribed by general rules (Mansfield, 1973).

Four aspects are chosen in this study, since they are typically used to describe an

organization's bureaucratic features (e.g., Hall, 1963):

- Hierarchy: authority and span of control

- Procedure

- Division of labor

- Rule

"Hierarchy" is defined as the arrangement of all positions in a bureaucracy.

Lower office is under the control of a higher one and there is a clear order indicating the

authority and power delegated from the top of the organization to the bottom (Weber,

1947, as paraphrased in Lunenburg & Ornstein, 2000, p. 27).

"Authority" represents the power to influence and control. People of authority are

usually officially charged with keeping activities aligned with goals (Bolman & Deal,

2003, p. 51). They are engaged in such activities as decision making and performance

evaluation. In a modern organization, the legitimacy of authority stems from the formal

rules and is reflected by the hierarchical ranking.

"Span of control" has consistently been associated with the number of people

assigned to the supervisor (Cathcart et al., 2004). In this study, span of control is reflected

by the number of people who directly report to the supervisor.

A "procedure" is a legitimate event that has "regularity of occurrence" in an

organization (Pugh et al., 1963, p. 302). Essentially, it indicates how inputs are

transformed into finished products (Bolman & Deal, 2003, p. 60) and can be classified

into four categories: decision-seeking procedures, decision-making procedures,

information-conveying procedures, and procedures for operating or carrying out decisions (Pugh et al., 1963).

With the increase in procedural complexity, "division of labor" becomes necessary. It means that complex work is divided into smaller parts that are distributed among different persons, groups or machines to improve efficiency and enhance performance (citation Bolman & Deal, 2003, p. 45). The degree of division of labor is reflected by the lateral span of structure and the variety of work within an organization (Hall, 1963, p. 35). This study is focused on division of labor within the Accountability Department. The tasks may be divided and assigned to different roles or subunits in the department.

There are several options for division of labor: function, product, customers or clients, place (geography), and process (Mintzberg, 1979). Division of labor by function usually refers to the process of grouping people based on their knowledge and skills. In this study, this term is used to describe the situation that organization members are assigned to positions or grouped into units based on the knowledge, skills and technology required to accomplish certain tasks. To prevent confusion, the author will use "by task requirement" instead of "by function" if this type of labor division is identified. Product is another base for division of labor. People may be sorted into different groups based on the products they aim to create. Groups or units may also be established around customers or clients, as in hospital wards created around patient types, or around place or geography, like regional offices in government agencies. Division of labor by process occurs when a complete flow of work is broken down into a series of steps and each person or group is responsible for one step or a subset of steps.

With division of labor, specialist roles may emerge, which refers to a professional who have appropriate qualifications and possess a basic knowledge of the whole profession (Pugh et al., 1963). Typically, credentials and training are required for admission to specialist positions (Weber, 1968, p. 958). In this study, specialist roles at the Accountability Departments are identified.

Division of labor is one of the two central issues in an organization. The other issue is coordination – "how to coordinate the work of different people and units after it has been divided" (Bolman & Deal, 1991, p. 51). According to Van De Ven, Delbecq, and Koenig (1976), coordination means "integrating or linking together different parts of an organization to accomplish a collective set of tasks (p. 322)". Generally speaking, formal coordination can be achieved in two primary ways: (a) vertically, through chains of commands, rules and policies, and planning systems and (b) laterally, though informal communications that bring people together to make decisions and solve problems (Bolman & Deal, 1991).

"Rule" is the "primary feature of bureaucracy" (Weber, 1947, p. 198) and serves as a basis on which a bureaucracy is organized. Formal rules constitute and define stable patterns of relationships and activities in organizations (Zhou, 1993). Specifically, rule legitimates the power of a supervisor over a subordinate and delimits the extent of his/her authority (Mansfield, 1973), governs conditions of work, specifies processes for carrying out job tasks, handling personnel issues, and communicating with the external environment (Bolman & Deal, 2003, p. 51), and thus, reduces uncertainty (Perrow, 1986) and channels institutional change (March & Olsen, 1989; North, 1990). Also, it is through the rules that procedures and roles are standardized. Standardization of

procedures is achieved when there are general rules indicating how to proceed in all circumstances. Standardization of roles depends on the rules that prescribe (a) role definition and qualifications for office, (b) role-performance measurement, (c) titles for office and symbols of role status, and (d) rewards for role performance (Pugh et al., 1963). Formal rules are typically embedded in the "policies", "regulations", "guidelines", or "routines" that are written and established through formal procedures (Zhou, 1993, p. 1135).

Theory of institutional isomorphism. As discussed in the first chapter, the theory of institutional isomorphism may help explain the characteristics of different Accountability Departments. In their well-known article, *The Iron Cage Revisited*, DiMaggio and Powell (1983) tried to explain why some organizations tend to become more and more alike. The authors proposed three mechanisms to explain their observation:

"Coercive isomorphism" results from "both formal and informal pressures exerted on organizations by other organizations upon which they are dependent and by cultural expectations in the society within which organizations function". In some cases, organizational change is "a direct response to government mandate", so "a common legal environment" may shape organizations in similar ways (p. 150).

"Mimetic isomorphism" occurs "when organizational technologies are poorly understood (March & Olsen, 1976), when goals are ambiguous, or when the environment creates symbolic uncertainty" (p. 151). In such situations, organizations may "model" themselves on other organizations, especially the similar organizations that they perceive

to be "more legitimate or successful" (p. 152). Models may be diffused through employee transfer or turnover or by consulting firms (p. 151).

"Normative isomorphism" stems from "professionalization", which refers to "the collective struggle of members of an occupation to define the conditions and methods of their work, to control 'the production of producers' (Larson, 1977, pp. 49-52), and to establish a cognitive base and legitimation for their occupational autonomy". Two aspects of professionalization provide sources of isomorphism: "a cognitive base" produced by universities for the development of organizational norms and "professional networks" through which new models diffuse rapidly (p. 152).

Furthermore, DiMaggio and Powell hypothesize a set of predictors for organizational isomorphism. These include "the dependence of an organization on another organization", "the relationship between means and ends" about organizational practices (p. 154), the ambiguity of organizational goals, "the reliance on academic credentials in choosing managerial and staff personnel", "the number of visible alternative organizational models in a field" (p. 155), etc.

Taken together, the above theories have implications for this research. The terms related to structuralism constitute a framework for examining an Accountability Department and suggest the types of data that should be collected. Based on data from a sample of school divisions, the researcher compares different Accountability Departments in light of the "institutional isomorphism" theory and develops hypotheses regarding how they organize the accountability functions.

Chapter 3

Methodology

Overview of Research Design

The purposes of this research are to describe and compare the operations of Accountability Departments and identify the evolution of these departments since their inception. Specifically, this study is guided by six research questions:

1. How did the Accountability Departments originate?

2. How have the Accountability Departments evolved since their inception?

3. Why have the Accountability Departments changed over time?

4. What are the current characteristics of Accountability Departments, including their goals, staffing, functions, and structures?

5. How do the Accountability Departments perform their accountability functions?

6. To what extent are the Accountability Departments similar to each other across the school divisions?

A mixed methods research design is employed to answer the above questions. Mixed methods research "focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies" (Creswell & Plano Clark , 2006, p. 5). There are four major types of mixed methods design: the Triangulation Design, the Embedded Design, the Explanatory Design, and the Exploratory Design (p. 59). This study uses the Exploratory Design, which contains two phases.

The first phase consists of two case studies and a cross-case comparative analysis in which the operations of the Accountability Departments in two Virginia school divisions are described and compared. Data are mostly qualitative, collected through on-site interviews and a review of documents. The findings inform the six research questions by providing rich, in-depth descriptions of the two Accountability Departments.

In the second phase, a checklist is developed based on the literature and results of the qualitative phase. The checklist is administered to a sample of Accountability Departments (n=32) in Virginia school divisions to collect quantitative data of the structure and functions of Accountability Departments. Statistical analysis is conducted to compare the Accountability Departments across the divisions and determine the extent to which the departments are similar to each other, which informs the fourth and sixth research questions.

Justification of the Research Design

The mixed methods design is based on the premise that "the combination of quantitative and qualitative approaches provides a better understanding of research problems than either approach alone" (Creswell & Plano Clark, 2006, p. 8-9). The qualitative data provide in-depth information of the context in which the Accountability Department is operated, as well as its history and current characteristics. The quantitative data help determine whether the features and patterns identified from the qualitative data exist in a larger group of Accountability Departments. Therefore, the two types of data provide "more comprehensive evidence" (p. 9) for the research problem than either type alone.

Considering the four types of mixed methods design, this study fits the two-phase Exploratory Design, in which the first phase (qualitative) can help develop or inform the second phase (quantitative) (Greene, Caracelli, & Graham, 1989). In the first phase of the study, the researcher explores the functions of the Accountability Departments in the two school divisions selected for the case studies. The findings are used to develop a checklist which is administered to a larger sample in the second phase. The checklist includes the functions identified from the first phase, as well as other functions identified from a review of educational accountability policies. It measures whether and to what extent the Accountability Departments in the sample are involved in these functions. According to Creswell and Plano Clark (2006, p.75), the Exploratory Design is appropriate for a study in which the researcher aims to "explore a phenomenon in depth and then measure its prevalence".

Additionally, Creswell and Plano Clark (2006, p. 75) point out that an exploration is needed when measures or instruments are not available or the variables are unknown. The focus of this study is the Accountability Department in the school division's central office. A review of literature shows there are only a few empirical studies concerning the Accountability Department (e.g., Duke, 2005; Hightower, 2002a). It is unclear what the structures and functions of the Accountability Departments are. Without this information, it is even more difficult to identify any variable that may be important to the department. Therefore, it is still premature at this stage to determine what type of instrument is appropriate to identify the characteristics of Accountability Departments. Based on the analysis above, the Exploratory Design is necessary to generate more evidence of the structure and functions of Accountability Departments.

Approval for Study

In fall 2010, the researcher submitted all required forms to the University of Virginia Institutional Review Board (IRB) to request permission for the first phase of the study. In fall 2011, request forms were submitted for the second phase. Approval letters granting permission for both phases of the study were received (0).

In the first phase, the participants were presented with an informed consent form and had the option to indicate consent or to deny the request to participate in and withdraw from the study (Appendix B). Moreover, the researcher ensured confidentiality, but not anonymity, of responses.

In the second phase, the participants were presented with an informed consent agreement (Appendix C). The respondent could complete and submit the checklist to indicate consent. To indicate lack of consent, the respondent could choose not to click on the survey link or exit the survey without submitting the responses. The researcher ensured anonymity of responses.

Research Method and Procedure in Phase One

In order to generate more empirical evidence regarding Accountability Departments, a case study method was adopted in the first phase of this research. A case study is a research method that is used to contribute to knowledge of "individual, group, organizational, social, political, and related phenomena" (Yin, 1994, p. 2). It is typically designed to provide answers to "how" and/or "why" questions about a contemporary issue. Also, there is no control over the event under study (pp. 4-9). The form of research questions (e.g., how) and the mode of investigation (i.e., no control or intervention) suggested that a case study method is appropriate for this research.

Sample selection. The Pittsfield City Schools (PCS) and the Scott Valley Public Schools (SVPS) were selected for the case studies. The sample selection was guided by two principles. First, access was possible (Marshall & Rossman, 1989, p. 54). The PCS and the SVPS both approved the author's request to visit the divisions' central offices and conduct interviews with the Directors of the Accountability Departments. Numerous documents, including the presentations and working plans created by the Accountability Departments, were either published on the divisions' websites or provided by the department Directors. This enabled the researcher to collect rich data of the Accountability Departments.

The second principle states that the site offers "a rich mix of many of the processes, people … and/or structures that may be a part of the research question" (Marshall & Rossman, 1989, p. 54). In both school divisions, the Accountability Departments have been performing various activities for more than nine years, thereby, providing opportunities to study the inception, evolution and current characteristics of the departments.

Data collection and analysis. Data for the case studies are primarily qualitative. Based on the research purposes, three sets of data were collected: (a) current characteristics of the school division, (b) history of the Accountability Department, and (c) current characteristics of the Accountability Department.

This first set of data described the school division in which the Accountability Department was located. It included student population and demographics, the school division's mission and goals, division-wide performance on the accountability indicators, and the structure and functions of the central office.

The second set of data described the creation and evolution of the Accountability Department. Key changes in the structure, functions, and leaders of the department were noted. The data are directly related to the first three research questions.

The last set of data focused on the current characteristics of the Accountability Department. Theories of structuralism (e.g., Weber, 1968) were used to identify the dimensions of a bureaucratic organization. These dimensions, including hierarchical structure, division of labor, specialization, and rules, provided the framework for analysis.

Data collection methods. One source of data was the on-site interviews with the Directors of the Accountability Departments, since they are likely to be better informed than anyone else about the structure and functions of the department. The author visited the Pittsfield City Schools and the Scott Valley Public Schools in January 2011 and conducted a 90-minute interview with the Director of each Accountability Department.

All interview questions were open-ended and developed based on the research purposes and theories of structuralism. The questions incorporated key elements of a standard bureaucratic organization and mainly focused on the current structure and functions of the Accountability Department. Additionally, to ensure clarity and appropriateness of the interview questions, a pilot study was conducted in Rutherford County Public Schools (RCPS) in August 2010. The Director of the Accountability Department in the RCPS was interviewed by telephone. The interview questions were revised based on the responses of the Director. Appendix E presents the revised interview questions and the concepts with which they are associated.

In addition to interviewing the department Directors, the author analyzed a variety of documents published on the VDOE and school divisions' websites and provided by the

Directors of the Accountability Departments. These documents included: (a) school accreditation reports from 2002 to 2010, (b) school AYP reports from 2004 to 2010, (c) the divisions' organizational charts from 2004 to 2012, (d) strategic plans, (e) policy manuals, (f) technology plans, (g) school board minutes from 1997 to 2012, (h) adopted/proposed budgets from 2005 to 2012, (i) job descriptions, (j) presentations created by the Accountability Departments from 2004 to 2012, and (k) local newspaper articles pertaining to the school division's Accountability Department, assessment programs, or student achievement.

The school accreditation and AYP reports provided information on the division-wide academic performance. The divisions' organizational charts reveal the structural evolution of the Accountability Departments. Other documents contain information on the departments' goals, staffing, functions, and structures, as well as the rationales for the structural and functional changes.

Data analysis. Data analysis was based on the five-step model developed by Marshall and Rossman (1989, p. 114-120). In the first step, the researcher read the data collected from different sources three times to become familiar with the data. During the reading process, the researcher used folders and labels to organize the data. Various tables and indices were created to make it easier to retrieve the data from the folders. In the second step, through reflecting on the conceptual framework, the author carefully examined the data to identify themes, categories, and patterns (Marshall & Rossman, 1989, p. 116). An inductive analytical approach was used to synthesize information and generate categories. A specific example is provided below.

There was lots of information concerning how student assessment data was

analyzed by the Accountability Departments. When scrutinizing the data, the researcher

identified two critical dimensions: (a) the purposes which the test data analyst seeks to

achieve, and (b) the approaches which are used to conduct assessment data analysis. As

shown in Table 6, two types of purposes were identified. The first type is to meet policy

requirements by reporting student achievement on the mandatory accountability

indicators, such as the SOL pass rate and the graduation rate. The second type is to

inform teaching and learning by analyzing data on the non-required indicators, such as

the accuracy rate on certain content standards and the score distribution across the

achievement bands. The second dimension concerns the approaches used to analyze

assessment data. One of the approaches linked the test scores to the content standards.

The other, however, did not make such connections.

The two dimensions provide a framework for organizing the research data, which

were eventually synthesized into three models. These models are described in detail in

Chapters 4 and 5.

Table 6
Models of Test Data Analysis

Dimension 1: Purposes	Meet the policy requirements	**Model 1:** Basic Analysis	-
	Inform teaching and learning	**Model 2:** Band Analysis	**Model 3:** Standard Analysis
		Focusing on the test data	Focusing on the connections between test data and content standards
		Dimension 2: Approaches	

Through the analytical approach described above, all research data were

organized and synthesized. A common framework (Table 7) was developed, integrating

the "salient themes" and "recurring ideas" (Marshall & Rossman, 1989, p. 116). This

framework facilitated the cross-case comparative analysis in the next step.

Table 7

Framework for Organizing Research Data and Cross-Case Comparative Analysis

Current Characteristics of the Division ▪ Division Size and Demographics ▪ Missions, Core Values and Strategic Goals ▪ Accountability Results ▪ Central Office

Accountability Department
▪ History of the Accountability Department
▪ Mission and Goals
▪ Hierarchical Structure
▪ Functions
    ▪ Testing
    ▪ Data analysis and reporting
        ▪ Basic analysis
        ▪ Band analysis
        ▪ Standard analysis
    ▪ Other functions, if applicable
    ▪ Summary
▪ Division of Labor within the Accountability Department
    ▪ Division of labor in testing
    ▪ Division of labor in data analysis and reporting
    ▪ Division of labor in other functions, if applicable
    ▪ Summary
▪ Coordination within the Accountability Department
    ▪ Formal rules
    ▪ Chain of command
    ▪ Other coordination mechanisms, if applicable
▪ Summary

In the third step, data collected from the PCS and the SVPS were compared to

generate evidence about the initial conjecture that Accountability Departments of

Virginia school divisions may be isomorphic in certain aspects. Using the above

framework, similarities and differences were identified in the operation of the two

Accountability Departments.

In the fourth step, theories of structuralism and institutional isomorphism were used to interpret the data analysis results. The author also discussed "alternative explanations" (Marshall & Rossman, 1989, p. 119) for the characteristics of the Accountability Departments.

In the fifth step, the researcher wrote the findings. Descriptive data were summarized and linked to more general theoretical constructs, including structure, function, division of labor, and coordination.

Research Method and Procedure in Phase Two

In the second phase of this research, a checklist was developed and administered to the Directors of the Accountability Departments in Virginia school divisions. The checklist primarily assesses whether and to what extent the Accountability Department is involved in a variety of accountability functions identified from the first phase and the literature. The results inform the fourth and the sixth research questions.

Identification of the Accountability Department. The unit of analysis of the study was the Accountability Department, a central office unit dedicated to the key accountability function – coordinating the state testing program. The Accountability Department was identified using the approach described below. The author visited the websites of all 132 school divisions in Virginia and examined the unit titles of each central office. Fourteen school divisions were identified as having Accountability Departments in this step. These units included the word "accountability" in their titles.

In the next step, the author reviewed the goal and mission statements of the central office units. Twenty-four units were identified as Accountability Departments,

since at least one of their responsibilities was to manage the state assessment program, as reflected by the goal and mission statements.

For the remaining school divisions, the author reviewed the staff directory of the central office published on the division's website and the website of the VDOE to identify the staff member who served as the Division Director of Testing (DDOT[11]). Since the DDOT is charged with responsibilities for coordinating the state testing programs, the unit to which the DDOT is assigned was identified as the Accountability Department.

During the preliminary exploration described above, several issues were noted. First, every school division in Virginia has an Accountability Department in the central office. There are 132 Virginia school divisions, so the 132 Accountability Departments form the population of the study. Second, the size of the Accountability Department varies. In some divisions, the DDOT is the only person staffing the department. In other divisions, however, the Accountability Department has more than 20 staff members. Third, some Accountability Departments assume similar responsibilities. For example, in addition to coordinating the state assessments, some Departments administer locally developed tests to the schools. Fourth, differences also exist in the functions of the Accountability Departments. Some Departments provide technology services while others are responsible for developing curriculum.

The above information suggests that there are both similarities and differences in the Accountability Departments in Virginia school divisions. The purposes of the second

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[11] The VDOE requires that each school division designates a Division Director of Testing to coordinate the state testing programs.

phase of the study were to (a) describe the functions of the Accountability Departments using quantitative data, (b) identify in what ways these Departments are similar to and/or different from each other, and (c) determine the extent to which the departments are similar to each other.

Sample. This study employs the Exploratory Design (Creswell & Plano Clark , 2006, p. 75). Exploratory research seeks to make preliminary investigations into relatively unknown areas of research (Terre Blanche, Durrheim, & Painter, 2006, p. 559) in order to "help the researcher gain greater understanding" and "identify variables" related to the research topic (McNabb, 2008, p. 96). Since the variables are usually unknown (Creswell & Plano Clark, 2006, p. 75), validity "need not to be as great for exploratory investigations" (Russ-Eft & Hoover, 2005, p. 3) as for other types of research which aim to test hypotheses or validate theories. Therefore, exploratory studies typically do not draw on large or random samples (Terre Blanche, Durrheim, & Painter, 2006, p. 49; McNabb, 2008, p. 96).

In the second phase of this research, data were collected to describe the functions performed by the sample Accountability Departments. The author does not intend to test the hypothesis or make any conclusions about the relationships among the variables in the current study. Therefore, a small sample was sufficient for the purpose of the study. The researcher contacted the 132 Virginia school divisions and invited the Directors of the Accountability Departments to complete an online checklist survey on a voluntary basis. According to Hamilton (2009) and Ray (2006), the typical response rate for online surveys is less than 20%. So the intended sample size of the study was set at 26.

The actual sample consisted of 32 Accountability Departments. This represents 24.4% of the population (*N*=132). Since the sample size was small and the participants provide their responses voluntarily, the author must be very cautious when discussing the generalizability of the findings.

Instrument. A Function Checklist (Appendix D) was administered to a group of Accountability Departments in the second phase. There are six function categories in the checklist: (a) state-wide standardized testing, (b) division-wide assessment, (c) data management and data-driven decision making, (d) research and program evaluation, (e) support for lower-performing schools, and (f) other support for curriculum, instruction, parental involvement, and staff development. Each function category includes a group of activities. These categories and activities were identified based on the findings of the first phase, as well as a review of NCLB requirements. The two Accountability Departments studied in the first phase performed the functions in all but the last category. The activities in the last category were required by the NCLB.

The Directors of the Accountability Departments were asked about the extent to which their departments were involved in each activity on a 4-point Likert-type scale. The number "1" suggests the Accountability Department is not involved in the activity, while "4" means the department is extensively involved. In order to ensure the comprehensiveness of the checklist, the respondents were asked to list any other functions performed by their Departments, if not covered by the six categories.

The checklist also collects information on the size of the Accountability Department and the span of control of the Director. These data reflect two structural

dimensions of the sample Departments and therefore further inform the fourth research question.

In addition, data on the school division's size was collected. Previous literature (Stein et al., 2004) suggested that district size is an important factor that has an impact on the implementation of division-wide programs and initiatives. The school district's size may shape the behaviors of its central office in many aspects (e.g., Desimone, Porter, Birman, Garet, & Yoon, 2002; Firestone, Mayrowetz, & Fairman, 1998; Hannaway & Kimball, 1998; Louis, Thomas, & Anderson, 2010; Miller, 2010). It was decided to use division size as a basis for dividing the sample of Accountability Departments in order to determine if the structures and functions of the departments varied according to size.

Data collection. Between November 2011 and February 2012, a Function Checklist was administered to the Directors of the Accountability Departments via the online SurveyMonkey service (http://www.surveymonkey.com/). All participants were pre-notified by email of their selection for this study (Appendix C). In the email, the researcher briefly introduced the purpose of study and emphasized that the checklist takes approximately 10 minutes to complete and all responses are anonymous. The checklist hyperlink was included in the email so that the Directors who decided to participate in the study could access the checklist website. The hyperlink was uniquely tied to each recipient, ensuring that only intended participants could complete the survey and that the responses could be submitted only once. In January and February, 2012, all participants received two follow-up emails, in which the researcher thanked the participants who had already completed the checklist and continued to invite other participants to submit the checklist survey. The data collection ended in April, 2012. All responses were collected

through the SurveyMonkey website. The researcher downloaded all electronic data and saved them using Microsoft Excel for analysis.

Data analysis. Data were analyzed using the IBM SPSS Statistics 20 and Microsoft Excel spreadsheet application. To inform the fourth research question, descriptive analyses, including the calculation of frequencies, means, and ranges, were conducted for each item on the checklist. The results for the items under each function category were aggregated to indicate the extent to which the Accountability Department was involved in that function. To inform the sixth research question, variance was calculated for each function category to suggest the extent to which the Accountability Departments were similar to each other. Additionally, the results were compared across the function categories to indicate: (a) in which functions the Accountability Departments had higher degrees of involvement, and (b) in which functions the Accountability Departments were more similar to each other.

In the process of data analysis, two subgroups were identified. The first group consisted of the Accountability Departments from school divisions in which the student population was larger than 10,000. The Accountability Departments in the second group came from divisions with a student population between 4,000 and 6,000. A series of comparative analyses were conducted to determine whether any differences existed between the two groups in the structures and functions of the Accountability Departments.

Chapter 4

Accountability Department at the Pittsfield City Public Schools

Current Characteristics of the Division

Division size and demographics. In the Pittsfield City Public Schools (PCS), there are 20 elementary schools, two preK-eight schools, five middle schools, and four high schools. Among these schools, 18 are Title I schools. The student population is approximately 20,000, with 60.7% Black, 27.9% White, 5.0% Hispanic, 2.3% Asian, 0.4% Native American, 0.1% Native Hawaiian, and 3.7% two or more races. The division's size is above the 90th percentile of all Virginia school divisions and has declined by nearly 3,000 students since 2005.
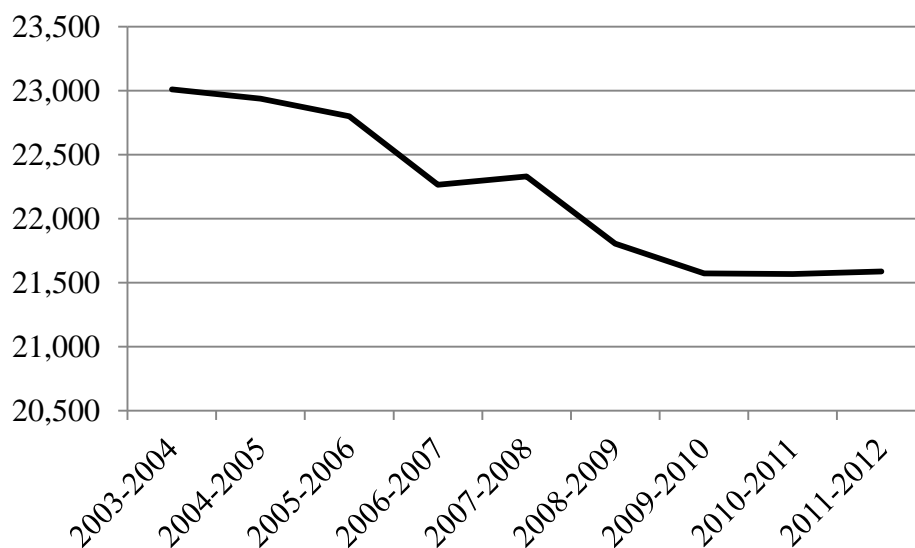
Figure 3. Student Population in PCS Since 2003

Missions, core values and strategic goals. The mission of the PCS is to "ensure academic excellence for every child, every day, whatever it takes". The core values of the

division are "integrity", "responsibility", "innovation", "excellence", and

"professionalism". Six strategic goals have been identified and serve as the foundation of

the development of action plans for the division. The goals are:

1. "Maximize every child's learning;

2. Create safe, nurturing learning environments;

3. Enhance parent and community engagement and satisfaction;

4. Attract, develop and retain exceptional staff;

5. Maintain effective, efficient and innovative support systems;

6. Manage fiscal resources effectively and efficiently."

Accountability results. Data published on the VDOE website show that, PCS has

been making steady progress in the last few years by increasing the percentage of schools

that get full accreditation, from 54.3% in 2002 – 2003 to 96.6% in 2010-2011. As stated

earlier, "accreditation" is a designation adopted by the Virginia state to indicate if a

school achieves accountability. Another accountability designation is adequate yearly

progress (AYP). Between 2004 and 2010, PCS only made AYP as a division in 2005 and

2006. The percentage of schools that make AYP has declined from 70.6% in 2004-2005

to 32.3% in 2010-2011.The accreditation rating and AYP status of the PCS are

contrasting probably because the two accountability designations are determined in

different ways. Schools earn full accreditation if they meet the state-determined pass rate

benchmarks which remain constant each year (see Table 4). However, to make AYP,

schools need to meet the annual measurable objectives (AMO) which continually rise

until they reach 100% in 2013-2014 (see Table 5). As it becomes increasingly difficult

for schools to meet AMO, the percentage of schools that make AYP is more likely to decrease each year.
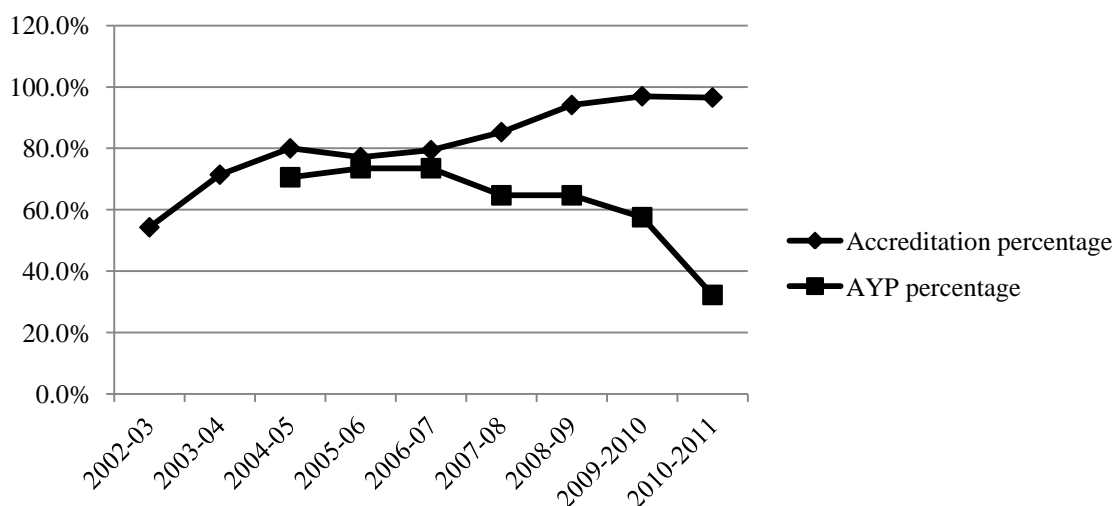
Figure 4. Percentage of Accredited Schools and Percentage of AYP Schools in Pittsfield

Central office. The PCS central office employs about 170 people, assigned to positions in more than 30 subunits (i.e., departments and offices). There are primarily three levels within the PCS hierarchy: (a) the Superintendent, (b) nine division leaders including two Deputy Superintendents, five Executive Directors and two Directors, (c) a series of other administrators and school principals that report to the direct subordinates to the Superintendent. The first two levels form the Division Leadership Team (DLT). Figure 5 depicts the organizational structure of PCS and the reporting relationships.

The subunits of the central office are organized into two categories: academic departments and administrative departments. The academic branch has nine curriculum departments, with each working on one subject area. Focused on the academic content standards, these units support teaching and learning by designing curriculum frameworks, selecting courses, and providing learning materials. Directors of these departments report to the Deputy Superintendent for Curriculum and Instruction. More than 20 departments

have been created in the administrative branch. Some units, including the Pittsfield

Performance Learning Center (a credit recovery program) and the Accountability

Department, manage division-wide programs and activities to address the various needs

of PCS students. Other departments mainly provide administrative support, including

transportation, maintenance, finance, and food service. Two of these units have Directors

that report to the Superintendent directly: the Accountability Department and the

Department of Human Resource. Other administrative departments report to one of the

Deputy Superintendents or Executive Directors.
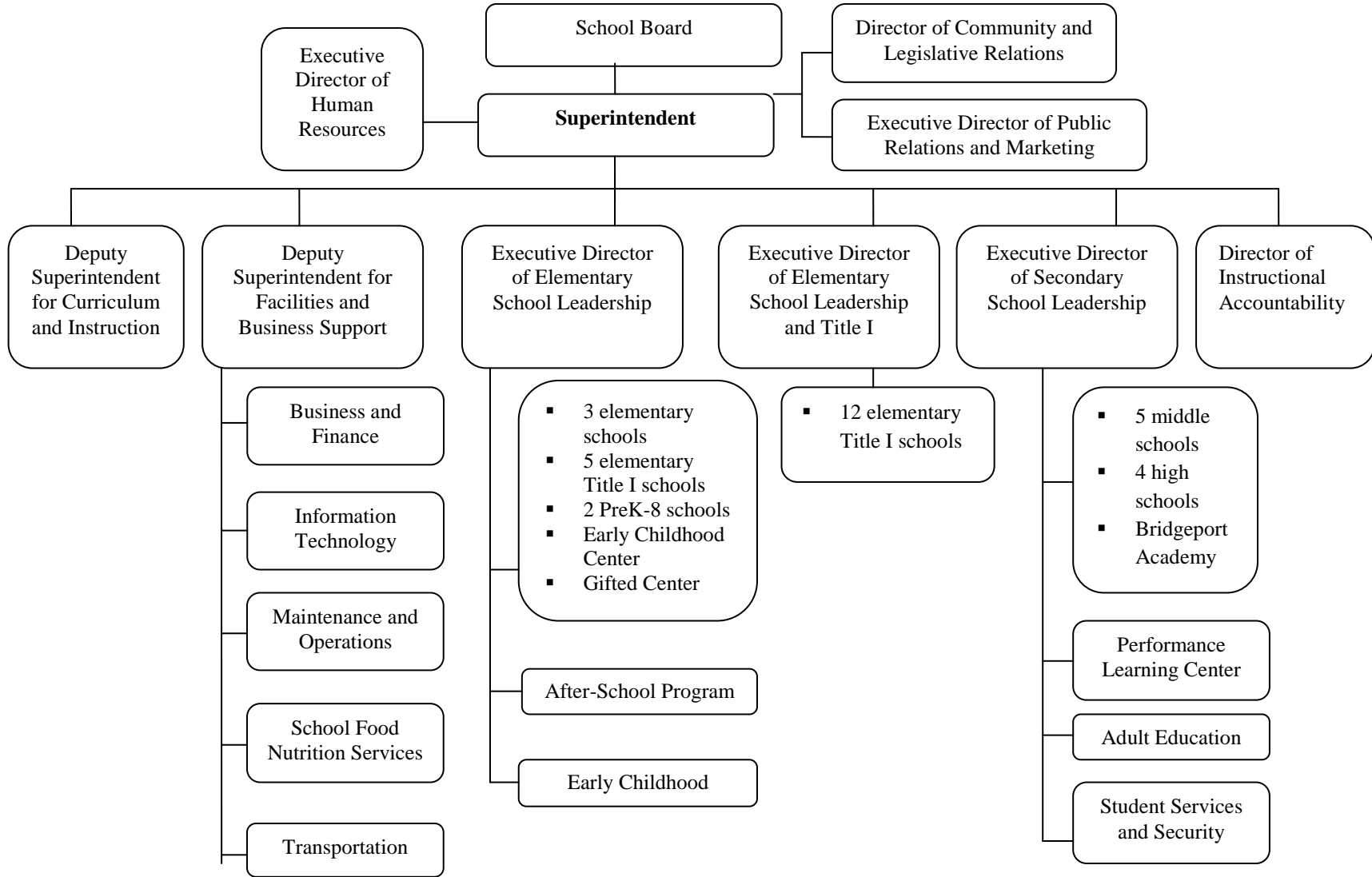
Figure 5. Organization Chart of PCS in 2011-2012

Accountability Department

  History of the Accountability Department. In September 1997, the Virginia

Board of Education adopted a set of new Standards of Accreditation. These standards, for

the first time, required the public schools in Virginia to disseminate test data and

performance data on the accountability indicators.

  After the release of the new standards, between October 1997 and January1998,

the Pittsfield City Schools created a new unit, the Department of Assessment and

Instructional Support (DAIS). The DAIS was charged with responsibilities for analyzing

and reporting student data, evaluating instructional programs, and developing

improvement plans for all schools. During that time, the function of testing was

supervised by the Department of Guidance and Testing. The Director of the DAIS, Dr.

Emma Howell, served as the liaison between the VDOE and division schools for the SOL

assessments. Between 1998 and 2001, the DAIS gave numerous presentations at School

Board meetings. The content was primarily focused on the accountability issues at the

school, division, and state levels, including school improvement plans, division

benchmarks, and the Virginia School Report Card.

  The Director of the DAIS left the Pittsfield City Schools in the summer of 2001

for another school district. After her departure, the two Assistant Superintendents for

Elementary and Secondary Instruction assumed responsibilities for reporting the

division's performance on the SOL tests until 2003.

  In 2003, one year after passage of the NCLB Act, the DAIS was renamed the

Department of Instructional Accountability. This title has remained the same to the

present time. In the rest of the chapter, the term "Accountability Department" will be used to refer to the Department of Instructional Accountability.

Dr. Rick Sanderson was hired as the first Director of the Accountability Department. He worked at this position for about one year. In September 2004, Dr. Christine Murray was appointed Director. Between 2003 and 2005, the Accountability Department performed similar functions to the DAIS.

Since 2005, the Accountability Department has experienced a series of changes. Between 2004 and 2005, the Virginia Association of School Superintendents (VASS) conducted a study of Pittsfield's central administrative organization. The VASS study recommended some changes that affected the Accountability Department: (a) moving the Department from the direct supervision of the Superintendent to the Assistant Superintendent for Curriculum and Instruction, and (b) moving the function of testing from the Department of Guidance and Testing to the Accountability Department. The recommendations were made in order to reduce the span of control of the Superintendent and "highlight the importance of accountability… across all administrative functions". The proposed change was reviewed and approved by the school board in May, 2005.

Before
Superintendent

Assistant Superintendent for 6-12 Instruction

Department of Guidance and Testing

Accountability Department

After
Superintendent

Assistant Superintendent for Curriculum and Instruction

Accountability Department: – New function: testing
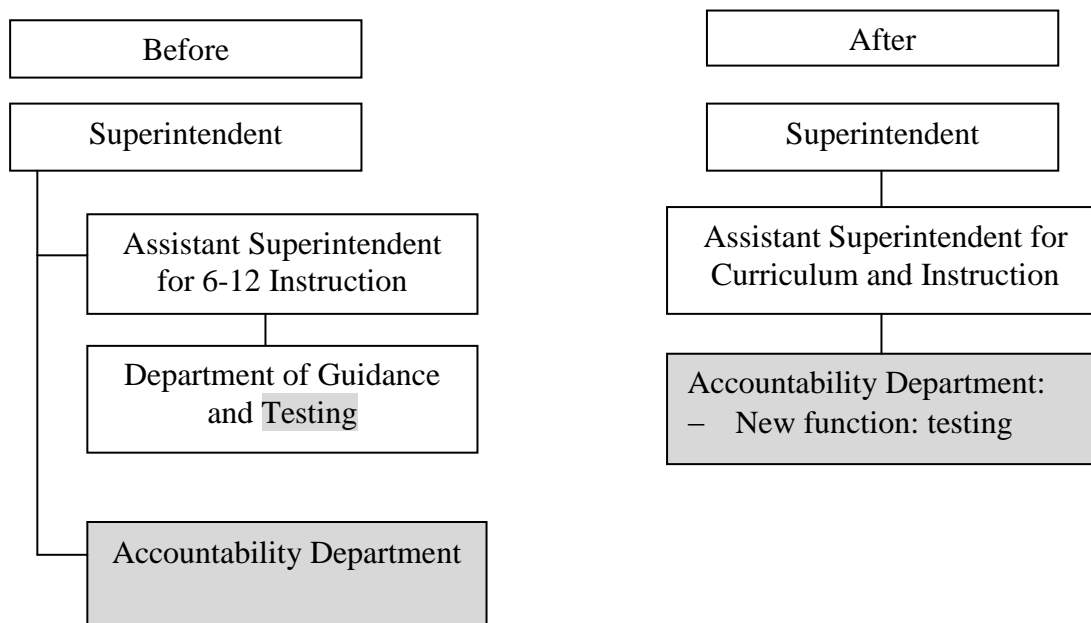
Figure 6. Change in the Accountability Department in 2005

By 2007, the percentage of Pittsfield schools that got full accreditation had stayed at or below 80% for five consecutive years. To improve school performance, structural adjustments were made within the central office. In January 2007, the Student Achievement Focus Team (SAFT), consisting of the Superintendent, the Director and the Benchmark Assessment Specialist from the Accountability Department, and a school principal, was formed. The SAFT was led by the Director of the Accountability Department, Dr. Christine Murray. To achieve the goal of full accreditation for all Pittsfield schools, the SAFT worked exclusively with eight struggling schools. The team members spent 70% of their time at the schools, training teachers, discussing student data, and developing and implementing intervention strategies. After one year of implementation of the SAFT project, the percentage of accredited schools rose to 97%. The creation of the SAFT shifted the function of the Accountability Department, from

managerial support to data-driven academic improvement. Its success was recognized by the American Society for Quality in 2008.

In fall 2007, a new organizational chart for the Pittsfield central office was adopted by the school board. Two curriculum departments (i.e., Math and Language Arts Departments) became subunits of the Accountability Department. Additionally, the Director of the Accountability Department reported to the Superintendent, rather than the Assistant Superintendent. The new structure was "in reaction to the situation that many schools were not accredited in that year". It enabled the curriculum specialists to interact more frequently with the testing specialists of the Accountability Department so as to ensure the alignment between classroom teaching and assessment. This structure only lasted for 10 months. When the accreditation rate of the Pittsfield schools increased, the two curriculum departments were removed from the Accountability Department.

Before January 2007	January 2007	Fall 2007	2008
Superintendent	Superintendent	Superintendent	Superintendent
Assistant Superintendent for Curriculum and Instruction	Assistant Superintendent for Curriculum and Instruction	**Accountability Department:** – New subunits: Math Department and Language Arts Department	**Accountability Department:** – Removal of the subunits: Math Department and Language Arts Department
Accountability Department	**Accountability Department:** – New function: leading the SAFT		

Figure 7. Change in the Accountability Department between 2007 and 2008

In July 2008, the Director of the Accountability Department, Dr. Christine Murray, left the Pittsfield City Schools after working there for nearly four years. During her term, Dr. Murray worked with the curriculum departments to create high quality assessments aligned with the state curriculum standards. She led the SAFT to develop a data support model using the Benchmark assessment data and Standard of Learning Assessment Resource (SOLAR) and successfully improved student achievement division wide. The key components of the model, including the Benchmark assessment, student data analysis, and a focus on struggling schools, still constitute the major responsibilities of the Accountability Department.

After Dr. Murray's departure, the position of Director of the Accountability Department remained vacant. The Executive Director of Elementary School Leadership temporarily led the Department. In March 2009, Brenda Moore was appointed Director of the Accountability Department. Moore started her career in the Pittsfield City Schools as a Benchmark Assessment Specialist in September 2005. She was a member of the SAFT and played a key role in communicating assessment data and testing strategies to classroom teachers. Since Moore took the Director position, the structure and functions of the Accountability Department have remained the same.

Mission and goals. Under the administrative branch of the PCS central office, the Accountability Department is responsible for "all division-wide standardized testing, Benchmark assessment testing, survey administration and analysis, and program evaluation". Its goal, as stated by the Department Director, Brenda Moore, is to "provide intensive level of support to ensure and promote student achievement".

Hierarchical structure. There are five positions in the Accountability Department: the Director, the Division Director of Testing (DDOT), the Testing Specialist, the Research and Evaluation Specialist, and the Administrative Assistant. Each position is charged with a set of job responsibilities. The DDOT plans, organizes, directs and administers all aspects of the highly secured federal and state mandatory test programs within the entire division. The Testing Specialist performs the duties assigned by the DDOT. The Research and Evaluation Specialist manages the division-wide Benchmark assessments and survey program, assists with data collection and analysis, and serves as the lead technology support for district staff, building administrators, and teachers. The Administrative Assistant is responsible for daily office management and provides administrative support for the DDOT, Research and Evaluation Specialist, and Director. The Director directs the practices of the Department, provides training to classroom teachers, analyzes assessment data, and communicates testing results to board members, central office staff, and teachers and principals. The reporting relationships within the Accountability Department are depicted in the figure below. Since the Director manages four direct reports, her span of control is four. Moore explains that, these reporting relationships have remained the same for the past three years.

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                    ┌─────────────────────┐
                    │      Director       │
                    └─────────────────────┘
         ┌────────────────┴──────────────────────┐
  ┌──────────────────┐              ┌──────────────────────┐
  │ Division Director of │          │ Research and         │
  │ Testing          │              │ Evaluation Specialist │
  └──────────────────┘              └──────────────────────┘
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┌──────────────────┐  ┌──────────────────────┐
│ Testing Specialist │  │ Administrative Assistant │
└──────────────────┘  └──────────────────────┘
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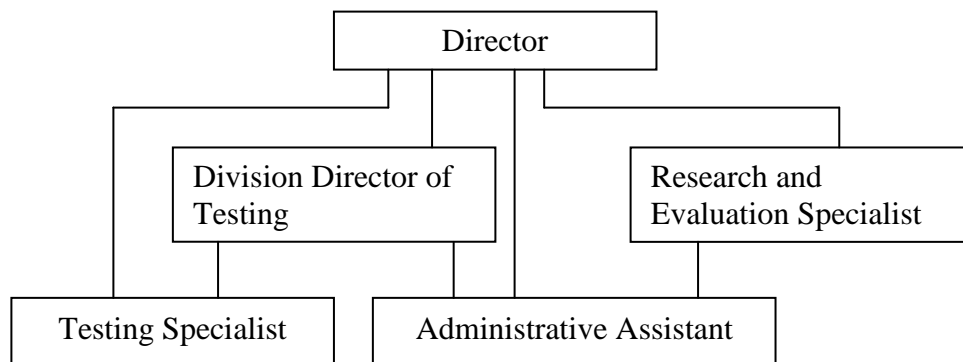
Figure 8. Reporting Relationships of the Accountability Department

Functions. The Department performs two types of functions: logistic and

academic support. Logistic services include printing assessment materials, uploading

student data to the testing systems, and distributing and collecting tests. The academic-

related functions are more directly concerned with student achievement improvement.

Examples of this type of practice are analyzing and reporting test data, helping teachers

make data-driven instructional decisions, and providing advices to other central office

subunits (e.g., the departments of the academic branch) on curriculum development and

instruction design. The Department is involved in the following functional areas: testing,

data analysis and reporting, survey administration, and program evaluation.

Testing. The job descriptions suggest that the function of testing takes most of the

time of the employees of the Accountability Department. The DDOT and Testing

Specialist devote almost all their working hours to testing. The Research and Evaluation

Specialist and the Administrative Assistant spend 70% and 60% of their time in

managing the testing issues, respectively.

About 70% of the test programs in PCS are managed by the Accountability

Department. These include: (a) SOL test, (b) Benchmark Assessment, (c) Virginia

Alternate Assessment Program (VAAP), (d) Virginia Grade Level Alternative (VGLA),

(e) Cognitive Abilities Test (CogAT), (f) Advanced Placement (AP) Test, (g) Scholastic Aptitude Test (SAT), and (h) Preliminary Scholastic Aptitude Test (PSAT). The other test programs, including Phonological Awareness Literacy Screening (PALS), Assessing Comprehension and Communication in English State-to-State for English Language Learners (ACCESS for ELLs) test, and International Baccalaureate (IB) assessment, are coordinated by the Language Arts Department, the English as a Second Language Department and the IB program coordinator at Pittsfield High School, respectively.

The testing procedure typically has three phases: before, during, and after the test administration. Take the online SOL test as an example. Before the assessment is administered, the Accountability Department ensures participation counts are gathered from the schools and submitted to Pearson Education Measurement (PEM), an organization that operates the SOL online testing system. The DDOT examines Student Data Upload files[12] to identify any student record that could have possibly not been coded or coded incorrectly. Workshops are planned for and provided to all School Test Coordinators (STC) and an administrator from each school involved in the testing process. The Director trains classroom teachers on how to use the test preparation tool and test strategies. The Accountability Department receives and disseminates the Pre-ID labels which enable access to the online tests to the schools.

During the SOL testing, the Accountability Department is responsible for monitoring and observing schools, answering testing questions, trouble shooting technical issues, and resolving irregularities. The DDOT has the authority to make

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[12] The SDU files are the student assessment records, providing such information as student name, gender, ethnicity, grade, school, etc.

decisions on a variety of issues during testing, such as restarting and resuming testing sessions, if necessary.

When the test administration is completed, the Accountability Department packs and ships the answer documents and non-scorable test materials to the PEM. The DDOT submits Authorization to Proceed (ATP[13]) requests to PEM and the VDOE. Once the ATP is approved, the PEM produces the assessment reports that are disseminated to students, parents, schools, and the division central office.

The division-wide Benchmark assessment has been implemented to prepare students for the SOL tests in Pittsfield since 2004-2005. English, math, science, and social studies tests are administered to all students in grades 2-11. The procedure is similar to the SOL testing, except that the PCS central office needs to create the assessment items that are aligned with the SOL tests. The Research and Evaluation Specialist creates the testing calendar and coordinates with the curriculum departments to ensure timely completion of test development. She also works with the Information Technology Department to upload student data files to the online testing system, Standards of Learning Assessment Resource (SOLAR). Test booklets, answer documents (about 80,000), and enlarged copies for visually impaired students are printed and distributed to schools. Once the testing is finished, all answer documents are scanned and graded. Test reports are generated by SOLAR within one week of testing. The Director of the Accountability Department analyzes the test data, communicates the results to school administrators and teachers, and presents data to the school division board.

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[13] An electronic notification that the specific tasks necessary to close a given test administration have been completed and that the division is ready for PEM to proceed with producing test reports.

The procedures for CogAT, SAT, PSAT and AP are generally similar to the SOL and Benchmark assessments: determining the participation counts, obtaining the test materials, setting up the test sites, administering the tests, and receiving and disseminating the results. Other test programs like VAAP and VGLA, however, follow a different procedure. These alternate assessments for the SOL tests are designed for students with disabilities and/or Limited English Proficiency (LEP). Instead of asking students to respond to a set of test questions, these assessments determine student achievement level by collecting evidence of various forms, such as writing samples, worksheets, quizzes, audio or video clips, etc.

Before the test implementation, the school division is responsible for informing parents and students of the participation criteria for these tests and determines student eligibility. The DDOT is required to verify that the students has been registered in the online testing system and assigned the correct test. During testing, students are asked to generate evidence under the testing conditions. After the evidence is assembled, the teacher and the school administrator conduct monitoring and pre-scoring activities to make sure (a) the evidence reflects a student's knowledge and skills related to the learning standards being assessed; (b) the appropriate student work is graded; and (c) the Student Evidence Identification (SEI) tag is included. All evidence is submitted to the DDOT and scored by either the PEM or the local division personnel according to a set of rules specified by the VDOE.

It should be mentioned that, when requested, it is the Information Technology (IT) Department (a separate department under the administrative branch in the PCS central office) that merges data and generates all the test reports. "[The] IT Department

prepares any report that goes outside." Moore emphasized, "[The] Accountability

Department does not prepare these reports. [The] IT [Department] can do it (i.e.,

generating test reports) very quickly." However, the Accountability Department is

responsible for reporting and interpreting the assessment results to the board members,

district administrators, as well as other stakeholders at board meetings.

To summarize, the Accountability Department plays a critical role in the testing

process to ensure all test programs are implemented appropriately. The Department

provides managerial support, such as creating the testing calendar, printing the

assessment materials, and uploading student data to the testing system. It monitors test

administration at the local schools and offers technical support throughout the whole

testing process. For the state mandatory assessments, the DDOT at the Accountability

Department serves as the point of contact between the school division, the VDOE, and

the PEM by attending many trainings and state level meetings and completing a variety

of paperwork required by the VDOE.

Data analysis and reporting. The Director emphasizes that the Accountability

Department at PCS is extensively involved in student data analysis and reporting. She

plays a major role in data analysis and spends about 18 out of 20 business days each

month (assuming 20 business days in a calendar month) meeting with teachers and school

administrators to discuss student achievement data. "Many people do not see what the

data really tell and are not aware of how data can inform their work. You need to show

them," Moore said.

The tool the Department uses for data analysis is Standards of Learning

Assessment Resource (SOLAR). The SOLAR system, developed by a company, supports

the functions of both testing and data analysis. It has been adopted by several other

Virginia school divisions.

There are three types of data analysis conducted by the Accountability

Department. The first type, called "basic analysis", is primarily focused on the division's

performance on the required accountability indicators. The data results are presented at

the boarding meetings and published on the division's School Report Card.

Table 8

Basic Analysis Results Reported by the Accountability Department in PCS

Federal accountability designation: - AYP status	Division level: 1. Number and/or percentage of all PCS schools that make AYP, 2. Number and/or percentage of elementary, middle, and high schools that make AYP, respectively, 3. Number of schools that fail to make AYP for one or more years, School level: 4. AYP status of each school, 5. Identification of schools that fail to make AYP for two or more consecutive years,
State accountability designation: - Accreditation rating	Division level: 6. Number and/or percentage of all PCS schools that get accreditation, 7. Number and/or percentage of elementary, middle, and high schools that get accreditation, respectively, School level: 8. Accreditation rating of each school,
AYP and/or accreditation indicators: - SOL pass rate	Division level: 9. SOL pass rates for each student subgroup in certain grades and/or subjects, respectively, 10. SOL pass rates of elementary, middle, and high school students in certain grades and/or subjects, respectively, 11. Number and/or percentage of all PCS schools and/or classrooms that have pass rates of 80%, 12. Number and/or percentage of elementary, middle, and high schools and/or classrooms that have pass rates of 80% or above on the SOL tests, respectively, School level: 13. SOL pass rates in certain grades and/or subjects, 14. Identification of schools and/or classrooms with the highest SOL pass rates in certain grades or subjects,

	15. Identification of schools and/or classrooms with the greatest improvement in SOL pass rate,
AYP and/or accreditation indicators: - Graduation rate	School level: 16. Graduation rate of each high school,
SOL advanced rate	Division level: 17. Number of students scoring advanced on the SOL tests in certain grades and/or subjects, 18. Number and/or percentage of all PCS schools and/or classrooms that have advanced rates of 25% or above on the SOL tests, 19. Number and/or percentage of elementary, middle, and high schools and/or classrooms that have advanced rates of 25% or above on the SOL tests, respectively, School level: 20. Number and/or percentage of students scoring advanced on the SOL assessments in certain grades and/or subjects, 21. Identification of schools and/or classrooms with the highest SOL advanced rates in certain grades or subjects,
Recovery students[14]	Division level: 22. Number of recovery students, 23. SOL pass rates and/or advanced rates of recovery students in certain grades and/or subjects, School level: 24. SOL pass rates in certain grades and/or subjects for the recovery students

According to the basic analysis results, the Director of the Accountability

Department tries to identify division-wide learning problems. Moore explained, "The

problems we find [through the basic analysis] are typically considered as either division-

wide or school-wide. It's natural that we have school-wide problems since situations vary

by school. [Such unique school situations as] leadership team, teacher quality … [might

lead to the differences in school performance]. But, … if most of the Pittsfield schools

fail in the assessments in the same subject areas [and/]or grade levels [despite the school

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[14] In Grades 4, 5, 6, 7 and 8, students who fail reading or math assessments in the previous school year are

identified as recovery students.

differences], this will be considered division-wide." Division problems may occur when some assessment is first introduced to the Pittsfield schools. "A new history test was being administered and most schools did not do well," Moore added.

These problems usually require the central office to develop district-wide plans and interventions. "For example," Moore said, "several years ago, I found there were deficiencies in student achievement [as reflected by the test scores] in life science in Grade 3 and Grade 5 in 23 schools [out of the 34 Pittsfield schools]." This was considered as a division problem, since the majority of schools did not perform well. To address the problem, the Accountability Department worked closely with the curriculum departments. "They [the curriculum departments] created instructional activities and pacing guides for the schools, and we [the Accountability Department] monitored student achievement using the Benchmark assessments," said Moore. "Within one year, the performance of the 5th grade students was improved. And we continued to address the 3rd grade problem [using the same strategy]."

A second type of data analysis is called "band analysis", which seeks to identify the distribution of students across the four achievement bands defined by the VDOE: (a) Pass/Advanced, (b) Pass/Proficient, (c) Fail /Basic, and (d) Fail/Below Basic. The Director of the Accountability Department calculates the percentage of students in each band and compares data across years. This analysis helps principals and teachers understand the performance level of their schools.

"Schools should … know it when they are making progress," Moore emphasized. The band analysis results can show it more clearly than the School Report Card. Under the current policy, the "Basic" rate and "Below Basic" rate are not required to be reported

separately, since the pass rate (i.e., sum of the proficient rate and the advanced rate) is the main indicator for the school's AYP status and accreditation rating. "Some schools have managed to decrease the percentage of students that are at the lowest level (i.e., Fail/Below Basic)," said Moore, "however, because of the cut-score [for the Pass/Proficient band] set by the state, you may not see much change in the pass rate of the schools. [Therefore, the schools' AYP status remains unchanged.] But it doesn't mean the schools aren't doing anything." Moore has insisted on analyzing the percentages of students at each achievement band and tracking the changes in these numbers over the last few years. Such analyses may reveal that some schools have "made huge progress by improving the achievement of students at the bottom band, though such progress cannot be reflected by the current pass rate yet". "Schools need to know this." Moore said. This information is important because it may suggest to the teachers and principals "what they are doing really works and they should keep doing this".

On the other hand, it is equally important for schools to know when there is any problem. The band analysis may reveal that, in some schools, the percentages of students at the same achievement bands have not changed in the last few years. "For example, there are always about 10% of students at the highest band, 15% at the second band, and about 20% at the third band, …" Moore explained, "The data suggest that … no matter what kinds of teachers or students come [to the school] and no matter what abilities they have, it has turned out that … students are sorted into these achievement bands in the same way. In other words, the schools produce the same results year after year without thinking about how to improve their performance by doing things differently." The lack

of improvement is a problem. "So," said the Director, "my job is to show the data to school teachers and administrators and help them see this problem."

A third type of data analysis, called "standard analysis", aims to identify the weak areas of student learning so as to help teachers adjust their teaching effectively. The standard analysis links each test question to the SOL content standards. Questions assessing the same standard strands will be sorted into the same group. Therefore, the student score on each group of questions reflects their performance on the corresponding standard strands. The table below shows the total scores (the second column) students can earn and the average scores students actually earn (the third column) on each group of questions that connect to the standard strand in a math test. By subtracting the average score from the total score, the gap between the students' current achievement and the achievement required to meet the standards (the fourth column) can be identified. The larger the gap, the more necessary it is for teachers to provide remediation efforts for the corresponding content standard.

Table 9
Standard Strand Analysis 1 – Identifying the Gap

Standard strand	Total score	Average score of grade 3 students	Gap between total score and average score
Group 1: Number and number sense	13	8	5.00
Group 2: Computation and estimation	11	5.14	5.86
Group 3: Measurement and geometry	12	7.36	4.64
Group 4: Probability and statistics	7	4.29	2.71
Group 5: Patterns, functions, and algebra	7	3.86	3.24

Besides focusing on the average scores, the Accountability Department also calculates the percentages of students who correctly answer the questions that assess the same standard or standard strands. By comparing those percentages, the standards which are most difficult for students can be identified.

Table 10

Standard Strand Analysis 2 – Comparing the Accuracy Percentage

Test question	Standard being assessed	Number of students tested	Number of students who answer correctly	Percentage
1	Solve a problem by finding the product of two 1-digit numbers.	74	51	68.92%
2	Solve a problem involving subtraction of numbers from a table.	74	63	85.14%
3	Solve a problem involving multiplication of two 2-digit numbers.	74	58	78.38%
4	Find the quotient of a 3-digit number and a 1-digit divisor.	74	62	83.78%
5	Find the difference of a mixed number and a fraction.	74	48	64.86%

After completing the standard analysis, the Director of the Accountability Department works with the curriculum departments to communicate the data results to classroom teachers and help them improve instruction. The interpretation of data requires knowledge and understanding of both the content standards and the test questions. It should be mentioned that Moore was an elementary teacher and a teacher coach in Virginia for more than 20 years before she became a central office staff member. During that time, she studied the curriculum and the assessments in all grades and all subjects to see "how the assessments are testing the curriculum". Therefore, she is very familiar with

the Virginia SOL standards. "You've got to know the content so as to make yourself relevant to the teachers," Moore said. "It was very challenging, since I have to learn all the subjects, even high school chemistry and biology."

When meeting with the teachers, Moore demonstrates to them how the test questions connect to the content standards. This helps identify any misalignment between the assessment and classroom teaching. "Teachers should see the big picture and know globally what they are doing," Moore said. "[But] some teachers do not see what the focus is and keeps teaching what they like to teach… [So,] what is being tested [is not taught in the classroom]… My responsibility is to show them the relationship between the test questions and curriculum."

In addition, in light of the standard analysis results, Moore carefully reviews student responses to the assessment questions to identify the patterns of their mistakes. Moore tries to find out the reasons why students failed certain questions and then explains her findings to the teachers. "For example," Moore said, "data show that kids get the 'difficult questions' right, but the 'easy questions' wrong.[15] It suggests that these 'easy questions' may be 'text dependent' [in the reading assessment]. The questions [may] ask about the detailed information of the article. They do not require high-order thinking skills like synthesis and evaluation, but usually require students to flip back a few pages to find the corresponding text and identify that information. Students cannot get these questions right not because they lack the [thinking] skills but because they are

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[15] The Director further explained that "difficult questions" refer to questions that assess higher-order thinking skills like analysis and synthesis; "easy questions" refer to questions that do not assess higher-order thinking skills.

not familiar with such testing strategies and it is the teachers' responsibilities to teach students the strategies. Some teachers are not aware of this issue, but data will show this very clearly."

Throughout the whole process of data analysis, the Accountability Department devotes more time and resources to the "focus schools" of the division. The focus schools are identified for improvement, corrective action, and restructure based on their performance on the SOL tests. The central office staffs work "more frequently with these schools", especially in the summer. The Director of the Accountability Department and staffs of the curriculum departments meet with the teachers and principals at the focus schools to discuss student achievement. At the meetings, Moore uses assessment data to explain what the problems are. Staff members from the curriculum departments explain how to solve the problems by developing new instructional activities. After each meeting, the Accountability Department continues to monitor the progress of these schools using the division-wide Benchmark assessments.

As described above, the assessment data analysis constitutes an integral part of the work of the Accountability Department at PCS. This Department is responsible for reporting all the data results on the AYP components required by the NCLB. In addition, it conducts band analysis and standard analysis of student data and communicates the data results with teachers and principals to inform decision making.

Survey administration. The Pittsfield City Schools have been administering several surveys within the division. The table below presents a few examples of division-wide surveys and the strategic goal that each survey is designed to address.

Table 11

Examples of District-wide Surveys in PCS

Strategic Goal	Survey Name
Maximize every child's learning	School Site Survey
Maximize every child's learning	Opening of Schools Survey
Develop parent and community ownership of our school system[16]	Parent Survey
Develop parent and community ownership of the school system, Create safe, secure, nurturing environments, Attract, train and retain exceptional staff	School Climate Survey

The Accountability Department is mainly responsible for the School Climate

Survey and Parent Survey. Jennifer Price, the Research and Evaluation Specialist, plays a

critical role in the survey program. She creates the survey questions, designs the web-

based or paper instruments, coordinates the data collection process, and manages data

through "scanning, electronic collection or manual data entry". The Director presents the

survey results at board meetings. After the presentation, the survey data will be made

available for the schools so that they can further analyze the data and develop goals,

objectives and strategies to address the issues that have been identified.

The School Climate Survey has been administered in the PCS since 2004-2005.

School staffs are invited to complete the survey after the spring vacation each school

year. The survey was first administered through paper and pencil. Since 2009, it has been

administered electronically. The survey consists of several sections:

1. About 70 items asking about the respondents' perceptions of the eight aspects

    of PCS: "Facilities", "Students", "Administrators", "Discipline", "Faculty",

    "Parents", "Vision and Expectations", and "Central Office Support",

2. One question asking the respondent to provide an overall grade for the PCS,

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[16] This goal is in the Strategic Plan 2005-2010, not the current Strategic Plan.

3. Customer Satisfaction Section, asking the respondent to rate the degree of support (i.e., "Strong", "Moderate", "Little", and "No") from about 50 departments, groups or individuals in PCS, and

4. A section for written comments.

After the survey data have been collected, the Accountability Department conducts data analysis and reports the following results at the board meetings in May or June each year:

1. The response rate,

2. The percentages of respondents, who agree and strongly agree with the positive statements about the school climate in the survey (percentage of agreement),

3. The percentage of agreement in elementary, middle, and high schools, respectively,

4. The percentage of respondents who give their school a "B" or above,

5. The percentage of respondents who agree with that, the PCS departments, groups, and individuals are providing positive support,

6. Change in the above numbers and ratings over the last few years,

7. The identification of the aspects of PCS with the highest/lowest percentages of agreement,

8. Summary of the respondents' written comments.

The earliest published results for the Parent Survey are from 2006. Through 2006 to 2008, parents were asked to participate every year. Since 2008, the Parent Survey has been administered biennially. The paper surveys are distributed to each student to take

home for their parents to complete. Similar to the School Climate Survey, the Parent

Survey asks the participants to indicate their perceptions of six aspects[17] of the school

division (i.e., School Environment, Student Achievement, Teacher/Staff Expectation,

Support and Service, Bell Schedule, and Transportation), provide an overall grade for

their children's schools, and write down their comments. The Accountability Department

scans the returned surveys and analyzes all the responses except the written comments

(which are analyzed by the Executive Directors of Elementary and Secondary Leadership

and the building principals). The Director of the Accountability Department presents the

following results at the board meeting in early May:

1. The response rate,

2. The percentages of parents, who agree and strongly agree with the positive
   statements about the school division in the survey (percentage of agreement),

3. The percentage of parents who give their children's school a "B" or above,

4. The number of written comments,

5. Change in the above numbers and ratings over the last few years,

6. The identification of the aspects of PCS with the highest/lowest percentages
   of agreement.

Program evaluation. Beginning in 2005-2006, the Pittsfield City Schools

instituted a program evaluation process. The purpose is to determine the overall

effectiveness of programs and whether they "should stand in the budget". In fall 2005, the

Division Leadership Team created a list of 45 programs within the district and one of

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[17] There were four aspects in the Parent Survey before 2010: School Environment, Student Achievement,

Teacher/Staff Expectation, and Support and Service,

them was selected for evaluation. In the succeeding years, a minimum of two programs

on the list have been scheduled for evaluation each year. The Assistant Superintendent(s),

the Director of the Accountability Department, and some Executive Directors and

Directors form the internal program evaluation team. Local universities work with the

district as external evaluators. Brenda Moore said that the central office usually asks an

external agency to conduct program evaluation, so the Accountability Department is not

extensively involved; it provides managerial support for data collection and presents the

findings at board meetings.

Summary. As summarized in Table 1 in Chapter 1, the NCLB Act requires school

districts to work on the following areas to hold schools accountable for student

achievement: curriculum and instruction, testing and data, support for failing schools,

parent involvement, and teacher quality improvement. This section suggests that the

Accountability Department at the Pittsfield City Schools specializes mainly on testing

and data analysis. All employees are involved in the test programs. The Director conducts

assessment data analysis and visits schools almost every day to communicate the results

to teachers and staffs. Also, the Department works with the curriculum departments and

the Title I Department to help teachers make data-driven decisions on curriculum and

instruction, especially at the lower-performing schools. Therefore, the functions of testing

and data analysis and reporting are considered the first-tier functions of the Department.

Survey administration (e.g., School Climate Survey and Parent Survey) and

program evaluation are second tier functions. They are aligned with the district strategic

goals: (a) create safe, secure, nurturing environments; and (b) attract, train and retain

exceptional staff. These activities may improve parent involvement and teacher quality of

the division, but they only constitute a smaller portion of the Department's functions.

These two functions are mainly performed by the Research and Evaluation Specialist.

Only about 30% of her working hours, however, are devoted to these tasks.

Functions of the Accountability Department	Accountability functions required by the NCLB

Tier One:
- Testing
- Data analysis and reporting

- **Testing and data**

- Support for curriculum and instruction

- Support for failing schools

Tier Two:
- Survey administration
- Program evaluation

- Support for parent involvement
- Support for teacher quality improvement

(*Managed by other units at the PCS central office*)

Figure 9. Function Priority at the Accountability Department and the Relationship

between the Department Functions and the NCLB Requirements

Note. The arrow "⟶" suggests that the Department is the main contributor in the

functional area(s). The arrow "⟶" suggests that the Department coordinates with other

central office units in the functional area(s). The arrow "⟶" suggests that the

Department has limited involvement in the functional area(s).

Division of labor within the Accountability Department. The Accountability

Department at the Pittsfield City Schools is responsible for testing, data analysis and

reporting, survey administration and program evaluation. As shown in Table 12, staff

members perform about 30 tasks and activities to support these functional areas. Each

function is very complex, requiring the staffs to complete a series of procedures, deliver

various services, respond to various audiences, and possess special knowledge and skills.

So, the functions have to be divided into smaller parts to improve efficiency and enhance

performance (Bolman & Deal, 2003, p. 45). Since the Accountability Department

primarily specializes in the areas of testing, data analysis, and reporting, the rest of this

section will only analyze whether and to what extent division of labor occurs in these two

functional areas.

Table 12
Tasks Performed by the Accountability Department

Functional area	Tasks and activities
1. Testing	State testing program: Before the test administration: 1. Identify participants who take the tests; 2. Develop the testing calendar; 3. Train School Test Coordinators (STC) and other teachers and administrators on the state testing issues; 4. Evaluate, prepare, and secure the testing sites for all test takers, including students with special needs; 5. Manage the logistic issues (e.g., upload student data, pack and ship the test materials) for the state testing programs; During the test administration: 6. Distribute the tests; 7. Monitor and observe testing; 8. Review, resolve or submit testing irregularities; 9. Resolve technical problems, such as resetting passwords for test administrators and identifying and correcting coding errors; After the test administration: 10. Disseminate test reports to students, parents, and schools; 11. Manage the logistic issues (e.g., pack and ship the answer

		documents); Division test programs: <u>Before the test administration:</u> 12. Coordinate with curriculum departments to develop assessment questions; 13. Develop the testing calendar; 14. Train teachers and staffs on the testing issues; 15. Manage the logistic issues (e.g., upload student data, prepare the test materials); <u>During the test administration:</u> 16. Distribute the tests; 17. Resolve technical problems related to testing, such as uploading and retrieving data; <u>After the test administration:</u> 18. Manage the logistic issues (e.g., print test materials, scan answer documents); 19. Disseminate the test reports to students, parents, and schools.
2.	Data analysis and reporting	1. Conduct basic analysis of assessment data; 2. Conduct band analysis of assessment data; 3. Conduct standard analysis of assessment data; 4. Communicate with teachers on the data analysis results, with a focus on the low-performing schools; 5. Prepare the data reports; 6. Disseminate the data analysis results to various audience; 7. Manage logistic issues (e.g., data conversion, data import and export).
3.	Survey	1. Create survey instruments; 2. Distribute and collect the surveys; 3. Analyze the survey results.
4.	Program evaluation	1. Coordinate the data collection process.

Division of labor in the function of testing. Among all the test programs

managed by the Accountability Department, the SOL and Benchmark assessments take

the most time because they are administered most frequently to the majority of students at

elementary, middle and high schools throughout the academic year. The function of

testing is first divided into two groups around the two assessments: the Research and

Evaluation Specialist is responsible for the division-wide Benchmark assessment; the

DDOT and the Testing Specialist manage the SOL and other test programs. The Director

and the Administrative Assistant are involved in both groups, but they are not the main

coordinators. According to Mintzberg (1979), this is called division of labor by "service".

The work is divided among the two working groups because they provide different

testing services.

Table 13

Division of Labor in the Function of Testing - Divided by Service

Testing programs	Directed by	Other personnel involved
SOL test, Other tests (e.g., VAAP, VGLA, CogAT, AP, SAT and PSAT)	DDOT	Testing Specialist, Administrative Assistant, Director
Benchmark assessments	Research and Evaluation Specialist	Administrative Assistant, Director

A number of tasks are performed to make sure the assessment programs are

implemented appropriately. Some tasks require professional knowledge and skills, such

as the knowledge of "the federal, state, and local test guidelines, regulations, and

procedures" and the abilities to detect and solve technical problems related to testing. The

roles that accomplish such tasks have specialized responsibilities, and some bear the title

"Specialist" [18] (e.g., the Testing Specialist). The specialist has "a basic knowledge of the

whole profession" (Pugh, 1963, p. 302). This usually requires completion of professional

training and/or credential/degree education programs. Other tasks, however, are

completed through logistical coordination. This type of task includes ordering materials

and distributing and collecting tests.

Based on the task requirements, the function of testing is divided and distributed

to different roles at the Accountability Department, as shown in Table 14. The DDOT,

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[18] According to the definition in Chapter 2, people playing these roles are all called "specialist", but only

some of them have the word "specialist" in their official titles.

Testing Specialist, Research and Evaluation Specialist and Director mainly manage the

tasks that require professional knowledge and expertise. The Administrative Assistant

assists the test programs by providing logistical support.

Notably, because of the small size of the Department, the staff members who

work as specialists also perform administrative duties in some situations. For example,

the DDOT needs to unpack, move and ship the testing materials. The Research and

Evaluation Specialist distributes and scans the answer documents quarterly.

Table 14

Division of Labor in the Function of Testing - Divided by Task Requirement

Tasks P = tasks requiring professional knowledge and skills, L = tasks requiring logistical support	Professional knowledge and skills	Person(s) in charge
The SOL Test program		
P - Identify participants who take the tests	- Knowledge in the guidelines for test participation set by the VDOE, - Knowledge of student demographic coding	- DDOT, - Testing Specialist
P - Develop the testing calendar; - Train School Test Coordinators (STC) and other teachers and administrators on the testing issues; - Evaluate, prepare, and secure the testing sites for all test takers, including students with special needs; - Monitor and observe testing; - Review, resolve or submit testing irregularities	- Knowledge of the role responsibilities of STC and other relevant personnel, determined by the VDOE, - Understanding of the testing conditions, procedures, and accommodations for students with special needs	- DDOT, - Testing Specialist
P - Resolve technical problems, such as resetting passwords for test administrators, identifying and correcting coding errors	- Knowledge and skills in operating the testing system managed by PEM	- DDOT, - Testing Specialist
L - Complete the paperwork required by the VDOE	NA	- DDOT
L - Order, pack and/or ship test	NA	- DDOT,

	materials; - Distribute and collect the test materials; - Disseminate the test reports to students, parents, and schools		- Testing Specialist, - Administrative Assistant
The Benchmark assessment program			
P	- Coordinate with curriculum departments to develop assessment questions	- Knowledge of the assessment question development	- Research and Evaluation Specialist
P	- Develop the testing calendar; - Train teachers and staffs on the testing issues	- Knowledge of the Benchmark testing procedures and testing system	- Research and Evaluation Specialist
P	- Resolve technical problems related to testing, such as uploading and retrieving data; - Prepare test reports	- Skills in operating the SOLAR testing system	- Research and Evaluation Specialist
L	- Print test booklets; - Distribute and collect test materials; - Pre-slug, distribute and scan answer documents	NA	- Research and Evaluation Specialist, - Administrative Assistant

Division of labor in data analysis and reporting. At the Accountability

Department, all staff are involved in data analysis and reporting, but the Director plays a

major role. Although about 11 test programs are implemented in PCS, the board-meeting

presentations and the interview with the Director suggest that analysis of the test data is

focused on the SOL and Benchmark assessments.

Similar to the labor division in the function of testing, tasks related to data

analysis and reporting are divided and distributed to the staff based on the task

requirements (see Table 15). The Director uses her professional knowledge of the

accountability tests and data analysis skills to organize, calculate, and interpret data for

principals, teachers, and central office administrators. Other staff, with their data

management skills, provide assistance to the Director. Their tasks, like converting the

data format and summarizing data results, usually require less professional knowledge

and skills.

Table 15
Division of Labor in the Function of Data Analysis and Reporting - Divided by Task Requirement

Tasks P = tasks requiring professional knowledge and skills, L = tasks requiring logistical support	Professional knowledge and skills	Person(s) in charge
P	- Conduct basic analysis, band analysis, and standard analysis of assessment data	- Knowledge of the current educational accountability policy at the federal, state, and division levels, - Knowledge of the accountability indicators (e.g., accreditation, AYP) that determine school performance, - Knowledge of the state content standards, - Descriptive statistical analysis skills, - Skills in data analysis software tools (e.g., Excel, SOLAR)	- Director
P	- Communicate with teachers on the data analysis results, with a focus on the low-performing schools; - Disseminate the data analysis results to various audience	- Knowledge of the NCLB requirements about how school districts support low-performing schools, - Knowledge and skills in interpreting test data	
P & L	– Prepare and disseminate the test report; – Make presentations of test data report	- Skills in using the state testing system, - Knowledge of the accountability indicators (e.g., accreditation, AYP)	- DDOT, - Testing Specialist
P & L	– Convert data to useful formats for analysis; – Summarize data	– Skills in using the data management and analysis tools (e.g., SOLAR)	- Research and Evaluation Specialist
P	– Assist data	– Skills in using the data	- Administrative

& L	collection, management, and distribution	management system (e.g., SOLAR)	Assistant

Summary.

Type of labor division. According to Mintzberg (1979), division of labor occurs when people are sorted into different groups on the basis of (a) the knowledge, skills and technology required to accomplish certain tasks, (b) the product or service they aim to provide, (c) the customers/clients they serve, (d) the place where they work, or (e) the subset of steps of a whole process. The staff at the Accountability Department in the PCS work in the same office. So, division of labor by geography is unlikely to occur. They work together to meet the needs of principals, teachers, and different student groups, rather than each providing the service to a separate group of people. Therefore, their work is not divided based on the clients they serve. Additionally, staff members cooperate closely with each other on the same steps of a whole process. For instance, the Research and Evaluation Specialist and Administrative Assistant are both involved in each of the three phases of the Benchmark test program (before, during and after the test administration). This suggests that the division and assignment of tasks is not determined by the steps that comprise the functional process.

At the Accountability Department in the PCS, the tasks are divided based on services. The individuals or groups work on different functions or programs. In other words, they are divided to provide different services: (a) the Research and Evaluation Specialist directs the Benchmark assessments; (b) the DDOT and the Testing Specialist focus on the state mandatory tests; and (c) the Director handles data analysis and reporting.

Division of labor by task requirement also occurs, as shown in Table 14 and Table 15. The staff members are assigned to accomplish certain tasks because their expertise matches the job requirements. More specifically, in the function of testing, the DDOT, Testing Specialist and Research and Evaluation Specialist are responsible for tasks that require more professional knowledge and skills. The Administrative Assistant manages the logistic tasks. For data analysis and reporting, the Director contributes her knowledge and skills in statistical analysis and test result interpretation. Other staff, including the DDOT, Testing Specialist, Research and Evaluation Specialist and Administrative Assistant, provide administrative support. Therefore, the tasks and activities at the PCS Accountability Department are primarily divided by task requirement and service, rather than by clients, geography, or steps.

Specialist roles. With division of labor, specialist roles emerge. At the Accountability Department, all the roles involve specialization except for the Administrative Assistant. Each specialist mainly focuses on one functional area. The DDOT and the Testing Specialist manage the state testing programs. The Research and Evaluation Specialist spends 70% of her time on the Benchmark assessment. The Director, who exercises leadership over all functional areas in the Department, also works as a test data analyst.

These specialists have professional knowledge and skills in testing, academic content, data analysis, educational accountability policy, and/or technology. They have credentials, degrees, and training or working experience relevant to their job duties. For example, the DDOT, Justin Spencer, has a Bachelor's degree in School Counseling and used to work in the Guidance and Counseling Department at the PCS central office.

Notably, the Guidance and Counseling Department was responsible for administering tests before 2005. Spencer, therefore, had gained much experience in managing the test programs before he became a DDOT. The Director has a Bachelor's degree in Elementary Education. As mentioned, she has extensive teaching experience in Virginia public schools. In her other jobs, she edited instructional materials, designed assignments, interpreted test data, created staff development offerings, and helped create school improvement plans. So, she brought a variety of "professional and distinctly relevant experience" to her current position.

To sum up, the Accountability Department divides its official duties by service provided and/or task requirement. Four positions of the department (i.e., Director, DDOT, Testing Specialist, Research and Evaluation Specialist) call for specialists to contribute their professional knowledge, skills, and experience to multiple tasks. Each specialist mainly concentrates on one functional area, either testing or data analysis. Some specialists need to provide assistance to their colleagues outside their concentrations or perform non-professional duties. For example, the DDOT helps the Director make presentations on the data analysis results; he also packs and ships the testing materials. This suggests that, despite the division of labor, the staff still have cross-functional responsibilities, possibly due to the small size of the department.

Coordination within the Accountability Department. Defining and grouping roles based on division of labor is important, but the different parts must work together. Otherwise, the department goals may be displaced and "products or services may suffer" (Bolman & Deal, 1991, p. 56). Therefore, coordination is necessary to link the individual

efforts to make sure everyone works in the desired direction. At the Accountability

Department of the PCS, coordination is achieved through different mechanisms.

Formal rules. State testing programs are primarily governed by the formal rules

set by the VDOE. These rules, applied to all Virginia school divisions, have been written

into manuals, guidelines, and laws. Take the non-writing SOL testing as an example. The

formal rules are embedded in: (a) *Test Implementation Manual*, (b) *Examiner's Manual*,

(c) *Training Workbook: Administering Virginia Standards of Learning Assessments using

PearsonAccess*, (d) *TestNav Technology Guidelines*, (e) *PearsonAccess Technology

Guidelines*, (f) *Proctor Caching User's Guide*, (g) *Student Data Upload File

Requirements document*, (h) *User's Guide for the Testing Irregularity Web Application

System (TIWAS)*, (i) §22.1–19.1 *Actions for violations of test security procedures*, and (j)

§22.1–292.1 *Violation of test security procedures: revocation of license*. The conditions

and procedures of SOL testing have been standardized by these rules. The responsibilities

of key personnel, including the DDOT, School Test Coordinator (STC), and Test

Examiner, are also outlined.

According to the *Test Implementation Manual*, all Virginia divisions are expected

to administer the SOL assessments in almost the same way. All DDOTs are expected to

follow the same schedule when performing the tasks before, during and after test

administration. For example, for the spring 2011 non-writing SOL test, all DDOTs must

enter test participation counts from January 3 to January 11, order additional test

materials between March 14 and July 22, administer the test between April 11 and June

24, ship answer sheets no later than the last day of the division's testing window, and

submit Authorized to Proceed (ATP) by July 29, etc.

Moreover, the manual provides a detailed description of how to accomplish each step. It specifies (a) what the task is, (b) when it is expected to be completed, and (c) who the personnel in charge are. For more complicated tasks, the manual further clarifies the sub-components, as well as who to be contacted and/or what sources to be used, if additional information or help is needed. For example, the manual provides a list of 26 training topics for the DDOT to ensure the sufficiency of the training. Also, the manual asks the DDOT to refer to the *Student Data Upload File Requirements* document when submitting a student data file.

The common situations during testing are defined in the *Test Implementation Manual*. Clear instructions are provided to standardize the procedures of how to identify and handle these situations. For example, the manual defines a testing irregularity as "any occurrence during a test administration that meets one or more of the following criteria:

1. inappropriately influences student performance

2. inappropriately influences the reporting of student performance

3. constitutes a breach in test security, or

4. results in the improper implementation of mandatory student testing. (VDOE, 2012a, p. 35)"

The Test Examiner is required to immediately report any testing irregularity to their STCs, who report testing irregularities to the DDOT within 24 hours of occurrence. The DDOT may be called upon to resolve or mediate suspected or reported irregularities. The DDOT must make sure that all testing irregularities are reported using the Testing Irregularity Web Application System (TIWAS), following the step-by-step instructions provided by the *User's Guide for the TIWAS*.

Throughout the whole testing process, the key personnel are required to use various tools, such as checklists and codes, to examine and report their work. These tools provide a highly- structured common framework for all the test administrators in Virginia school divisions. They help increase efficiency and ensure the test program is implemented appropriately. For example, according to the *Test Implementation Manual*, the DDOTs should review the *DDOT Testing Checklist* so as to make sure all the important issues are addressed. The student test status is color coded. So, the STC can identify very quickly any student who has exited the testing system without submitting answers by looking at the color codes. Test accommodations are also coded to ensure the accommodations provided to students with special needs are "specified in the student's IEP, 504 Management Plan, LEP Student Assessment Participation Plan, or in the documentation of a temporary condition" (VDOE, 2011, p. 44).

Additionally, a variety of forms, agreements, and affidavits must be completed and signed by the designated personnel so as to record the important tasks accomplished by the personnel on the written form. These include (a) *School Division Personnel Test Security Agreement*, (b) *School Affidavit*, (c) *School Division Test Security Agreement*, (d) *School Division Affidavit*, (e) *Division Return Verification Form*, and (f) *Examiner's/Proctor's Test Booklet/Test Ticket Transmittal Form/Affidavit*.

As mentioned earlier, the function of coordinating state-level test programs is divided among the Director, DDOT, Testing Specialist, and Administrative Assistant in the Accountability Department. The formal rules developed by the VDOE grant the authority to the DDOT to train school personnel and monitor the testing process division-wide. Although the rules do not specify the responsibilities of the Director, Testing

Specialist and Administrative Assistant, they still limit the discretion of these staff members by standardizing the testing process. All the involved personnel must follow the rules developed by the state.

The formal rules also help with the coordination of other tasks at the Accountability Department. For example, the department analyzes assessment data to determine the school's AYP and accreditation status to meet the requirements of the NCLB Act and Code of Virginia § 22.1-253.13:3. The Pittsfield City Schools Policy Manual states that, "[the] School Board will … recognize and reward fully accredited schools that make significant progress toward achieving advanced proficiency levels in reading, mathematics, science, and history and social science, and other indicators of school and student performance…" This suggests that the function of data analysis and reporting performed by the Accountability Department should include at least the following six components:

1. Identifying the AYP rating for each school,

2. Identifying the accreditation rating for each school,

3. Identifying the number and/or percentage of students "achieving advanced proficiency levels",

4. Examining school assessment results by subject areas,

5. Monitoring school assessment results by year, and

6. Reporting the above data results to the school board.

Other coordination mechanisms. Not all the practices of the department are standardized by formal rules and policies. For example, the specific guidelines for the administration of Benchmark test program have not been developed or written into the

division's Policy Manual; neither are there any explicit rules for the functions of survey or program evaluation.

In order to coordinate the roles and tasks when the rules are absent, the Accountability Department relies on the chain of command, planning, and informal communications. As reflected by the department hierarchy, the chains of command are quite limited: the Director is formally charged with authority to supervise the other four staff so as to align the activities with the department goals; the DDOT has the authority to assign duties to and check the work of the Testing Specialist.

Plans are developed to coordinate the activities, too. The Research and Evaluation Specialist, for example, creates the Benchmark testing calendar and develops procedures for the testing process. She also develops the workflow plan for data collection for the survey program.

Supervision (through chain of command) and plans specify the job expectations and outline how the expectations should be achieved. As the staff works together to accomplish many projects, they need to communicate with each other often. Frequent communication is supposed to clarify any uncertainties about the task goals and procedures and help the staffs understand how their work is connected.

Inevitably, formal rules, chain of command, planning, and informal communication may not be able to completely coordinate people's behaviors. In many cases, the staff, especially those who have the authority to supervise and make plans, have to use their own judgment to make decisions. For example, the DDOT needs to consider which tasks should be assigned to the Testing Specialist. The Director decides

whether and how to further analyze assessment data after she finishes the components required by the division's Policy Manual.

These decision makers have to rely on their professional knowledge as well as their understanding of the purposes of tasks and how they relate to the goals of the department and division. For example, when the Director tries to find out why students fail on certain test items, she relies on her knowledge of Bloom's taxonomy and academic content to identify the knowledge and skills assessed by the assessment question. Also, the Director conducts standard analysis of test data by connecting the assessment questions to the SOL content standards.

Summary. The first-tier functions of the Accountability Department of the Pittsfield City Schools are testing, data analysis, and reporting. These functions are both linked to the division's first strategic goal – "Maximize every child's learning". The department manages the survey program to support the second strategic goal – "Create safe, nurturing learning environments". It also coordinates program evaluation for the school division.

All but one the five staff play a role in the functions of testing, data analysis, and reporting. Two types of division of labor, by service and by task requirement, occur in the two functional areas. Specialist positions, including the Director, DDOT, Testing Specialist and Research and Evaluation Specialist, call for professional knowledge and skills in either testing or data analysis. But the task complexity and the small size of the department may require the employees to demonstrate different expertise to support different functions simultaneously.

The department follows formal rules when managing the state mandatory test programs and conducting data analysis. It relies on other approaches, including chain of command, planning and informal communication, to coordinate functions when there are no explicit rules. Individual discretion is limited to some extent by such coordination mechanisms. However, the staffs' own knowledge, understanding, and judgments, also shape people's behaviors and decision making.

Chapter 5

Accountability Department at the Scott Valley City Public Schools

Current Characteristics of the Division

Division size and demographics. Scott Valley City Public Schools (SVPS)

consists of 24 elementary schools, seven middle schools, five high schools, one

middle/high combination school, five early childhood centers, and nine program sites.

Fourteen schools operate school-wide Title I programs. The division has a student

population of approximately 30,000, with 55.7% Black, 29.0% White, 9.9% Hispanic, 2.9%

Asian, 0.5% Native American, 0.1% Native Hawaiian, and 1.9% two or more races. The

size of SVPS is above the 90th percentile of all Virginia school divisions and has declined

by about 2600 students since 2005.
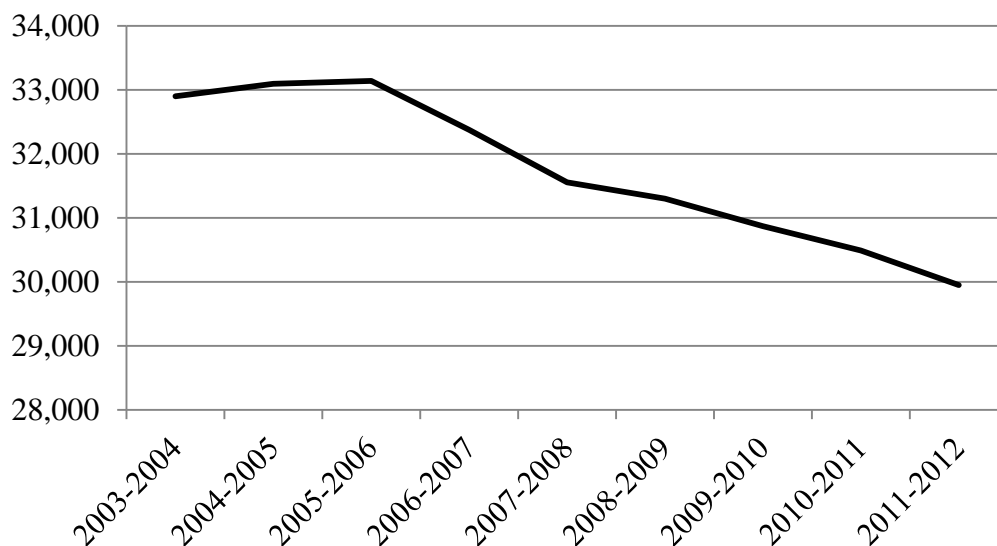
Figure 10. Student Population in SVPS Since 2003

Vision and mission. The vision statement of SVPS reads "Scott Valley Public

Schools is a community of lifelong learners that demonstrates the knowledge, skills, and

values required for productive global citizenship." The division's mission is to "provide a quality education that encourages every student to realize his/her fullest potential".

Six academic focus areas are defined in the Strategic Plan of the SVPS division: student preparedness, literacy, math, teacher retention, dropout prevention and recovery, and youth development. A set of indicators are identified for monitoring the division wide performance and progress in each area, as shown in Table 16.

Table 16
The Academic Focus Areas and the Success Indicators for Each Area

Academic focus area	Success indicators
1. Student preparedness	- Enrollment in rigorous curriculum - Grade point average (GPA) at graduation - Enrollment in math or science - Involvement in Career Pathways - Advanced Placement test scores and dual enrollment credit
2. Literacy	- SOL (SOL) pass rates and pass advanced rates
3. Math	- SOL (SOL) pass rates and pass advanced rates - Eighth grade Algebra success
4. Teacher retention	- Retention of all teachers - Retention of new teachers
5. Dropout prevention and recovery	- Graduation and completion of high school - Student success in the ninth grade
6. Youth development	- Student participation in extracurricular activities

Accountability results. From 2002 to 2005, the percentage of accredited schools in Scott Valley rose from 45% to 90.5%. This number declined to 85% in 2006 and 2007, but jumped to 97.5% in 2008. In 2009 and 2010, 100% of Scott Valley schools earned full accreditation.

Success in earning state accreditation does not necessarily mean meeting the federal accountability requirement – AYP. Since 2004, the SVPS division has failed to make AYP every year, except 2005. From 2004 to 2007, the percentage of schools that made AYP increased from 59.0% to 90%. However, the number has declined for three

consecutive years since 2007. In 2010, less than 40% of schools made AYP in Scott

Valley.
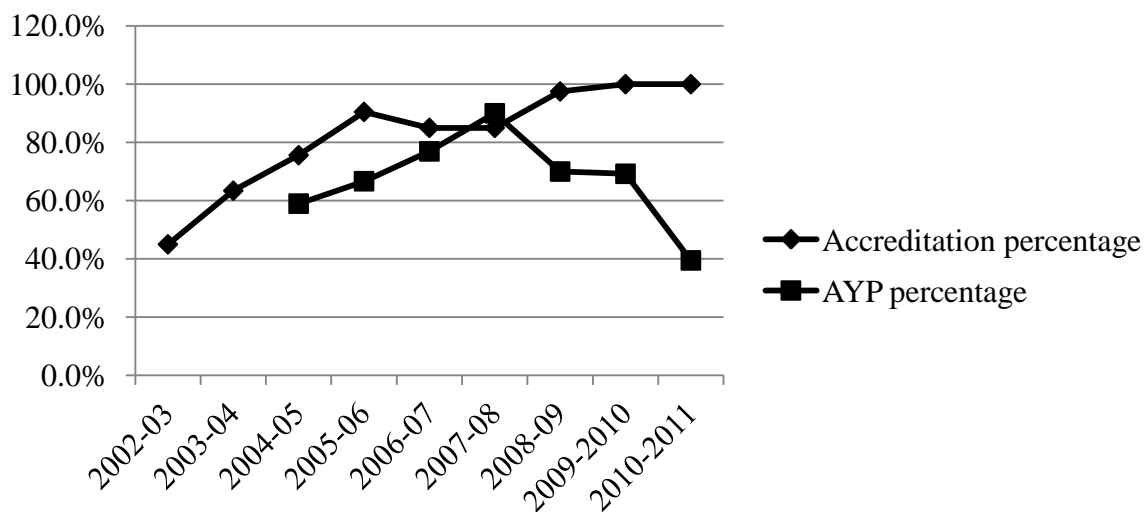
Figure 11. Percentage of Accredited Schools and Percentage of AYP Schools in Scott

Valley

Central office. More than 120 departments and offices have been created within

the SVPS central office. These units are led by a three-level administration team. At the

first level is the Superintendent. The second level includes two Assistant Superintendents

managing business services and human resources, seven Executive Directors responsible

for school leadership, youth development, curriculum and development, and student

advancement, two Directors for corporate and government relations and community

involvement, and a Special Assistant. These roles report to the Superintendent directly.

The third level consists of four Executive Directors, four Directors and three Supervisors

who report to the Assistant Superintendents. Most of them manage administrative tasks,

like payroll management and purchasing. The Executive Director of Accountability is

also at the third level. Figure 12 depicts the reporting relationships among the central

office administrators.

Of the departments and offices within the SVPS central office, some provide academic services. These include 15 Departments of Curriculum and Instruction which develop curriculums for each subject area and provide resources and technology support, four Departments of Student Advancement which implement division-wide programs and offer counseling services to meet the needs of different student groups, the Department of Youth Development which operates a dropout prevention program and engages students in activities beyond the classroom, and four Executive Directors who supervise the operation of elementary and secondary schools and magnet programs. Other units of the central office focus on administrative issues like finance, transportation, and facilities.

Most academic-related departments are under the direct supervision of the Superintendent. Leaders of the administrative departments, however, report to the Assistant Superintendents. Such reporting relationships direct the attention of the Superintendent to the academic issues more than support and operational functions.
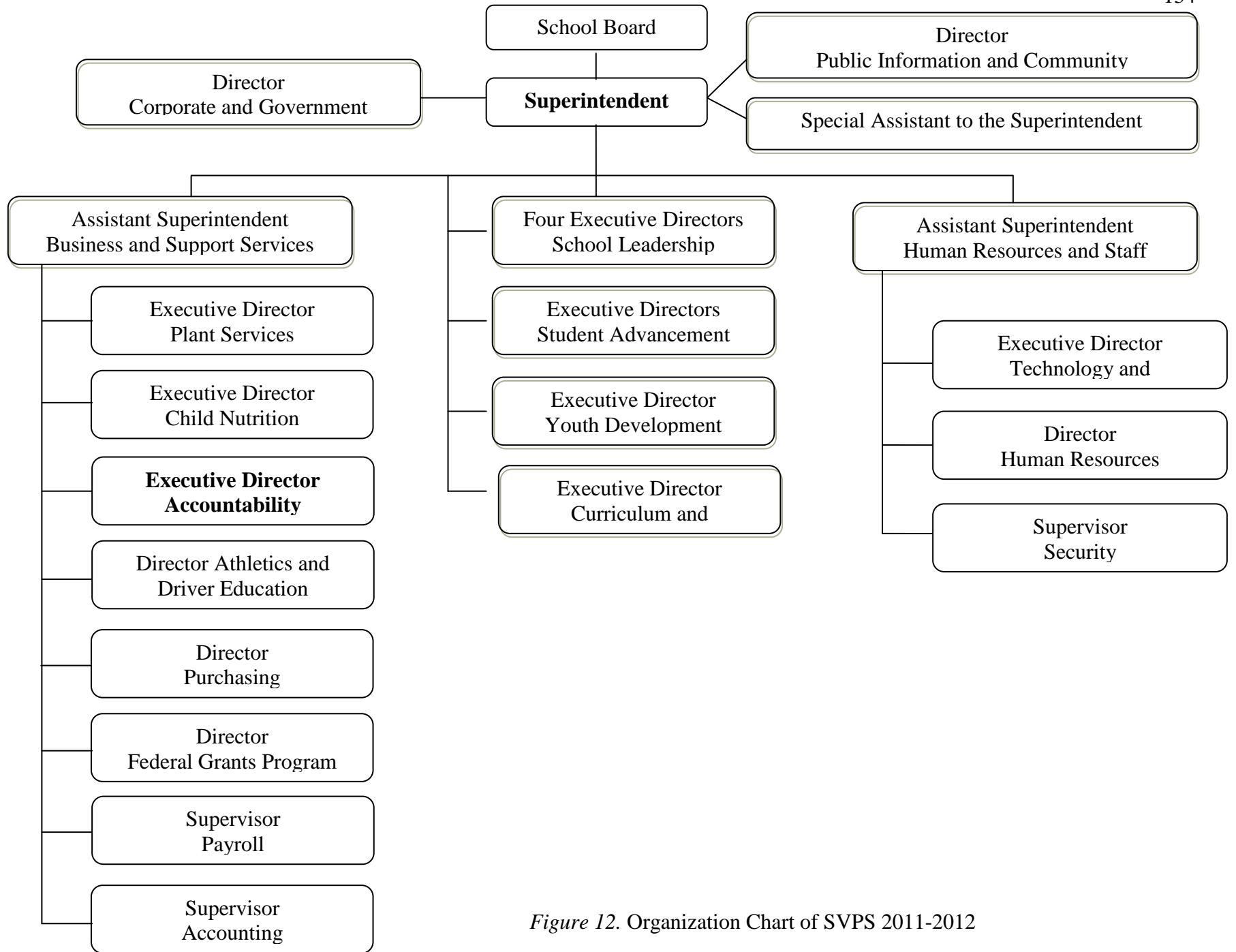
Figure 12. Organization Chart of SVPS 2011-2012

Accountability Department

History of the Accountability Department. The current Accountability

Department in the SVPS has evolved from a former unit which was created in 2003. In

June, 2003, the new Superintendent, Dr. Alan Whitford, started to restructure the central

office. He explained that the purpose was to "reflect a new direction for the philosophy in

the way business is conducted for the school division".

In September of 2003, the Division of Administration and Alternative Services of

the central office was renamed the Division of Administration and Accountability (DAA).

A new unit, the Department of Evaluation and Research (DER), was created. This

department was the predecessor of the Accountability Department. It was charged with

responsibilities for developing and monitoring the data systems, coordinating the local

test programs, analyzing assessment data, and evaluating instructional programs. Dr. Rick

Smith was the only person staffing the DER. He reported to the Assistant Superintendent

for Administration and Accountability.

In May 2004, the SVPS received a commissioned audit report from the Phi Delta

Kappa (PDK) International, which made about 100 recommendations regarding the

division's planning, curriculum, assessment, and governance. After that, a series of

changes were initiated in various aspects of the district, including the organizational

structure that supported the accountability functions. By September 2004, the Division of

Administration and Accountability was renamed the Department of Equity and

Accountability (DEA). One of the subunits under the DEA, called the Department of

Testing, was transferred to the DER to form the Office of Evaluation, Research, and

Testing (OERT). The OERT was staffed with four people: the Director – Dr. Rick Smith,

the Supervisor of Testing, and two Evaluation Analysts. The OERT aimed to help the

school division to achieve the goal of full accreditation of all schools by managing four

groups of initiatives: testing, data analysis, data analysis training, and program evaluation.

Between 2004 and 2006, the OERT, together with three other departments (i.e., Federal

Programs, Student Services, and Alternative and Support Services), functioned as a

subunit under the DEA. The directors of these units all reported to the Assistant

Superintendent for Equity and Accountability.

Before	After
Superintendent	Superintendent
Division of Administration and Accountability	Department of Equity and Accountability
Department of Evaluation and Research	Office of Evaluation, Research, and Testing
Department of Testing	
Other subunits: - Department of Alternative Education Programs, - Department of Health Services, - Department of Administration – School Support, - Department of Attendance, - Federal Grants Programs, - Department of School Safety	Other subunits: - Office of Federal Grants, - Office of Student Services, - Office of Alternative and Support Services

Figure 13. Change in the Accountability Department in 2004

The structure described above remained the same until 2006. In early July 2006, the next series of reorganizations based the PDK audit report were launched. The new structural design incorporated several changes that impacted the units that perform the accountability functions. A new position, the Director of Accountability, was created under direct supervision of the Superintendent. The previous OERT was renamed the Office of Accountability[19] and supervised by the Director of Accountability. Dr. Phillip Matthews was hired for this new position in July 2006. Matthews earned an M.Ed. and a PhD in Educational Evaluation. From 1995 to 2003, he worked as a public school teacher and curriculum consultant, a computer database developer, and a program evaluator. After he got his PhD in 2003, Matthews was employed by a large school district in Maryland, working in the Accountability Department of the central office. That Accountability Department was created more than 20 years ago. The major responsibilities include applied research, testing, and program evaluation. Matthews worked on program evaluation and testing coordination. "I was hired by Scott Valley because I knew exactly what the Accountability Department looks like in the district I worked." Matthews emphasized.

Reorganization occurred again to the SVPS Accountability Department after the departure of Superintendent Whitford. The Deputy Superintendent started her tenure as the Interim Superintendent after Whitford left for another school division. The Accountability Department was placed under the direction of the Assistant Superintendent for Academic Services in October 2006, and then moved to the Assistant Superintendent for Business and Support Services in 2007-2008.

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[19] The Office of Accountability will be called the Accountability Department in the rest of the chapter.
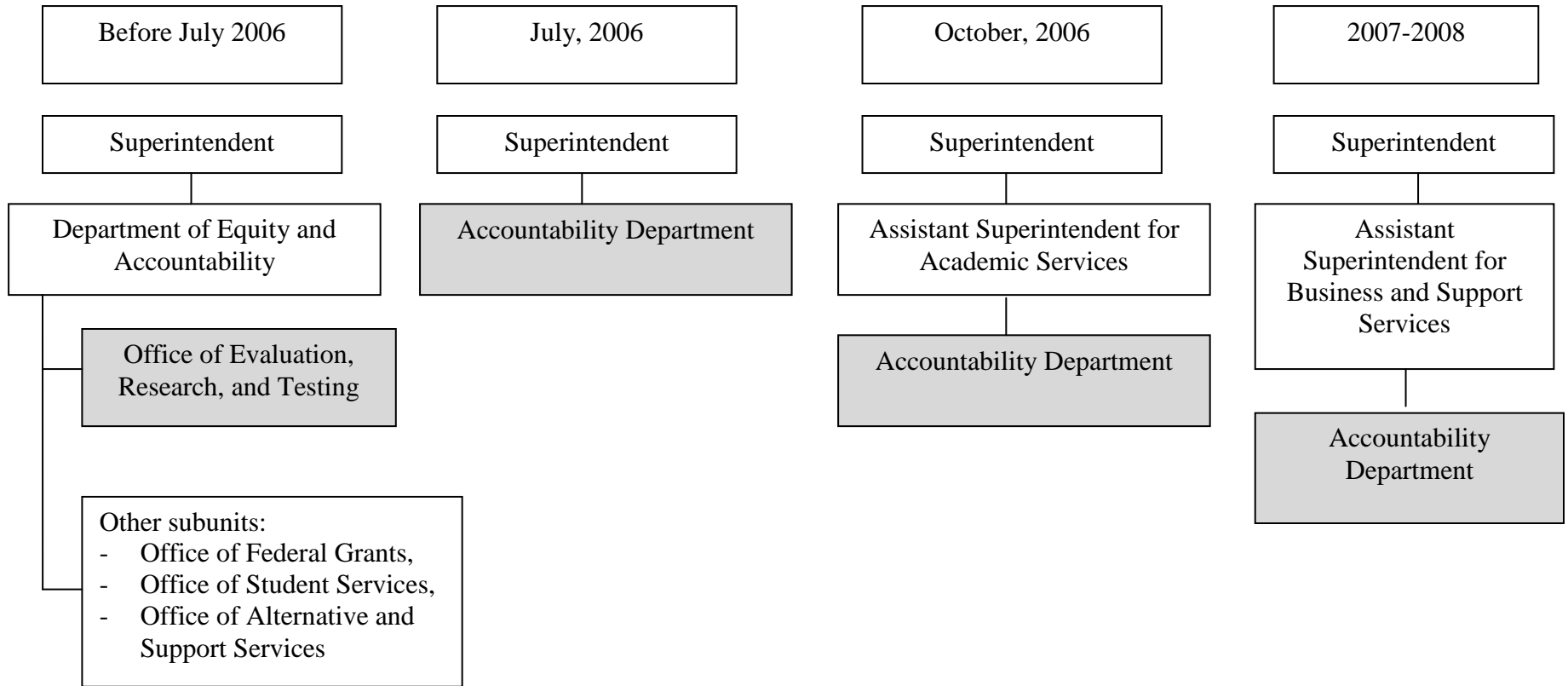
Figure 14. Changes in the Accountability Department between 2006 and 2008

Since 2009, the Director of the Accountability Department, Dr. Matthews, has initiated a few changes that expanded the size and functions of the department. The Department of Central Records and some staff from the Department of Technology joined the Accountability Department as two subunits: the Office of Reporting and Central Records (RCR) and the Office of Student Information System (SIS). With the support of the new staff, the Accountability Department started to play a key role in data management and the new student information system (eSIS) project. The other subunits, the Office of Academic Support and Applied Research (ASAR) and the Office of State Testing (ST), are responsible for testing, data analysis, research, and survey administration.

Currently, the Accountability Department is fully staffed with 25 employees. Dr. Matthews has been the department Director for about six years. He reports to the Assistant Superintendent for Business and Support Services.

Missions and goals. The Accountability Department in SVPS strives to provide "accurate and timely resources" to support the division's achievement goals and objectives (see Table 16). The department's goal is to "support teachers and school administrators as they use data and technology to prepare students for 21st Century learning".

Hierarchical structure. As stated before, the Accountability Department consists of 25 positions. Most of them are located in one the four subunits: the Office of Academic Support and Applied Research, the Office of State Testing, the Office of Student Information System, and the Office of Reporting and Central Records. Each office is led by a Supervisor who reports directly to the department Director, Dr. Phillip

Matthews. The Director also manages the reports from the SIS Project Coordinator and

the Executive Secretary, so his span of control is six.
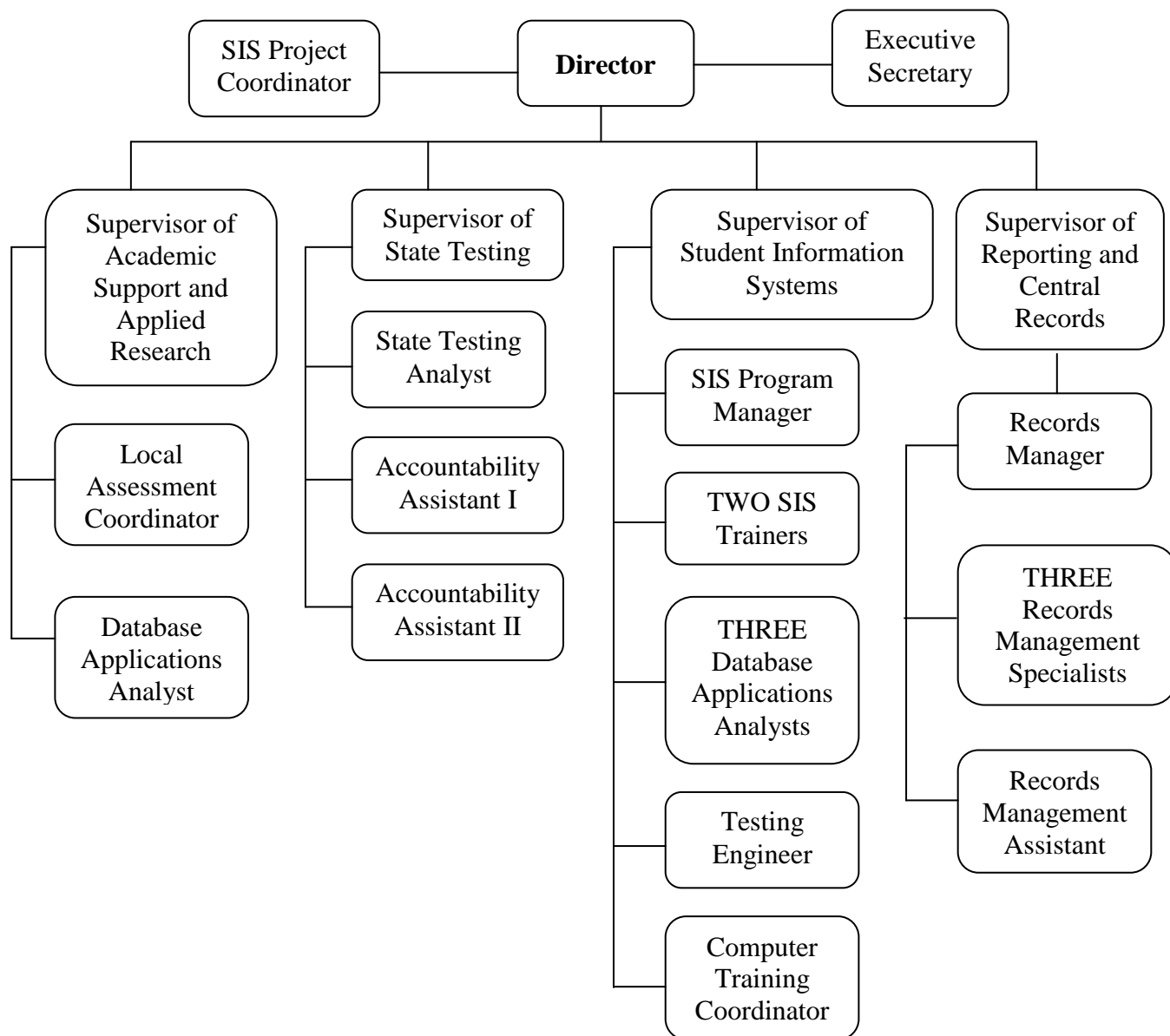
Figure 15. Reporting Relationships of the Accountability Department

The four offices vary by size and function. The Office of Academic Support and

Applied Research has three staff, including the Supervisor, the Local Assessment

Coordinator (LAC), and the Database Applications Analyst. It aims to "provide accurate

and timely analysis, research, and measurement tools that support instructional development of teachers and academic achievement of students". In the Office of State Testing, the Supervisor has three subordinates: the State Testing Analyst and two Accountability Assistants. This subunit coordinates the state and national test programs for the school division. The Office of Student Information System (SIS) has nine employees, including the Supervisor, the SIS Program Manager, two SIS trainers, three Database Applications Analysts, the Testing Engineer, and the Computer Training Coordinator. This office is responsible for the application, development, implementation, and maintenance of a variety of database systems. The Office of Reporting and Central Records, consisting of the Supervisor, the Records Manager, two Records Management Specialists, and the Assistant, "prepares and validates reports for state and federal agencies and monitors compliance regarding proper student records management".

Functions. The functions of the Accountability Department include testing, data analysis and reporting, data management, research, survey administration, and program evaluation. This section describes how each function is performed.

Testing. The testing calendar for 2011-2012 shows that the Accountability Department primarily manages the following assessment programs: (a) SOL (SOL) test, (b) Benchmark assessment, (c) Advanced Placement (AP) Test, and (d) Scholastic Aptitude Test (SAT). Two subunits within the Accountability Department are directly involved in the testing process: (a) the Office of State Testing, which is responsible for the state mandatory tests (e.g., SOL), SAT and AP Test, and (b) the Office of Academic Support and Applied Research, which coordinates the local Benchmark assessments.

To prepare students for the tests, the Accountability Department builds a test item database which contains numerous released SOL items. Teachers are encouraged to create common formative assessments using this database to test the students on the content they teach. Teachers can select the subject, grade level, and content standards to be assessed and decide the number of questions on each test. The formative assessment can be very short at first, but teachers can increase the number of questions gradually so as to help students get used to the length of SOL tests (i.e., 50 items).

When administering the state mandatory tests, the Accountability Department follows the rules and policies developed by the VDOE. As mentioned, the VDOE requires each school division to designate a Division Director of Testing (DDOT), who serves as a liaison with the Division of Assessment and Reporting of the VDOE, trains the School Test Coordinators, and supervises the testing implementation. In SVPS, the Supervisor of State Testing plays the role of DDOT. The process of implementing the state testing programs is described in the last chapter and will not be repeated here.

Since 2003, the SVPS division has administered the quarterly Benchmark assessments to all students in grades 2-12. The students are tested on English, math, science and social studies. The assessment questions are developed by the Departments of Curriculum and Instruction. It is claimed that the scores on the Benchmark assessments can "predict the outcomes on the corresponding SOL tests". The Accountability Department reported at the school board meeting that the Benchmark testing procedure consists of the following steps: (a) setting the testing window, (b) identifying test participants, (c) preparing, validating and uploading student data to the online testing system, (d) ordering test materials, (e) providing training on the testing

procedure, (f) administering the tests, (g) retrieving the testing materials at the conclusion of test window, (h) checking the student information for errors and preparing for scoring, (i) scanning and scoring the answer documents, (j) reconciling the testing materials, and (k) analyzing the test results (P. Matthews, personal communication, January 28, 2011).

The administration of other testing programs is similar to the SOL and Benchmark assessments and follows certain rules and policies that specify the testing conditions and procedures, as well as how to deal with unexpected circumstances related to testing. For example, the Accountability Department administers the SAT and AP assessments in compliance with the testing program policies set by the College Board.

After the tests are administered and student responses are graded, the Accountability Department generates the test reports and disseminates them to various stakeholders. The Director of Accountability Department presents the test outcomes at the board meetings.

Data analysis and reporting. The Office of Academic Support and Applied Research and the Office of State Testing at the Accountability Department play a major role in student data analysis. Similar to the PCS, the two offices conduct a set of "basic analysis" (explained in the last chapter) to identify the division's strengths and weaknesses on the federal and state accountability indicators, as well as performance on the indicators specified in the division's Strategic Plan. The data are compared across years to determine if the division is making any progress.

Table 17
Basic Analysis Results Reported by the Accountability Department in SVPS

Federal accountability designation: - AYP status	Division level: 1. Number of AYP components being met by the division, 2. Number/percentage of elementary middle, and high schools that make AYP,

	3. Number of schools that miss AYP by only one accountability component,
	4. Number of schools that improved AYP status (from non-AYP to AYP),
	School level:
	5. Identification of schools that make AYP,
	6. Identification of schools that improved their AYP status (from non-AYP to AYP),
State accountability designation: - Accreditation rating	Division level: 7. Number/Percentage of schools that get full accreditation, 8. Number of elementary, middle and high schools that get full accreditation, School level: 9. Identification of schools that get full accreditation,
AYP and/or accreditation indicators: - SOL pass rate	Division level: 10. Number of elementary, middle and high schools that achieve pass rates of 70% or higher in English, math, science, and history, 11. SOL pass rates in English and math in elementary, middle and high schools, 12. SOL pass rate in English and math for each student subgroup,
AYP and/or accreditation indicators: - Completion rate and Graduation rate	Division level: 13. Completion rate and Graduation rate of the division, 14. Completion rate and Graduation rate of each student subgroup, School level: 15. Completion rate of each high school, 16. Graduation rate of each high school,
SOL advanced rate	Division level: 17. SOL advanced rates in English and math,
Achievement gap	Division level: 18. Achievement gap in English and math between black and white students, 19. Achievement gap in English and math between non-disabled and disabled students, 20. Achievement gap in English and math between students with high and low socio-economic status (SES),
Indicators in the Strategic Plan	Division level: 21. Percentages of students who earn advanced, standard, modified, and special diplomas, 22. Percentage of students who enroll in and successfully pass Algebra I or higher by the eighth grade, 23. Percentage of high school students, who enroll in and successfully pass four years of coursework in science and / or mathematics,

	24. Percentage of high school students, who enroll in and successfully complete one or more honors or advanced placement courses, 25. Percentage of students who graduate with a grade point average of a 3.0 or higher, 26. Percentages of students who earn an industry certification, enroll in at least one college-level course, or participate in an internship while in high school, 27. Percentage of students who participate in at least one school club, activity, or sport, 28. Percentage of students who attend school more than 90% of a year

In addition to the basic analysis, the Accountability Department conducts other types of data analysis, too. The department uses Microsoft Office Excel to create a data analysis tool, which allows the staffs and classroom teachers to "display relevant data in numerous ways, answer many different questions related to teaching and learning, and obtain a more complete picture of student learning".

Several features are integrated into this tool. First, it provides a comprehensive framework for data collection. The detailed information for each individual student is entered into this framework, including the student ID number, student name, school name, teacher name, and the scores of all assessments taken by each student at each marking period. Second, each test question is linked to the content standards it aims to assess. Third, four achievement bands are defined and color coded based on the percentage of questions students answer correctly in a test or a sub-section of a test: (a) red – less than 61%, (b) yellow – between 61% and 71%, (c) green –between 71% and 81%, and (d) blue –81% or higher. Fourth, the tool produces interactive reports. It allows the data analyst to use the built-in functions in Excel to aggregate and disaggregate data, sort data, filter records, and create charts.

As shown in Table 18, this tool supports the band analysis (explained in the last chapter) by displaying the percentage of students in each achievement band at the school and division levels. The sum of the percentages in the green and blue bands is the pass rate. The schools are sorted based on the pass rate of the assessment so that lower-performing schools can be easily identified. The data analysis tool can create a chart like Figure 16 to displays the results. This helps teachers and administrators understand where they are in relation to other schools.

Table 18
Band Analysis - Percentage of Students in Each Achievement Band

	Achievement bands				Pass rate benchmark
	<61%	61%-71%	71%-81%	>81%	>71%
SVPS division-wide performance	9.5%	9.2%	21.2%	60.1%	81.3%
School 1	3.4%	4.8%	15.2%	76.6%	91.7%
School 3	8.0%	6.8%	16.0%	69.2%	85.2%
School 2	7.8%	7.8%	24.5%	59.9%	84.4%
School 4	8.8%	9.2%	22.1%	59.9%	82.1%
School 5	9.1%	9.1%	29.5%	52.3%	81.8%
School 6	12.8%	8.8%	20.8%	57.7%	78.5%
School 7	17.8%	22.3%	24.2%	35.7%	59.9%
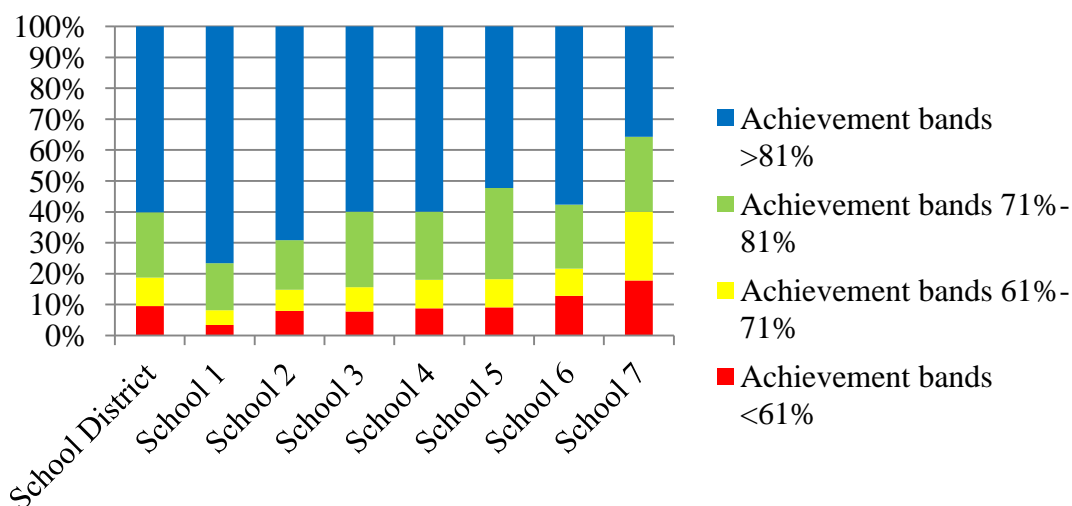
Figure 16. Visualizing the Band Analysis Results

This tool also can be used to conduct the standard analysis (explained in the last chapter), since it connects the test questions with the content standards. For each group of questions that assess the same standard strand, the tool calculates the percentage of questions that are correctly answered by the student and assign the student to the corresponding achievement band. For example, there are 10 questions measuring the same standard strand in a science test. If the student answers eight questions right, he/she will be assigned to the green band, since he/she achieves an accuracy rate of 80%. Therefore, by comparing the achievement bands in which the student falls, the teacher can easily find out the content standards on which he/she needs to work in order to perform better on the test (see Table 19). Also, the teacher can identify the students who perform poorly on the same standards, group them together, and provide the resources and tutoring services they need.

Table 19
Standard Analysis 1 – Identifying the Achievement Band in Which the Student Falls

Content standard strands	Achievement bands			
	<61%	61%-71%	71%-81%	>81%
1. Writing - composing and revising			X	
2. Writing – editing		X		
3. Reading - comprehension	X			
4. Reading – word analysis strategies		X		

The above analysis can be conducted at the classroom or school levels as well to reflect how well students perform on the standards as a group. For example, Table 20 shows that, on the first standard "writing- composing and revising", 54.5% of students are in the blue band, answering more than 81% of the questions correctly; 21.6% of students achieve an accuracy rate between 61% and 71%, falling in the yellow band; 23.9% of students stay in the bottom band. The last column shows the pass rates for each standard strand. When comparing the pass rates across the standards, the data analyst can

identify strengths and weaknesses of student learning. In the following example, the first standard strand, "writing – composing and revising", is the weakest area, as reflected by the lowest pass rate. The school staff, therefore, can consider adjusting the curriculum and instruction to improve student achievement on these standards.

Table 20
Standard Analysis 2 – Identifying How Well Students Perform on the Standards as a Group

Content standard strands	Achievement bands				Pass rate benchmark
	<61%	61%-71%	71%-81%	>81%	>71%
1. Writing - composing and revising	23.9%	21.6%	0.0%	54.5%	54.5%
2. Writing – editing	35.2%	0.0%	34.1%	30.7%	64.8%
3. Reading - comprehension	13.6%	11.4%	25%	50%	75%
4. Reading – word analysis strategies	2.3%	12.5%	22.7%	62.5%	85.2%

The Accountability Department does not merely produce data reports, but it helps teachers and staff to use the tool to conduct assessment data analysis for themselves. The department provides "short, continuously available video trainings" for teachers and staffs on how to use the data analysis tool. It also develops a series of guiding questions for teachers so that they understand "what to look for and what to do with the data". For example, the teachers are asked to go through the following questions when reviewing student data: (a) In what areas do my students fail to meet the benchmark? (b) What intervention strategies should be used to improve learning in these areas? (c) How will the intervention strategies be measured or observed? (d) What will be the measurable outcomes of the intervention strategies? These guiding questions help ensure that instructional decisions are not arbitrarily made, but based on student data.

Data management. The function of data management can be divided into two components: (a) logistical services, such as maintaining and archiving student records

and processing educational record requests, and (b) academic services, such as managing the student information system to assist teachers and administrators in the decision making process. The Office of Reporting and Central Records (RCR) is responsible for the first component. Under the leadership of the Supervisor of State and Federal Reporting and Central Records, the Office of Reporting and Central Records accomplishes the following tasks every year (P. Matthews, personal communication, January 28, 2011):

1. "Process, archive, and maintain inactive and active records;

2. Issue student work permits through the Department of Labor;

3. Update and maintain the Digital Imaging Scanning System for storing permanent student scholastic records;

4. Provide annual training for school-based clerical staff on state and federal regulations regarding student records;

5. Process transcript and student educational record requests for former students, outside agencies and outside school divisions;

6. Conduct student record reviews for high schools, middle schools and elementary schools".

The Office of Student Information System (SIS) is responsible for managing the student information management system (eSIS). Before 2011, the SVPS Division was using an eSIS adopted by the school board in 2002. The system network environment in 2002 "allowed minimal access from school administrators and no access for classroom teachers". To better achieve the vision of "producing graduates who are college, career, and citizen-ready", around 2010 the school division considered purchasing a new eSIS

that could be "easily accessed and responsive to all users" and support various functions, such as data collection, review and warehousing, as well as custom reporting (P. Matthews, personal communication, January 28, 2011). In the rest of this section, the implementation of the new eSIS will be used as an example of how the Office of Student Information System performs the function of data management.

In order to select and implement an eSIS that best meets the school division's needs, a Core SIS Support Team was formed, consisting of 13 members. Eight of them were from the Office of Student Information System of the Accountability Department and the rest were from other central office units including the Department of Technology and the Department of Curriculum and Development. The Director of Accountability Department, Dr. Phillip Matthews, was designated as the "Contract Administrator", responsible for communicating with the vendors and ensuring the selected vendor complied with the terms of the contract. Additionally, a new position, the SIS Project Coordinator, was created within the Accountability Department with funds from the American Recovery and Reinvestment Act of 2009. This position directly reports to the department Director and is responsible for coordinating all the day-to-day activities associated with purchasing and deploying the eSIS. The Department of Purchasing and Vendor Information is involved as an "Issuing Office" that provides managerial support throughout the whole process.

As reported by Dr. Matthews, the evaluation and selection of a new eSIS requires several steps. First, focus groups are conducted with approximately 60 SVPS employees, including principals, assistant principals, registrars, attendance secretaries, School Test Coordinators (STC), instructional supervisors, guidance counselors, nurses, and central

office staffs. These employees are identified as cross functional users of the eSIS and are asked to suggest technical and functional requirements for the new system. The responses of the focus group participants are collected and analyzed. More than 1500 requirements are sorted into 11 system functional categories: testing, grading, reporting, scheduling, attendance, discipline, language services, medical services, special education, technical services, and general functions.

Based on the data from the focus groups, the Accountability Department worked with the Departments of Technology and Purchasing and Vendor Information to develop and issue the request for proposal (RFP) in mid January, 2011. A Pre-Proposal conference was held in the SVPS central office at the end of January so that all the Offerors had a chance to ask questions about the RFP. After the proposal opening, SVPS selected for further consideration two or more Offerors deemed to be fully qualified and best suited based on a set of criteria, including the Offerors' overall responses to the RFP, their experiences with other school divisions similar to SVPS, capability, skills and services of the Offerors, and price. The contract was eventually awarded to Century Consultants, a provider of student information software solutions. As noted by Dr. Matthews, one of the reasons for choosing Century Consultants was that it has been successfully serving Virginia school divisions since 1986, including the divisions of comparable size to SVPS.

The new eSIS implementation started in the year of 2011-2012. According to the implementation plan reported by the Accountability Department, three groups of tasks are identified: (a) technical tasks, such as system setup, system interface connection, data conversion, and security maintenance, (b) training, which refers to the development and

delivery of training materials, tools and programs for teachers, secretaries, school administrators, and central office staffs on how to use the new system, and (c) communication with the division's stakeholders via website, emails, newsletters, and site visits so that they are informed of the implementation of eSIS. Cross functional teams from different central office units work together to complete the tasks. For example, the Department of Technology installs the servers and applications for the eSIS. Technology Curriculum Integration Specialists (TCIS) at the Department of Innovation and Development are responsible for training the lead teachers on the use of eSIS.

Currently, the new eSIS is fully functional. To support data management, the system integrates student data from different sources into a centralized database. It can exchange data vertically with the VDOE system, Pearson EIMS, and horizontally with other SVPS databases like the library and transportation management systems. Included in eSIS are virtually all aspects of student data, such as student demographics, teacher grade book, testing and assessment, attendance, discipline, special education, health/medical information, and scheduling. The tutorial videos and reference guides on how to use the eSIS have been posted on a secured website which the SVPS employees can access.

Throughout the whole process, the Accountability Department functions as the project lead for all aspects of the implementation of eSIS. The Office of Student Information System creates a plan for system evaluation, data migration, testing, deployment, and training. It coordinates the cross functional teams and assumes administrative control of the implementation process. Other supports provided by the Office of Student Information System include translating requirements of administrative

departments into workable computer operations, performing computer testing, providing training opportunities, as well as informing staffs and administrators of the eSIS implementation status.

Research. The function of research is assigned to the Office of Academic Support and Applied Research at the Accountability Department. This function is similar to the function of data analysis and reporting in that they both seek to use data to improve student learning. However, the two functions differ from each other in at least two ways. First, inferential statistical techniques (e.g., correlation and regression analysis) are often employed to perform the research function. But, the analysis of assessment data mainly relies on descriptive statistics (e.g., the calculation of frequency and mean). Second, some research findings may identify the potential problems that require prevention programs or strategies. In contrast, the function of data analysis usually diagnoses the existing problems in schools.

For example, the Office of Academic Support and Applied Research explores a group of research questions related to students' future learning status. It conducts regression analysis to predict students' future scores on the standardized test based on their assessment scores over the last few years. Also, students' previous attendance data and achievement data are used to predict the possibility of their dropping out of school. Based on these analyses, the students who are likely to fail on the test or drop out are identified and assigned to "watch" groups. The Accountability Department communicates the findings to the schools so that they can implement prevention programs to help the students stay on track.

Another group of research studies conducted by the Accountability Department aims to identify the factors that may affect student learning. For instance, one of the questions listed on the Department research agenda states: "Recently we discovered that 154 students who failed the 6th grade math SOL test scored proficient in all categories on the 5th grade math SOL. What is the reason for this?" The department also examines the longitudinal achievement data of two groups of students: (a) students who enroll in advanced math course in high school and (b) students who do not. It discovered that significant differences exist between the two groups in their achievement levels on certain content standards in grade 3 math. How well the students perform on these standards may predict their choice of math courses in high school. This finding helps elementary math teachers understand what to focus on in their instruction and gives them "a sense of ownership" by establishing the link between the grade 3 math standards and the advanced math courses in high school.

A third group of research questions are focused on the effectiveness of classroom instruction and the validity of assessments. Examples include: Are students' "semester grades" associated with their SOL test scores? Do the Benchmark assessments accurately predict student performance on the corresponding SOL tests? Do students' scores on each item of the Benchmark assessments correlate with their total score of the test? The first question examines the alignment between classroom teaching and state mandatory assessments. The "semester grades" are determined based on the students' performance on classroom activities, quizzes, and assignments designed by the teachers, and therefore, may reflect teachers' instruction. The second question tries to determine whether the Benchmark assessments are aligned with the SOL tests. This is worth exploring because

as a tool that monitors student progress on the state content standards, the Benchmark assessments are expected to measure the same knowledge and skills as the SOL tests. To further determine the validity of the Benchmark assessments, the third research question examines each test item. If students' grades on the item are not positively associated with the overall test scores, it may suggest that the item cannot accurately reflect student learning performance, and therefore has low validity. Then, the Accountability Department will suggest that these items be revised or eliminated.

Once the research study is completed, the Accountability Department prepares a short report, using the "numbers and charts" to summarize the findings in two or three pages. "We create smaller articles instead of long research reports, [since] the Superintendent will have no time reading the long report." said the department Director, "When [the] Superintendent sees the findings and asks us for more information, we can have a chance to talk more about this."

Survey administration and program evaluation. Like the Pittsfield City Schools, the Accountability Department of the Scott Valley Public Schools also performs the function of survey administration. The Office of Academic Support and Applied Research is responsible for designing, distributing and analyzing the surveys, including the School Climate Survey, Human Resources Survey, and Senior Exit Survey.

The School Board Adopted Budgets show that, by 2008, the Accountability Department had completed five program evaluations. Since 2008, the Accountability Department has not evaluated any program.

Summary. This section provides a summary of the functions of the Accountability Department in the Scott Valley Public Schools and a brief analysis of how these functions

contribute to meet the NCLB requirements. Figure 17 contains a synthesis of the whole section.

The SVPS Accountability Department is charged with responsibilities for performing the following functions: (a) testing, (b) data analysis and reporting, (c) data management, (d) research, (e) survey administration, and (f) program evaluation. The functions are prioritized into three tiers. The first three functions have the highest priorities. The functions of research and survey administration are at the second tier. Program evaluation currently resides at the bottom tier. Function priority is reflected in the School Board Adopted/Proposed Budget and the Strategic Plan of recent years. Most of the department goals and accomplishments listed in these documents are directly related to the first-tier functions; research and survey administration constitute a much smaller proportion of the document content. The function of program evaluation is listed as a next-step task in the Strategic Plan (p. 11) and has not been performed by the Accountability Department for the last three years.

The Accountability Department strives to meet a set of NCLB requirements. It is the main contributor in the area of testing and data by managing the state and local test programs, implementing the student information system, and analyzing student data. It supports curriculum and instruction by communicating data analysis results to principals and teachers, as well as providing training on data analysis. Additionally, the department conducts research studies on curriculum, instruction, and assessment to identify strategies to improve student achievement. The Accountability Department coordinates with other central office units, such as the Department of Technology and the Departments of Curriculum and Instruction, to implement changes based on the research findings. The

Accountability Department, however, does "not focus much on lower-performing schools", parent involvement, or teacher quality improvement. Support for these areas is primarily provided by the Office of Federal Programs at the central office.
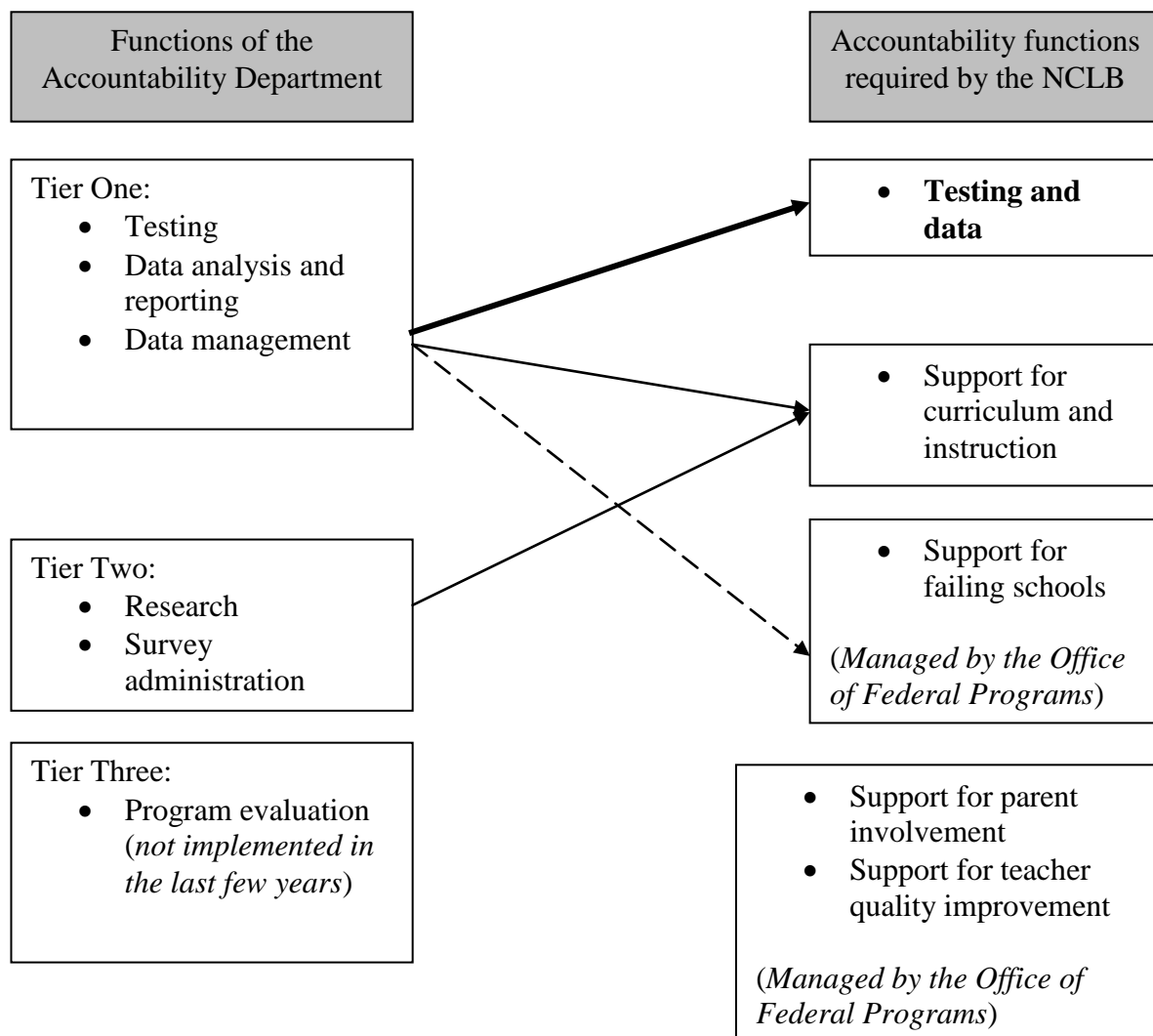
Figure 17. Function Priority at the Accountability Department and the Relationship between

the Department Functions and the NCLB Requirements

Note. The arrow " ➤" suggests that the department is the main contributor in the

functional area(s). The arrow "➤" suggests that the department coordinates with other

central office units in the functional area(s). The arrow "– ➤" suggests that the

department has limited involvement in the functional area(s).

Division of labor within the Accountability Department. The functions of the Accountability Department are assigned to the subunits of the department, as shown below. Each first-tier function (i.e., testing, data analysis, and data management) is distributed to two offices. The functions of research and survey administration are performed by one office only, the Office of Academic Support and Applied Research. All offices but the Office of Academic Support and Applied Research are specialized to perform no more than two functions. The Office of Academic Support and Applied Research, however, performs four functions in total.

Functions of the Accountability Department	Offices within the Accountability Department
Testing	Office of State Testing
Data analysis and reporting	Office of Academic Support and Applied Research
Data management	Office of Student Information System
Research	
Survey administration	Office of Reporting and Central Records
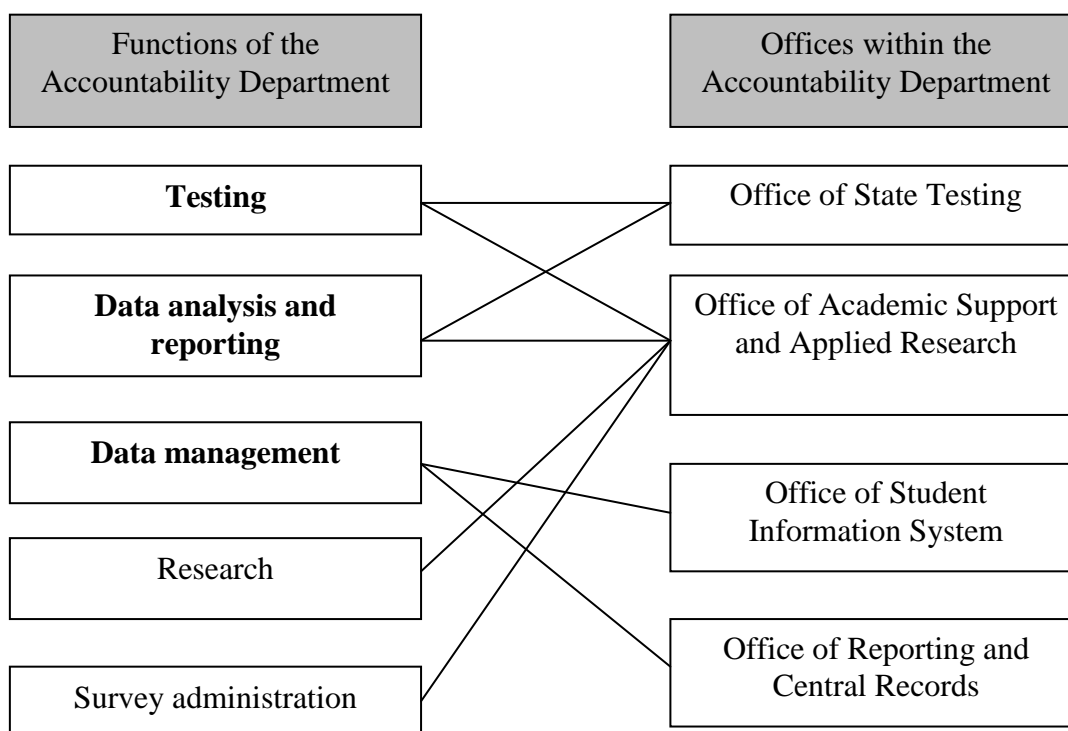
Figure 18. Functions Distributed among the Offices of the Accountability Department

As shown in Table 21, the staff of the Accountability Department currently perform a number of tasks in five functional areas. The tasks are identified from three sources. First, during the interview, the department Director described how the

department performed the various functions. Second, the job descriptions published on

the SVPS website offer detailed information on the tasks and activities each role is

expected to accomplish. Third, at board meetings, the Accountability Department reports

the project plans (e.g., the eSIS) and the results of the department's work (e.g., data

analysis results).

As mentioned before, three functions have the highest priority in the department:

(a) testing, (b) data analysis and reporting, and (c) data management. This section will

provide a description of whether and how the tasks of the three functions are divided and

distributed among the subunits and staffs.

Table 21
Tasks Performed by the Accountability Department

Functional area	Tasks and activities
1. Testing	State testing program: Before the test administration: 1. Identify participants who take the tests; 2. Develop the testing calendar; 3. Train School Test Coordinators (STC) and other teachers and administrators on the state testing issues; 4. Evaluate, prepare, and secure the testing sites for all test takers, including students with special needs; 5. Manage the logistic issues (e.g., upload student data, pack and ship the test materials) for the state testing programs; During the test administration: 6. Distribute the tests; 7. Monitor and observe testing; 8. Review, resolve or submit testing irregularities; 9. Resolve technical problems, such as resetting passwords for test administrators and identifying and correcting coding errors; After the test administration: 10. Provide the user's guide on how to run test reports using the EIMS; 11. Disseminate test reports to students, parents, and schools; 12. Manage the logistic issues (e.g., ship the answer documents, maintain the testing records); Division test program:

		Before the test administration: 13. Consults with lead teachers and instructional supervisors in the development of local tests; 14. Develop the testing calendar; 15. Train teachers and staffs on the testing issues; 16. Manage the logistic issues (e.g., upload student data, prepare the test materials); During the test administration: 17. Distribute the tests; After the test administration: 18. Manage the logistic issues (e.g., scan answer documents, reconcile test materials); 19. Disseminate the test reports to students, parents, and schools.
2.	Data analysis and reporting	8. Conduct basic analysis of assessment data; 9. Conduct band analysis of assessment data; 10. Conduct standard analysis of assessment data; 11. Create a data analysis tool for classroom teachers; 12. Train teachers on how to use the data analysis tool; 13. Communicate with teachers on the data analysis results; 14. Prepare the data reports; 15. Disseminate the data analysis results to various audience; 16. Manage logistic issues (e.g., data conversion, data import and export).
3.	Data management	Student records: 1. Process, archive, and maintain inactive and active records; 2. Issue student work permits through the Department of Labor; 3. Update and maintain the Digital Imaging Scanning System for storing permanent student scholastic records; 4. Provide annual training for school-based clerical staff on state and federal regulations regarding student records; 5. Process transcript and student educational record requests for former students, outside agencies and outside school divisions; 6. Conduct student record reviews for all High Schools, Middle Schools and 14 Elementary Schools. The eSIS project: 7. Design the eSIS functions and determine the technical requirements; 8. Translate the requirements of various users into workable computer operations; 9. Develop the system functions; 10. Perform system testing; 11. Troubleshoot system problems; 12. Install the system and applications; 13. Provide training to the administrators, teachers and staffs on the

	operation of the system; 14. Keep staff and administration fully informed of projected and actual developments in a timely manner.
4. Research	1. Identify the research questions; 2. Collect data or retrieve data from the student information system; 3. Conduct data analysis; 4. Create a short report to present the findings; 5. Communicate the research findings with the school staffs and the central office administrators.
5. Survey	4. Create survey instruments; 5. Distribute and collect the surveys; 6. Analyze the survey results.

Division of labor in the function of testing. Two offices within the

Accountability Department are involved in testing: the Office of Academic Support and

Applied Research and the Office of State Testing. The Office of Academic Support and

Applied Research is responsible for the division-wide Benchmark assessment. The Office

of State Testing is managing the SOL and other testing programs. This arrangement

represents division of labor by service (Mintzberg, 1979).

Table 22

Division of Labor in the Function of Testing - Divided by Service

Testing programs	Office in charge
SOL tests, Other tests (e.g., SAT, AP exams,)	Office of State Testing
Benchmark assessments	Office of Academic Support and Applied Research

The work is further divided by task requirement. In Table 23, the SOL and

Benchmark testing programs are used as examples to indicate how this type of labor

division is achieved. Most tasks that require professional knowledge and skills are

accomplished by the Supervisor of State Testing at the Office of State Testing and the

Local Assessment Coordinator at the Office of Academic Support and Applied Research.

Logistic tasks and activities are performed by the two Accountability Assistants at the

Office of State Testing.

Table 23

Division of Labor in the Function of Testing - Divided by Task Requirement

Tasks P = tasks requiring professional knowledge and skills, L = tasks requiring logistical support	Professional knowledge and skills	Person(s)/office in charge
The SOL testing program		
P - Identify participants who take the tests	- Knowledge in the guidelines for test participation set by the VDOE, - Knowledge of student demographic coding	- Supervisor of State Testing
P - Develop the testing calendar; - Train School Test Coordinators (STC) and other teachers and administrators on the testing issues; - Evaluate, prepare, and secure the testing sites for all test takers, including students with special needs; - Monitor and observe testing; - Review, resolve or submit testing irregularities	- Knowledge of the role responsibilities of STC and other relevant personnel, determined by the VDOE, - Understanding of the testing conditions, procedures, and accommodations for students with special needs	- Supervisor of State Testing
P - Resolve technical problems, such as resetting passwords, identifying and correcting coding errors	- Knowledge and skills in operating the testing system managed by PEM	- Supervisor of State Testing
P - Provide the user's guide on how to run test reports using the EIMS	- Knowledge and skills in operating the EIMS system	- Office of Academic Support and Applied Research
L - Complete the paperwork required by the VDOE	NA	- Supervisor of State Testing
- Order, pack and/or ship test materials; - Distribute and collect the test materials; - Disseminate test reports to students, parents, and schools; - Maintain student files and records on testing results	NA	- Accountability Assistant I, - Accountability Assistant II
The Benchmark assessment program		
P - Consult with lead teachers and instructional supervisors for	- Knowledge of the assessment question	- Local Assessment

	Tasks		Professional knowledge and skills	Person(s) in charge
		the development of local tests	development	Coordinator
P	-	Develop the testing calendar; - Train teachers and staffs on the testing issues	- Knowledge of the Benchmark testing procedures and testing system	- Local Assessment Coordinator
L	-	Order, distribute and collect test materials; - Scan answer documents; - Disseminate the test results	NA	- Accountability Assistant I, - Accountability Assistant II

Division of labor in the function of data analysis and reporting. The Office of

State Testing and the Office of Academic Support and Applied Research are both

involved in data analysis. The Test Analyst in the Office of State Testing analyzes the

data from the state standardized tests. The Local Assessment Coordinator in the Office of

Academic Support and Applied Research analyzes the SVPS benchmark assessment data.

This reflects division of labor by service (Mintzberg, 1979).

Since the function of data analysis is primarily performed by one staff member

within each office, it is not further divided. Both staff members are required to use their

professional knowledge and skills to accomplish a variety of tasks, as shown in Table 24.

Table 24
Knowledge and Skills Required by the Function of Data Analysis

Tasks	Professional knowledge and skills	Person(s) in charge
- Conduct basic analysis, band analysis, and standard analysis of assessment data	- Knowledge of the current educational accountability policy at the federal, state, and division levels, - Knowledge of the accountability indicators that determine school performance, - Knowledge of the state content standards, - Descriptive statistical analysis skills, - Skills in data analysis software packages (e.g., SPSS, Excel)	- Test Analyst, - Local Assessment Coordinator
- Create a data analysis	- Skills in data analysis software	- Test Analyst,

tool for classroom teachers; - Train teachers on how to use the data analysis tool	packages (e.g., SPSS, Excel) - Skills in operating the data management system (e.g., EIMS, eSIS),	- Local Assessment Coordinator
- Communicate with teachers on the data analysis results; - Prepare the data reports; - Disseminate the data analysis results to various audience	- Knowledge and skills in interpreting test data	- Test Analyst, - Local Assessment Coordinator, - Director

Division of labor in the function of data management. The function of data

management has two components, assigned to the Office of Reporting and Central

Records and the Office of Student Information System (SIS), respectively. This

arrangement reflects division of labor by service: the Office of Reporting and Central

Records primarily provides logistic services, like maintaining, releasing, and disposing

student records in compliance with local, state, and federal requirements; the Office of

Student Information System provides academic services, since it implements the eSIS to

support teaching, learning, and assessment more directly. The following paragraph

describes the division of labor within the Office of Student Information System.

The implementation of the eSIS requires cross-functional teams from different

central office departments to work together on a set of tasks, including system function

design and development, technology installation and maintenance, and end-user training.

To ensure the eSIS is implemented successfully, the Accountability Department is

charged with responsibilities for coordinating the various activities and groups. The

department Director and several individuals in the Office of Student Information System,

including the Supervisor of SIS, the SIS Project Coordinator, and the SIS Program

Manager, provide leadership at each phase of the eSIS project and have the authority to

define the eSIS function requirements and approve the system design and deployment.

The other members of the Office of Student Information System are divided into

two groups based on their expertise, suggesting the work is distributed based on task

requirements. The Testing Engineer and Database Applications Analysts form the system

development team. They are responsible for technology tasks, such as developing the

system functions, performing system testing, and troubleshooting any technical problems.

These tasks require professional knowledge and skills in database system development.

The SIS trainers and Computer Training Coordinator develop training content and

materials and deliver the training programs to the teachers and staffs, as requested. They

are required to have knowledge of adult learning theory, training design, and

development, and skills in operating various databases and applications.

The work also can be considered to be divided based on implementation phase.

This suggests division of labor by process (Mintzberg, 1979). The project coordination

team (i.e., Director, Supervisor of SIS, SIS Project Coordinator, and SIS Program

Manager) designs the system functions and determines the technical requirements by

conducting needs assessments with end-user representatives and communicating with

vendors. The system development team (i.e., Database Applications Analysts and Testing

Engineer) works with the Department of Technology to develop the eSIS based on the

system design. The training team designs, develops, and delivers the training programs to

different audience after the eSIS is fully functional.

Table 25
*Division of Labor in the Function of Data Management - Divided by Task Requirement
and by Process*

Tasks	Professional knowledge and skills	Person(s)/office in

		charge
Phase 1: System Design - Design the eSIS functions and determine the technical requirements; - Translate the requirements of various users into workable computer operations	- Knowledge of state and federal regulations, laws, policies and procedures pertaining to student information, - Knowledge of school business processes and student information management functions, - Knowledge of data warehousing and decision-support technologies	- Director, - Supervisor of SIS, - SIS Project Coordinator, - SIS Program Manager
Phase 2: System development - Develop the system functions; - Perform system testing; - Troubleshoot system problems; - Install the system and applications	- Knowledge and skills in developing system functions, - Knowledge and skills in generating test scenarios, programming testing systems, and conducting performance tests on computer systems	- Database Applications Analysts, - Testing Engineer
Phase 3: End-user training - Provide training to the administrators, teachers and staffs on the operation of the system	- Knowledge of adult learning theory, - Knowledge and skills in training design/development, - Knowledge and skills in micro-computer databases, operating systems, business computer applications, and instructional applications	- SIS Trainers, - Computer Training Coordinator

Summary .

Type of labor division. Three types of division of labor are observed in the

Accountability Department in SVPS: by service, by task requirement, and by process.

The following practices reflect division of labor by service:

1. For the function of testing, the Office of State Testing and the Office of

    Academic Support and Applied Research manage two sets of different testing

    programs.

2. For the function of data analysis, the Office of State Testing and the Office of Academic Support and Applied Research analyze data from state standardized tests and SVPS Benchmark assessments.

3. For the function of data management, the Office of Reporting and Central Records and the Office of Student Information System provide logistic and academic support, respectively.

4. Within the Accountability Department, the Office of State Testing and the Office of Academic Support and Applied Research provide testing and data analysis services, while the Office of Reporting and Central Records and the Office of Student Information System specialize in data management services.

The next list presents examples of division of labor by task requirement:

1. For the function of testing, the Supervisor of State Testing and the Local Assessment Coordinator accomplish the tasks that require professional knowledge and skills in testing policies, procedures, and systems. The two Accountability Assistants manage the logistic tasks.

2. For the function of data management, three types of tasks of the eSIS project (i.e., eSIS design, development, and training) are assigned to three groups of personnel based on the knowledge and skills required by these tasks, listed in Table 25.

3. Within the Accountability Department, the functions requiring different knowledge and skills are assigned to different subunits. The functions of testing and data analysis are performed by the Office of State Testing and the Office of Academic Support and Applied Research. The function of data

management is performed by the Office of Reporting and Central Records and the Office of Student Information System.

Division of labor by process occurs during the implementation of the eSIS project. Three phases of eSIS implementation include system design, system development, and system training. The tasks of each phase are accomplished by a different working group (see Table 25).

Specialist roles. In the SVPS Accountability Department, more than 80% of the staffs work as specialists, completing tasks requiring professional knowledge, skills, experience, or credentials. For example, the Director earned a PhD in educational evaluation and policy studies and has experience in teaching in public schools, developing computer databases, and coordinating student assessment issues. The Supervisor of State Testing earned a Master's degree in systems engineering, and has worked as an engineering manager and a technology resource analyst in business organizations, and as a supervisor of state testing in another Virginia district.

The table below lists the minimum requirements of the major specialist positions. These requirements are presented in the job descriptions published on the SVPS website. The professional knowledge and skills possessed by each role are presented in the last section (see Table 23, Table 24, and Table 25), and will not be repeated here.

Table 26

Credentials and Experience Required by the Specialist Positions

Specialist position	Required credential	Required experience
Director	– Master's degree in education or related field with emphasis on research, assessment and evaluation (doctorate preferred)	– Public education (PreK-12) experience
Supervisor of State Testing	– Master's degree in education, statistics, mathematics, or a	– Considerable related experience in the field of

		educational testing administration, – Experience in a supervisory capacity
Testing Analyst	– Bachelor's degree in education, research, statistics, mathematics, or a related field (master's preferred)	– Experiences in data analysis and technical program implementation
Supervisor of Academic Support and Applied Research	– Master's degree in education, statistics, mathematics, or a related field	– Considerable related experience in the field of educational accountability, – Experience in a supervisory capacity
Local Assessment Coordinator	– Master's Degree or equivalent post undergraduate experience from an accredited college or university in a social science area related to education, psychology, evaluation, research, sociology, psychometrics, etc.	– Experience working with teachers and school administrators on the collection and use of student academic data to improve instruction, – Experience in test administration, development and knowledge of current assessment practices
Supervisor of SIS	– Bachelor's degree in computer science, management information systems,	– Considerable relevant experience to supervise and manage a network and all technology systems as required by the division, – Experience in a supervisory capacity
SIS Project Coordinator	– Bachelor's Degree in computer science, technology management or business administration (master's degree and Project Management Professional certification preferred)	– Five to 10 years experience in computer science, technology management or business administration, – Experience working with teachers and school administrators on the collection and use of student academic data to improve instruction
SIS Program Manager	– Bachelor's degree in business, education, management	– Experience in planning, implementation and

	information systems	managing the functional use of large scale Enterprise Resource Planning (ERP) systems preferably within an educational environment, – Experience conducting training to adults preferred
Testing Engineer	– Bachelor's degree in computer science, management information systems, or a related field	– Some experience in a related computer systems testing position within a UNIX, MS Windows, and network environment
Computer Training Coordinator	– Bachelor's degree in computer science, training/human resources development, business administration, or a related field	– Some experience in a related technology training position

In summary, the Accountability Department in the Scott Valley Public Schools

distributes its official duties among the offices and individuals based on three approaches:

by service, by task requirement, and by process. Most positions in the department require

specialists. Individuals must possess professional knowledge, skills, experience, and

credentials to perform their jobs.

Coordination within the Accountability Department. The Accountability

Department of SVPS adopted several mechanisms to coordinate the subunits, working

teams, and individuals. The mechanisms include formal rules and policies, chain of

command, planning and lateral communication.

Formal rules. A number of rules have been established and written into formal

documents to specify how a task should be performed and how each staff is expected to

behave in the Accountability Department. For example, state standardized tests are

administered in compliance with the rules established by the VDOE[20]. The contract

signed between the SVPS and the vendor specifies the technology and function

requirements of the eSIS. Laws and regulations including Family Educational Rights and

Privacy Act (FERPA) and Protection of Pupil Rights Amendment (PPRA) provide

guidelines for how to maintain and release student records. The job descriptions list a set

of duties and the knowledge and skills required for the positions.

Chain of command. Chain of command is another coordination mechanism used

by the Accountability Department. At the top of the chain of command is the department

Director, who manages six direct reports from four office supervisors, the Student

Information Systems Project Coordinator, and the secretary. The four office supervisors

are charged with authority to supervise the members within their offices. Personnel at the

supervisory positions are responsible for ensuring the activities are aligned with the

department goals. They are responsible for making decisions when rules are absent. For

example, there are no specific guidelines for which student information system should be

purchased. The department Director and the other leaders involved in the eSIS project

have to evaluate the vendors' products based on their own professional knowledge of

student information systems and their understanding of the division's needs. Additionally,

they consider whether similar districts selected the vendor's product and service.

Planning and lateral communication. Several roles in the Accountability

Department are charged with responsibility for coordinating different working groups and

individuals. These roles, including the SIS Project Coordinator, the Local Assessment

Coordinator, and the Computer Training Coordinator, perform the coordination function

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[20] Detailed description of how the state rules coordinate the test administration is presented in Chapter 4.

in at least two ways, other than direct supervision: (a) the development of plans and (b) lateral communication with other members within and outside the department. The Local Assessment Coordinator develops the division-wide schedule and operation procedures for the local assessment program. The SIS Project Coordinator creates a development plan for the eSIS evaluation, data migration, testing, deployment, and training. These plans help coordinate the individual work by outlining the specific steps required to be accomplished in each project.

In addition, the coordinators establish and maintain effective working relationships with other members through lateral communication. The SIS Project Coordinator, for example, communicates with the eSIS development team and the training team in order for the eSIS project to move from one phase to the next smoothly. The Computer Training Coordinator consults with the staff to determine training needs and communicates this information to the trainers, such the eSIS trainers, so that the training is delivered to meet the needs of various employee groups.

In spite of these coordination arrangements, each individual still needs to use their own knowledge and understanding to make judgments and solve problems. In some cases, the department staff works beyond the standards required by the formal rules and plans in order to improve teaching and learning. For example, the data analysts conduct standard analysis of student assessment data. They also create an Excel tool and train classroom teachers on how to use the tool to improve instruction. The Director explains that, the NCLB Act mandates that achievement data be reported by student subgroup. But, this type of data report cannot clearly indicate what teachers need to do in order to increase student achievement. To address this issue, the Accountability Department developed a

data analysis tool based on the important relationships among assessment data, content standards, and instruction. This tool allows teachers to conduct standard analysis by connecting test questions to the content standards. This feature can "help teachers identify weak content areas", and therefore, "help shift attention from student demographics to the curriculum content". The standard analysis of student data and the creation of the data analysis tool indicate that the Accountability Department does not merely follow formal rules, but works creatively to meet the needs of teachers and students.

Summary. The Accountability Department of the Scott Valley City Schools performs a variety of functions: testing, data analysis and reporting, data management, research, and survey administration. The department primarily focuses on the first three functions. According to the division's Strategic Plan for 2010-2013, it also will perform a new function - program evaluation.

The functions are assigned to the four subunits of the department, and then, further divided and distributed to the individuals or groups within each subunit. Due to the complexity of the functions, three types of labor division occur: by service, by task requirement, and by process. Division of labor enables each staff member and team to focus on a smaller set of tasks.

Formal rules, chain of command, planning, and communication are the major mechanisms adopted by the Accountability Department to coordinate the activities of working groups. In some situations, however, staff still need to rely on their own knowledge and beliefs to make decisions about how their jobs should be performed.

Chapter 6

Comparison of Two Accountability Departments

Introduction

In this chapter, the author will compare the two case studies to identify the similarities and differences between the Accountability Departments of the Pittsfield City Schools (PCS) and Scott Valley Public Schools (SVPS). The findings from the case studies will be synthesized and organized around the research questions:

1. How did the Accountability Departments originate?

2. How have the Accountability Departments evolved since their inception?

3. Why have the Accountability Departments changed over time?

4. What are the current characteristics of Accountability Departments?

5. How do the Accountability Departments perform their accountability functions?

6. To what extent do the Accountability Departments are similar to each other across the school divisions?

The author does not intend to claim that the research questions can be thoroughly answered by the data collected from the case studies. The purpose of this chapter is to identify how the available data can increase our understanding of the research questions.

Results and Analysis for Research Question 1

The first research question is: How did the Accountability Department originate? Three sets of information can inform this question, as shown in Table 27. A review of the

Virginia and federal accountability policies provides the first set of information. The author has already presented a detailed analysis of the policies in Chapter 2 and will only provide a brief summary in this section. The second and third sets of information are provided by the two case studies.

Table 27

Information Related to the First Research Question

1. Policies and implications	1. What were the accountability policies before the creation of the Accountability Department? 2. What were the implications for the organization of district central office?
2. Creation of the Accountability Department in PCS	1. When was the Accountability Department created? 2. How was the Accountability Department created? 3. Why was the Accountability Department created?
3. Creation of the Accountability Department in SVPS	1. When was the Accountability Department created? 2. How was the Accountability Department created? 3. Why was the Accountability Department created?

Policy background and implications. In 1997, the VDOE created a set of new standards for accrediting the public schools in Virginia. These Standards of Accreditation (SOA) were new to the local school divisions in several ways. First, the new SOA required all schools to be accredited annually instead of biennially. Second, a new test program, the SOL assessment program, was implemented. Third, the SOA required that each school perform a new function, providing annually a School Performance Report Card to disseminate a variety of student data to parents and community members. Fourth, higher stakes were attached to the state testing program. For individual students, the SOL assessments "constitute the primary evaluation of student academic achievement (VDOE, 1997, p. 4)". For schools, the performance on the SOL tests played a critical role in determining the accreditation rating. Any school that was accredited with warning was required to develop a corrective action plan which must be approved by the local school board and submitted to the Virginia Board of Education for approval. Last but not least,

the SOA no longer required the guidance and counseling staffs to coordinate the test programs.

In 2000, the SOA incorporated a few changes. More consequences were developed and attached to the school accreditation results. According to the SOA of 2000, schools that are accredited with warning had to meet a set of action requirements, such as implementing an instructional method that "has a proven track record of success (VDOE, 2000, p. 35)", developing a three-year School Improvement Plan, and undergoing an academic review. Also, schools with high achievement qualified for recognition and rewards. Another change was that the old state testing program, the Literacy Passport Test, was to be phased out. Despite the above differences, the SOA of 2000 were similar to the standards adopted in 1997, since the SOL tests and the School Performance Report Card remained key components of the Virginia accountability system.

In 2002, the NCLB Act was passed, demanding greater accountability from the public school system nationwide. As described in Chapter 2, the NCLB specifies a set of critical components of the accountability system: content standards, achievement standards, standardized assessments, assessment result reports, and consequences. It defines the AYP as the primary indicator for educational accountability and several models for calculating the AYP status have been developed and piloted. Moreover, the NCLB Act mandates that school districts support the functions of data analysis (U.S.C. § 6316 (a)(1)(A)), program evaluation (U.S.C. § 6312 (c)(1)(O) & U.S.C. § 6316 (a)(1)(D)), staff development, and parental involvement (U.S.C.6312 § (c)(1)(H)), as well as make sure the programs implemented in the local schools are research based (U.S.C. § 6312 (c)(1)(F)).

The state and federal accountability policies between 1997 and 2002 have implications for various aspects of Virginia school divisions, including the function and structure of the central office. One salient implication is that the central offices are called on to perform a set of new functions. Some of the functions are explicitly required by the policies, such as supervising and/or implementing the SOL assessments and preparing the School Performance Report Card (VDOE, 1997). Other functions (e.g., research and program evaluation), although not directly stated in the policies, may also be performed by the school division for reasons presented in Chapter 2.

A second implication is that the central office must ensure there are structural units/positions supporting the new functions. To address this requirement, the school divisions have at least three options: (a) assigning the functions to the existing units/positions, (b) creating new units or positions, and (c) combining the first and second options.

A third implication concerns where the above units/positions are located within the central office hierarchy. As noted, these units/positions are responsible for functions closely related to student academic performance. Since the accountability policies have attached highly visible consequences to student achievement, it is likely to assume that the units/positions receive much attention from district administrators. The chains of command between superintendents and these units are shallow.

The last (but not least) implication is associated with an existing unit that performs the function of testing in the central office. Before 1997, the Virginia SOA required that school counselors coordinate school assessment programs. Correspondingly, the central office units/positions that support the functions of guidance and counseling (G

& C) had to supervise the test programs division-wide. Since 1997, the SOA no longer require school counseling staffs to administer the assessments. The Literacy Passport Test program has been phased out.

Creation of the Accountability Department in Pittsfield City Schools. The PCS division has a unit which has the word "accountability" in its title. According to the definition presented in Chapter 1, such a unit is identified as an "Accountability Department". The current department evolved from the Department of Assessment and Instructional Support (DAIS). This subsection focuses on the creation of the DAIS. Data collected from the PCS will be organized to answer three questions:

1. When was the Accountability Department created?

2. How was the Accountability Department created? And,

3. Why was the Accountability Department created?

When was the Accountability Department created? The current Accountability Department evolved from the DAIS in 2003. The DAIS was created around January, 1998.

How was the Accountability Department created? After the 1997 SOA mandated that SOL assessments be administered and school performance data be disseminated to the public, the PCS division made some administrative adjustments in the central office. First, the division assigned the function of SOL testing to the Department of Guidance and Testing, which had been responsible for managing the assessment programs before 1997. Second, a new unit, the DAIS, was created to perform the functions of data analysis and reporting, program evaluation, and school improvement planning. Third, the PCS hired Dr. Emma Howell as the first director of the DAIS. Howell earned a PhD in

Educational Psychology with emphasis on Evaluation and Measurement and had more than ten years of working experience in student assessment, research, and program evaluation.

Dr. Howell left the PCS in 2001. It is unclear who supervised the DAIS between 2001 and 2003, but the board meeting minutes suggest the two Assistant Superintendents were involved in the functions of student data reporting during these years. In 2003, the DAIS was renamed the Department of Instructional Accountability, which is the current Accountability Department. Dr. Rick Sanderson was hired as the director.

Why was the Accountability Department created? No available data offer a direct answer to the question. However, analyses of the policies and the creation of the Accountability Department in PCS provide possible explanations.

Policy requirements. It is likely that the PCS division created the Accountability Department in order to meet the requirements of state accountability policies. The DAIS was created around January, 1998, a couple of months after the adoption of the new SOA in September, 1997. The DAIS was charged with the responsibility of reporting school performance on the SOL tests. This was a direct response to the SOA, which mandated that school divisions perform the function of data reporting.

Other responsibilities were assigned to the DAIS, including data analysis, program evaluation, and school improvement planning. This may also represent the PCS's efforts to meet the SOA requirements. As explained in Chapter 2, school divisions are likely to be compelled to perform these functions under Virginia's high-stake accountability policies.

Uncertainty of the functional process. Another possible explanation concerns the complexity and uncertainty of the process of achieving educational accountability. Neither the Virginia SOA nor the NCLB Act provide specific instructions on what the school districts should do in order to hold schools accountable for student achievement, but both explicitly define the accountability outcomes that school districts must achieve so as to avoid sanctions. According to DiMaggio and Powell (1983), in such a situation, school divisions may model themselves on other school districts, especially those with similar conditions. The models are likely to be diffused through employee transfer.

The Director of the DAIS in PCS, Dr. Howell, was hired from the Laurel Public School Division (LPS) in Virginia. The LPS shares at least two similarities with the PCS: (a) both divisions are operated under the same accountability policies at the state and federal levels; and (b) the student populations of the divisions are comparable. Before 1998, the LPS created a unit, led by Dr. Howell, to perform the functions of testing, research, program evaluation, and school improvement. After Dr. Howell transferred to the PCS, the DAIS was created within the central office to perform a set of similar functions. Such information may suggest that the PCS might mimic the LPS by creating the DAIS, which resembled the corresponding unit of the LPS, since it was unclear what the school districts should do to help schools meet the accountability requirements.

Creation of the Accountability Department in Scott Valley Public Schools. In SVPS, the Accountability Department evolved from a former unit, which used to have different titles. The former unit bore the title, the Department of Evaluation and Research (DER), when it was first created. This subsection will mainly describe the creation of the DER in light of the following questions:

1. When was the Accountability Department created?

2. How was the Accountability Department created? And,

3. Why was the Accountability Department created?

When was the Accountability Department created? The current Accountability Department evolved from the Office of Accountability (OA) in 2009. The OA has experienced a series of changes since its origination in 2003. As noted before, the OA was first named "the Department of Evaluation and Research (DER)".

How was the Accountability Department created? In June 2003, Dr. Alan Whitford was chosen to be Superintendent of the SVPS. A few months after he took office, Dr. Whitford started to restructure the central office. The Division of Administration and Alternative Services was renamed the Division of Administration and Accountability (DAA). A new subunit, the Department of Evaluation and Research (DER), was created under this division. At that time, the DER was a one-person unit. Dr. Rick Smith was the only staff member of the department, responsible for developing and monitoring the data systems, coordinating the local test programs, analyzing assessment data, and evaluating the instructional programs.

In the next few years, the DER changed in a variety of ways, including its title, leader, staffing, structure, and functions. It eventually became the current Accountability Department in 2009.

Why was the Accountability Department created? The author identified one possible explanation for the creation of the DER. It is related to the accountability requirements specified in laws and policies. Evidence that may support this explanation is presented below.

Policy requirements. In fall, 2003, more than one year after the NCLB Act was signed into law, a series of administrative adjustments were initiated in the SVPS central office. The creation of the DER was part of the restructuring process. The Superintendent explained at a board meeting that the new organizational structure "reflected a new direction for the philosophy in the way business is conducted for the school division." Also, it is clearly stated in the division's budget proposal in 2004 that the DER was founded to meet *No Child Left Behind* requirements for Adequate Yearly Progress and Virginia's Standards of Accreditation through research based instructional strategies and assessment.

Unlike the PCS, however, the DER did not perform any function that was directly mandated by the state or federal policies, such as the SOL testing or data reporting. Such functions were already assigned to the Testing Office, a different unit under the Division of Administration and Accountability, before the DER was founded.

Undoubtedly, the SVPS also had to deal with the complexity and uncertainty of the accountability process, like many other school divisions. Before 2003, several large Virginia divisions had created units in the central office to perform a set of functions similar to the DER. It is plausible to conjecture that the creation of the DER might be an example of the SVPS division mimicking the behaviors of other school districts. However, no evidence is found to support this conjecture in the present study.

Results and Analysis for Research Questions 2 and 3

The second and third research questions are: How have the Accountability Departments evolved since their inception? And, why have the Accountability Departments changed over time? To answer these questions, the author will identify the

major changes during the evolution of the Accountability Departments in both PCS and SVPS. Evidence will be presented to explain why these changes occurred.

Evolution of the Accountability Department in Pittsfield City Schools. From 1998 to the present, the Accountability Department in the PCS has experienced several changes. First, the department title was changed from the "Department of Assessment and Instructional Support (DAIS)" to the "Department of Instructional Accountability" in 2003. "Accountability" is a key word in the NCLB Act and has been included in the titles of units/positions in some other school divisions. However, it is unclear why the PCS changed the department title.

The Accountability Department switched from reporting to the Superintendent to the Assistant Superintendent and took on a new function - managing the division test program. These events happened in 2005, when the Virginia Association of School Superintendents (VASS) conducted a study of the central office organization of the PCS. One of the board meeting presentations suggests that PCS made the above adjustments based on the recommendations offered by the VASS. The VASS explained that the organizational restructuring could reduce the span of control of the Superintendent and highlight the importance of accountability.

Changes occurred to the Accountability Department again in 2007. The department was shifted back to the direct supervision of the Superintendent. A new team, the Student Achievement Focus Team (SAFT), was formed and led by the Accountability Department. The SAFT spent 70% of its time on the focus schools (i.e., schools that failed to get accredited), working with teachers and principals to analyze data, develop assessments, and implement new strategies. Also, two curriculum departments (i.e., math

and English language arts) were transferred to the Accountability Department and given

responsibility for developing the "Red Packets" that provided lesson plans, learning

materials, and assessments for teachers in the focus schools. Under the new structure, the

Accountability Department was able to devote more time and resources to help schools

earn full accreditation.

The current department Director explained that the central office implemented the

above changes to respond to the lack of accreditation by many schools in that year. When

the PCS presented the work of the SAFT for the American Society for Quality in 2008, it

emphasized that the SAFT was created because "accreditation is perhaps the single most

important factor as far as public perception of school effectiveness". If schools fail to get

accredited, community confidence in public education may be undermined. It was further

explained in the presentation that the SAFT chose to focus on math and English language

arts because the two subjects are important to both Virginia accreditation and federal

AYP outcomes. The achievement of PCS students in math and English was lower than in

other subjects, such as science and social studies. This might be a possible reason why

the Math and English Departments were shifted to the Accountability Department. As

mentioned in Chapter 4, this structure enabled the curriculum specialists to interact more

frequently with the testing specialists of the Accountability Department so as to ensure

the alignment between classroom teaching and assessment.

The most recent set of changes occurred in 2008-2009. Ms. Brenda Moore, a key

member of the SAFT, was appointed Director of the Accountability Department, after the

former Director, Dr. Christine Murray, left the PCS. The Math and English Departments

were moved back to the curriculum department. Ms. Brenda Moore explained that the

accreditation rate of the PCS increased dramatically to nearly 100% in 2008, so the structure of the Accountability Department was changed back to focus on testing and data analysis.

Evolution of the Accountability Department in Scott Valley Public Schools.

The Accountability Department in the SVPS was created in 2003. At first, it was only a one-person department under the Division of Administration and Accountability (DAA). By fall, 2004, two more evaluation analysts joined the department to analyze student data. Dr. Rick Smith, who led the department during that time, pointed out that more positions were assigned to the Accountability Department because there was a growing need for helping schools to analyze test data. State and federal accountability policies mandated state testing program and data reporting. School divisions were required to analyze a large amount of data "in a process that never stops, regardless of whether classes are in session", and therefore, has "compelled school systems to … hire more employees" or reclassify some positions to handle data (Forest, 2004).

Another change that occurred in 2004 was that the Department of Testing was subsumed under the Accountability Department. This structural adjustment was recommended by Phi Delta Kappa (PDK) International, after it completed an audit of the SVPS. The rationale for the PDK recommendation is unclear.

In 2006, the Accountability Department was moved out of the Department of Equity and Accountability (DEA). The Director reported to the Superintendent instead of the Assistant Superintendent for Equity and Accountability. According to Board of Education minutes, the school division initiated the reorganization in light of the PDK audit report. It was during this restructuring process that Dr. Phillip Matthews was hired

from a district in Maryland for the position of Director of Accountability. He said his

experience in testing coordination and program evaluation in a large school district

helped him get the position. Not long after Matthews took office, his direct supervisor

was changed to the Assistant Superintendent for Business and Support Services. This

change occurred after the former Superintendent left the SVPS.

The Accountability Department has continued to change under the leadership of

Matthews. One important change was that the department began to perform new

functions of data maintenance and management because the Department of Central

Records and some staff from the Departments of Technology joined the Accountability

Department as two subunits. "These two offices are maintaining and managing numerous

student data that are very important for data analysis and research." said the Director.

"The coordination becomes much easier, since the data are managed internally rather

than by a unit outside our department."

Summary. The following table summarizes the major changes in the

Accountability Departments of the PCS and the SVPS, as well as the possible reasons for

these changes.

Table 28
Changes of the Accountability Departments in the PCS and the SVPS

	Pittsfield		Scott Valley	
Year	Changes	Possible reasons	Changes	Possible reasons
1998	Creation of the department	- To respond to the policies, - To deal with uncertainty by mimicking other districts	NA	NA
1999-2002	NA	NA	NA	NA
2003	New department	NA	Creation of the department	- To respond to the policies

	title			
	New Director: Sanderson	NA	NA	NA
2004	New Director: Murray	NA	More positions	- To respond to the policies
			New subunit and function: testing	- To implement recommendations offered by the PDK
2005	New supervisor[a]: Assistant Superintendent	- To implement recommendations offered by the VASS	NA	NA
	New function: testing			
2006	NA	NA	New supervisor: Superintendent	- To implement recommendations offered by the PDK
			New Director: Matthews	NA
			New supervisor: Assistant Superintendent	NA
2007	New supervisor: Superintendent	- To respond to the policies, - To address the situation that many schools failed to get accredited	NA	NA
	New function: leading the SAFT			
	New subunits: two curriculum departments			
2008	Removal of the two curriculum departments	- To respond to the situation that more schools were accredited	NA	NA
2009	New Director: Moore	NA	New subunits and functions related to data management	- To support data analysis and research, - To make functional coordination easier

[a] The personnel to whom the Director of the Accountability Department directly reports

Results and Analysis for Research Questions 4, 5 and 6

The last three research questions are: What are the current characteristics of

Accountability Departments? How do the Accountability Departments perform their

accountability functions? And, to what extent do the Accountability Departments are

similar to each other across the school divisions? Detailed information has been presented

in the last two chapters. In this section, the author provides a brief description of the

Accountability Departments and highlights the similarities and differences between the

two divisions. Table 29 presents the structure of this section. Notably, data related to the

last research question are embedded in each subtopic.

Table 29
Information Related to the Research Questions 4, 5 and 6

Question 4 What are the current characteristics of Accountability Departments?	1. Characteristics of the school divisions: – Question 6: Similarities and/or differences between the two divisions
	2. Missions and goals of the Accountability Departments
	3. Structures of the Accountability Departments: – Question 6: Similarities and/or differences between the two divisions
	4. Functions of the Accountability Departments: – Question 6: Similarities and/or differences between the two divisions
Question 5 How do the Accountability Departments perform their accountability functions?	5. Division of labor: – Question 6: Similarities and/or differences between the two divisions
	6. Coordination: – Question 6: Similarities and/or differences between the two divisions

Characteristics of the school divisions. The PCS and the SVPS share some

similarities with each other. They both are among the 20 largest school divisions in

Virginia, though the size of the SVPS is approximately 50% larger than the PCS. In both

divisions, the student population has been declining for the last six years. As shown in the following graph, the student demographics are similar in the two divisions. For example, in both the PCS and the SVPS, the black students account for majority of students and the percentages of white students are between 27% and 30%.
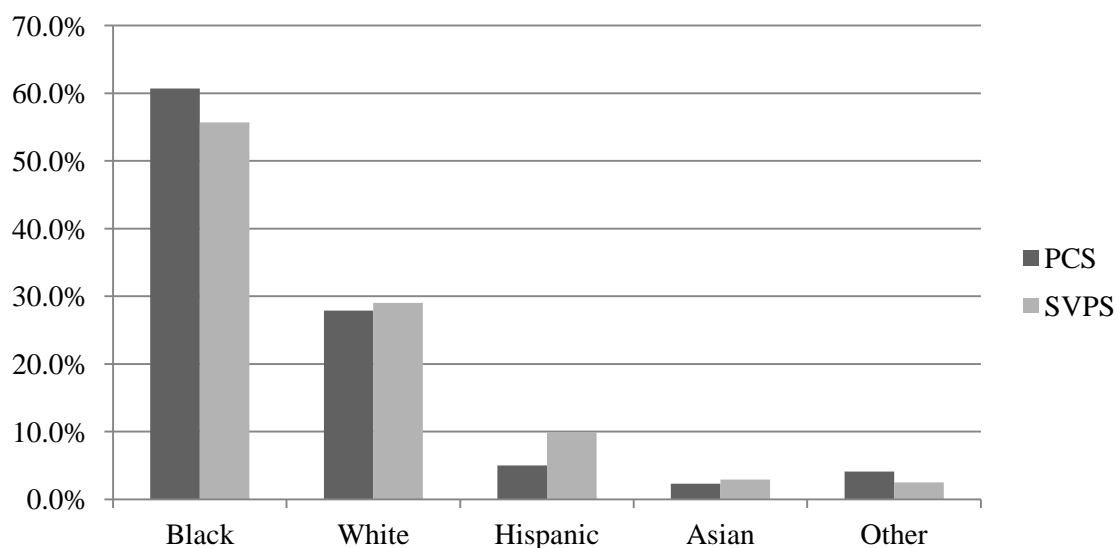
Figure 19. Student Demographics in PCS and SVPS

Another similarity is that, since 2008-2009, the two districts have had comparable performance on the state and federal accountability indicators: accreditation and AYP. As shown in the two figures below, more than 94% of schools in each division have earned accreditation for three consecutive years. However, the percentages of schools that make AYP have been declining from around 70% to less than 40%.
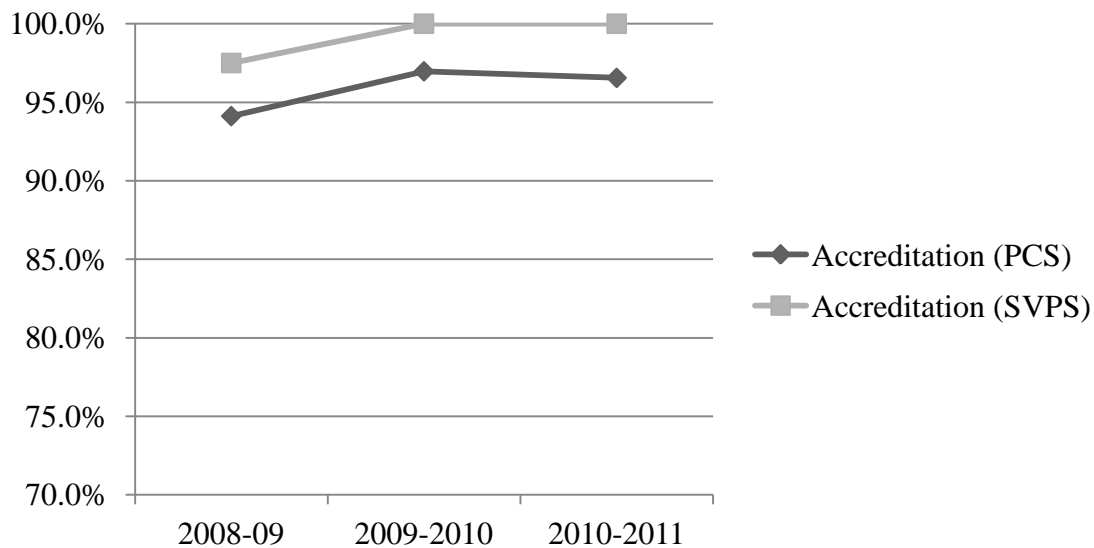
Figure 20. Percentage of Schools that Get Accredited in Both Divisions
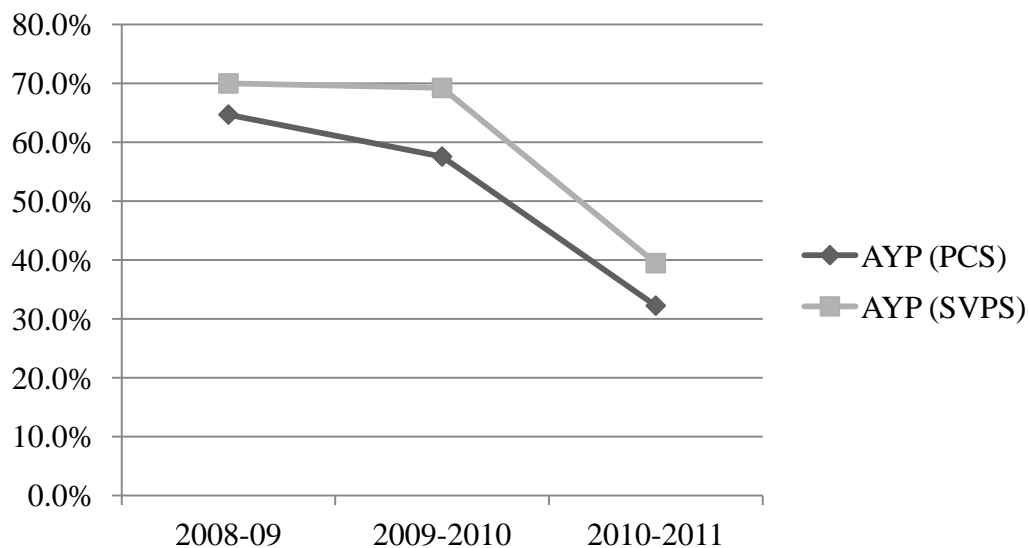
Figure 21. Percentage of Schools that Make AYP in Both Divisions

Missions and goals of the Accountability Departments. Both departments were created to provide support for student learning. In PCS, the Accountability Departments is supposed to "provide intensive level of support to ensure and promote student

achievement" through managing the test programs, administrating surveys, and

conducting program evaluation. In SVPS, the Accountability Department is to "support

teachers and school administrators as they use data and technology to prepare students for

21st Century learning".

Structures of the Accountability Departments. The structures of the

Accountability Departments in the PCS and the SVPS differ in several aspects. The

department in the PCS has five personnel; it has no subunits. In contrast, the department

of the SVPS is divided into 4 offices, including 25 employees in total. The spans of

control of the two Directors in PCS and SVPS are four and six, respectively.

As explained earlier, one of the implications of the accountability policies is that

the chain of command between the Superintendent and the Director of the Accountability

Department is likely to be short. This is true in the two divisions. The Director in PCS

reports to the Superintendent. In SVPS, the Director reports to the Assistant

Superintendent for Business and Support Services who is an immediate subordinate of

the Superintendent.

Table 30

Comparison of the Structures of the Accountability Departments

	PCS	SVPS
Size (i.e., number of personnel)	5	25
Number of subunits	0	4
Span of control (i.e., number of direct subordinates) of the Director	4	6
Personnel to whom the department Director reports	Superintendent	Assistant Superintendent

Functions of the Accountability Departments. To achieve the goal of

supporting student learning, both Accountability Departments of the PCS and the SVPS

are charged with a set of specific responsibilities. The following table lists the functions

and the major tasks performed by each department.

Table 31

Comparison of the Functions of the Accountability Departments

PCS	SVPS

1. Testing (major programs):
− SOL test,
− Benchmark assessment:
  − Started in 2004-2005,
  − Locally developed,
  − Quarterly administered,
  − Subjects tested: English, math, science, social studies,
  − Grades tested: grades 2-11,
  − Aligned with the SOL tests
	1. Testing (major programs):
	− SOL test,
	− Benchmark assessment:
	  − Started in 2003,
	  − Locally developed,
	  − Quarterly administered,
	  − Subjects tested: English, math, science, social studies,
	  − Grades tested: grades 2-11,
	  − Aligned with the SOL tests
	− Formative assessment

2. Data analysis and reporting:
− Tool: provided by a company
− Basic analysis:
  − AYP status,
  − Accreditation rating,
  − SOL pass rate,
  − Graduation rate,
  − SOL advanced rate,
  − Performance of recovery students,
− Band analysis,
− Standard analysis
	2. Data analysis and reporting:
	− Tool: created by the Accountability Department
	− Basic analysis:
	  − AYP status,
	  − Accreditation rating,
	  − SOL pass rate,
	  − Completion rate and graduation rate,
	  − SOL advanced rate,
	  − Achievement gap,
	  − Performance on the indicators defined in the Strategic Plan,
	− Band analysis,
	− Standard analysis

3. Survey administration − School Climate Survey, − Parent Survey	3. Survey administration − School Climate Survey, − Senior Exit Survey, − Human Resource Survey
4. Program evaluation	4. Program evaluation
	5. Data management − Maintaining student records and processing educational record requests, − Managing the eSIS
	6. Research − Predicting student future achievement,

	− Identifying factors that affect student learning,
	− Examining the alignment between instruction and assessment,
	− Determining the validity of local assessments

Testing. Regarding testing, both the PCS and the SVPS administer the SOL tests in order to meet state accountability requirements. The SOL test programs in the two divisions are similar in terms of the schedule, procedure, grades and subjects being tested, since they both follow the guidelines developed by the VDOE.

The divisions also administer locally developed tests, called the Benchmark assessment program. In PCS, the program has been implemented since 2004-2005. In SVPS, Benchmark assessment started in 2003. In both divisions, the Benchmark tests are developed by the curriculum departments of the central offices and administered by the Accountability Departments quarterly in order to prepare students for the SOL tests. All students from grades 2 through 11 are tested on English, math, science, and social studies. In both districts, the questions on the Benchmark assessments are purportedly aligned with the SOL test questions.

Besides the Benchmark assessments, the Accountability Department in the SVPS initiates another project to improve student achievement on the SOL tests. As described in Chapter 5, the Accountability Department developed a database that includes released SOL test questions for classroom teachers. This database allows teachers to create and administer formative assessments in the classroom. This project has "proved effective", according to the Director.

Data analysis and reporting. Regarding data analysis and reporting, the Accountability Departments in PCS and SVPS divisions are similar to each other in

several ways. First, they both conduct the basic analysis and report the following data results at the board meetings: AYP status, accreditation rating, SOL pass rate and advanced rate, and graduation rate. All these components are required to be included in the school, division, and state report cards which are disseminated to the public. These data results reflect the division's strengths and weaknesses on the federal and state accountability indicators.

Second, both the PCS and the SVPS conduct the band analysis of assessment data. This type of analysis calculates the percentage of students in each pre-determined achievement band and clearly shows how student test scores are distributed in a school or division. When comparing the data results across schools or years, principals and teachers can identify: (a) what the school performance level is in relation to other schools, and (b) whether the school is making progress.

Third, both divisions recognize the connection between the SOL content standards and the test questions and conduct the standard analysis to support instructional decision making. The standard analysis identifies the learning standards with which students need the most assistance and sometimes the reasons for student failure. It is helpful for teachers to identify the instructional focus and adjust their teaching to increase student achievement.

Despite these similarities, the PCS and the SVPS are different from each other in certain aspects. The first difference is that the SVPS department creates its own data analysis tool, while the PCS department uses a tool developed and marketed by an external provider. Accordingly, the Accountability Department in the SVPS has to provide training on the use of the tool for administrators, teachers, and staffs, by itself. In

the PCS, the training may be offered or supported by the company which provides the tool.

Additionally, as indicated by Table 31, the Accountability Department of the SVPS analyzes some data which the PCS department does not, and vice versa. For example, in SVPS, the Accountability Department calculates the completion rate of high schools, identifies student achievement gaps, and monitors division progress on a set of indicators in the Strategic Plan (e.g., data about diploma attainment, advanced class enrollment, student participation in school club, etc.). These data are not analyzed by the PCS Accountability Department.

Last but not least, the Accountability Department in PCS is more focused on lower-performing schools. In collaboration with the Title I staff, the Accountability Department identifies the recovery students and monitors their achievement. Also, the department Director spends more time visiting lower-performing schools and communicating data results to the teachers. In SVPS, the Accountability Department does not focus as much on the failing schools.

Survey administration and program evaluation. In the PCS and the SVPS, the Accountability Departments are in charge of survey administration and program evaluation. These two functions, however, are not the primary responsibilities of the departments.

In both divisions, the Accountability Departments develop, distribute, and analyze the surveys. In PCS, the surveys address school climate and parent satisfaction. In SVPS, the surveys address school climate, human resources, and the perceptions of graduating seniors.

As for program evaluation, the Accountability Department of the PCS provides managerial support for data collection, since an external agency is asked to evaluate the division's programs. The SVPS has not evaluated any program since 2008. The Accountability Department is currently planning a process for program evaluation (P. Matthews, personal communication, January 28, 2011).

Data management. The function of data management is not performed by the Accountability Department of the PCS. It is the Information Technology Department that implements and maintains the data systems in PCS.

In SVPS, data management is one of the major functions performed by the Accountability Department. More than 60% of the department positions are charged with the responsibilities for supporting this function. The Accountability Department maintains and archives all student records and plays a lead role in the division's new eSIS project.

Research. The Accountability Department in the SVPS explores a variety of research questions. Research studies aim (a) to predict student future achievement, (b) to identify factors that affect student learning, (c) to examine the alignment between instruction and assessment, and (d) to determine the validity of local assessments. No evidence suggests that the PCS Accountability Department is conducting similar research studies.

As explained in the last two chapters, the above functions are prioritized in each Accountability Department. In the PCS, the first-tier functions include testing and data analysis and reporting. Survey administration and program evaluation constitute the second tier. In the SVPS, three functions occupy the first tier: testing, data analysis and

reporting, and data management. Second-tier functions include research and survey administration. The function of program evaluation occupies the third tier.

The Accountability Departments in both divisions are expected to address NCLB requirements. Figure 22 combines Figure 9 and Figure 17 to compare how the two departments respond to NCLB. As the figure shows, both departments serve as the main contributor in the area of testing and data. They both coordinate with other units of the central offices to support curriculum and instruction. The Accountability Department in the PCS works with the Title I Department to increase student achievement at low-performing schools, but the SVPS Accountability Department has limited involvement in the work of supporting failing schools. In the areas of parental involvement and teacher quality improvement, the PCS Accountability Department provides managerial support, such as administering surveys and collecting data for program evaluation. The SVPS department is not involved in these functional areas, which are primarily coordinated by the Office of the Federal Programs.

Functions of the Accountability Department in the PCS	Accountability functions required by the NCLB	Functions of the Accountability Department in the SVPS

Tier One:
- Testing
- Data analysis and reporting

Tier Two:
- Survey administration
- Program evaluation

- **Testing and data**

- Support for curriculum and instruction

- Support for failing schools

- Support for parent involvement
- Support for teacher quality improvement

Tier One:
- Testing
- Data analysis and reporting
- Data management

Tier Two:
- Research
- Survey administration

Tier Three:
- Program evaluation

Figure 22. Function Priority at the Accountability Department and the Relationship between the Department Functions and the

NCLB Requirements in PCS and SVPS

Note. The arrow "——▶" suggests that the Department is the main contributor in the functional area(s). The arrow "——▶" suggests that

the Department coordinates with other central office units in the functional area(s). The arrow "— —▶" suggests that the Department

has limited involvement in the functional area(s).

Division of labor within the Accountability Departments. In this sub-section, the author compares the division of labor in the two Accountability Department. The author will focus only on the first-tier functions.

Division of labor for testing. In the PCS and SVPS divisions, the major test programs managed by the Accountability Departments are the SOL tests and the Benchmark assessments. In both departments, the testing function is divided among these two programs, and then, distributed to different personnel or subunits. This represents division of labor by service.

Table 32
Division of Labor for the Function of Testing - Divided by Service

Test programs	PCS	SVPS
	Personnel in charge	Office in charge
SOL, Other tests (e.g., SAT, AP exams, etc.)	- Division Director of Testing	- Office of State Testing
Benchmark assessments	- Research and Evaluation Specialist	- Office of Academic Support and Applied Research

Furthermore, each test program is divided into a number of tasks. The tasks are assigned to different staff members based on the required knowledge and skills. In SVPS, the Supervisor of State Testing and Local Assessment Coordinator are responsible for the tasks which require professional knowledge and skills. The Accountability Assistant I and Accountability Assistant II handle the logistic tasks. In PCS, the Division Director of Testing, Testing Specialist, and Research and Evaluation Specialist focus on professional tasks, but they also perform logistic tasks.

Table 33
Division of Labor in the Function of Testing - Divided by Task Requirement

Test programs	PCS	SVPS
	Personnel in charge	Personnel in charge

SOL tests		
Professional tasks	- Division Director of Testing, - Testing Specialist	- Supervisor of State Testing
Logistical tasks	- Division Director of Testing, - Testing Specialist, Administrative Assistant	- Accountability Assistant I, - Accountability Assistant II
Benchmark assessments		
Professional tasks	- Research and Evaluation Specialist	- Local Assessment Coordinator
Logistical tasks	- Research and Evaluation Specialist, - Administrative Assistant	- Accountability Assistant I, - Accountability Assistant II

Division of labor for the function of data analysis and reporting. In the PCS, the function of data analysis and reporting is primarily performed by the Director of the Accountability Department. She analyzes data and communicates the results to teachers and principals based on her knowledge of the SOL content standards and assessments, as well as her skills in statistical analysis and test data interpretation.

In the SVPS, data analysis is conducted by two staff members. The Test Analyst (TA) in the Office of State Testing analyzes the data from the state standardized tests; the Local Assessment Coordinator in the Office of Academic Support and Applied Research analyzes the SVPS Benchmark assessment data. This arrangement reflects division of labor by service.

Division of labor for the function of data management in the SVPS. The function of data management is not performed by the PCS Accountability Department, but it is one of the first-tier functions in the SVPS department. Three types of division of labor are adopted by the department when it undertakes data management: by service, by task requirement, and by process.

Specialist roles. In both the PCS and the SVPS, about 80% of the Accountability Department staff work as specialists. For comparison purposes, the author selects three pairs of specialist roles from the two departments (listed in Table 34), since these roles perform similar functions.

Table 34
Specialist Roles Selected for Comparison

PCS	SVPS
Director	Director
Division Director of Testing	Supervisor of State Testing
Research and Evaluation Specialist	Local Assessment Coordinator

The two Directors are quite different from each other in several ways. The Director of the SVPS has a higher academic degree. His counterpart in the PCS has more years of working experience. They both exercise leadership within the Department, but in the PCS, the Director also plays a major role in data analysis and reporting.

Table 35
Comparison of Two Department Directors

Division	PCS		SVPS	
Specialist role	Director		Director	
Credential	B.A. in Elementary Education		PhD in Educational Evaluation	
	Title	Years	Title	Years
	SOL Excellence Instructor	6	Evaluation Specialist and Assessment Coordinator	3
Working experience	Education Consultant	5	Program evaluator	3
	Public School Teacher	More than 20	Public School Teacher	3
			Database Developer	1
	Total years	More than 31	Total years	10
Responsibilities	- Provide leadership in all functional areas of the department; - Play a major role in the function of data analysis and reporting		- Provide leadership in all functional areas of the department	

The Division Director of Testing (DDOT) in the PCS and the Supervisor of State Testing (SST) in the SVPS both have experience in test administration in the school divisions in which they are currently working. In the SVPS, the Supervisor of State Testing was designated as the Division Director of Testing to serve as a liaison with the Division of Assessment and Reporting of the VDOE. She has a higher academic degree and is focused on the tasks that require professional knowledge and skills. However, the Division Director of Testing in the PCS needs to perform both professional and logistical tasks.

Table 36

Comparison of the Division Director of Testing in the PCS and the Supervisor of State Testing in the SVPS

Division	PCS		SVPS	
Specialist role	DDOT		Supervisor of State Testing	
Credential	Bachelor's degree		Master's degrees in applied mathematics and engineering	
	Experience	Years	Title	Years
	Managing the test programs in the Department of Guidance and Testing in the PCS	NA	Supervisor of Testing (in another Virginia division)	2 months
			Supervisor of Testing (in the SVPS)	2
Working experience			Technology Resource Analyst (in the SVPS)	3
			Manager (in business organizations)	More than 20
	Total years	NA	Total years	More than 25
Responsibilities	- Accomplish the professional AND logistical tasks in the state testing program		- Accomplish the professional tasks in the state test progam	

The management of the division-wide Benchmark assessments constitutes the major responsibility of both the Research and Evaluation Specialist (RES) of the PCS and the Local Assessment Coordinator (LAC) of the SVPS. Besides test administration, the

LAC is also required to analyze the Benchmark assessment data. The Research and

Evaluation Specialist is charged with other duties, such as coordinating the survey

administration and program evaluation.

Table 37

Comparison of the Research and Evaluation Specialist in the PCS and the LAC in the SVPS

Division	PCS		SVPS	
Specialist role	RES		LAC	
Credential	NA		Master's Degree in Administration of Elementary Education	
	Title	Years	Title	Years
Working experience	NA	NA	Technology Curriculum Integration Specialist (in the SVPS)	4
			Public School Teacher (in the SVPS)	4
			Public School Teacher	2
	Total years	NA	Total years	10
Responsibilities	- Manage the Benchmark assessments, - Coordinate survey administration, - Coordinate program evaluation		- Manage the Benchmark assessments, - Conduct data analysis of the Benchmark assessment data	

The above comparisons suggest the specialists in the SVPS are focused on the

tasks of their own profession. However, the specialists in the PCS work on different

functions and handle logistical tasks. This indicates a higher degree of specialization in

the Accountability Department in the SVPS.

Coordination Mechanisms in the Accountability Department. As shown in

Table 38, the Accountability Departments in both divisions comply with the same rules

when managing the state testing programs. For data analysis and reporting, they follow

the federal and state rules to report the required data results, such as AYP status,

accreditation rating, SOL pass rate, and graduation rate.

In the SVPS, formal job descriptions are published on the division's website. For each position, the job description provides the following information: title, supervisor, pay grade, position code, job classification, contract length, essential duties, minimum qualifications, and working conditions. The job descriptions help clarify the responsibilities of each role, as well as the reporting relationships among staff members. In the PCS, the job descriptions for the positions of the Accountability Department have been developed, but not written into any formal document yet.

Table 38

Formal Rules in the Accountability Departments in Two Divisions

PCS	SVPS
1. The function of state testing: - Specifying the schedule, condition, procedure, and personnel of the state testing program	
Federal level: - U.S.C. § 6311 (b)(3) Academic assessment, State level: - §22.1–19.1 Actions for violations of test security procedures, - § 22.1-253.13:3. Standard 3. Accreditation, other standards and evaluation. - §22.1–292.1 Violation of test security procedures: revocation of license, - Regulations Establishing Standards for Accrediting Public Schools in Virginia (SOA) - Test Implementation Manual, - Examiner's Manual, - Training Workbook, - TestNav Technology Guidelines, - PearsonAccess Technology Guidelines, - Proctor Caching User's Guide, - Student Data Upload File Requirements document, - User's Guide for the Testing Irregularity Web Application System (TIWAS)	Same with the PCS
2. The function of data analysis and reporting: - Specifying the data components that should be analyzed and reported	
Federal level: - U.S.C. § 6311 (b)(2) Accountability State Level: - § 22.1-253.13:3. Standard 3. Accreditation, other standards and evaluation	Same with the PCS

Division level: - PCS Policy Manual	NA
3. The function of data management: - Specifying the procedures for maintaining and managing student records	
The Accountability Department in the PCS does not perform this function.	Federal level: - Family Educational Rights and Privacy Act (FERPA) - Protection of Pupil Rights Amendment (PPRA) State level: - § 22.1-289. Transfer and management of scholastic records; disclosure of information in court notices; penalty. Division level: - SVPS Policies and Procedures Manual - Contract signed between the SVPS and the vendor, which specifies the technology and function requirements of the eSIS
4. Job responsibilities of the staff members	
No formal job descriptions	Division level: - Formal job descriptions

When formal rules are absent, the chains of command in both Accountability Departments help clarify uncertainties and ensure all staff members work for the same goals through the supervision and decision making of the department leaders. In the PCS department, the chains of command are shorter, since the Director supervises all the other staff members directly. The chain of command consists of two positions at most. In the SVPS, the Department hierarchy has four levels; therefore, the longest chain of command includes four positions.

Additionally, both departments adopt the "planning" mechanism to coordinate certain functions. In the PCS, the Research and Evaluation Specialist is responsible for creating the Benchmark testing calendar and developing procedures for the testing process. She also develops the workflow plan for data collection for the survey program. In the SVPS, there are several coordinating roles that are charged with responsibilities for developing plans. The Local Assessment Coordinator develops the division wide schedule and operation procedures for the Benchmark assessment program. The Student Information Systems Project Coordinator creates a development plan for the eSIS evaluation, data migration, testing, deployment, and training.

Lateral communication is another coordination strategy used by the Accountability Departments in the two divisions. Unlike the PCS, the SVPS department has several coordinating roles. Such responsibilities as communicating and consulting with other staff members have been written into their formal job descriptions. Therefore, the SVPS demonstrates a higher degree of formalization regarding coordination.

Summary

The Accountability Departments in the PCS and the SVPS differ from each other in size and structural arrangements. The SVPS department performs the function of data management while the PCS department does not. Additionally, the SVPS exhibits a higher degree of specialization and formalization.

Despite these differences, the two structural units resemble each other in many aspects. For example, both departments perform the functions of testing, data analysis and reporting, and survey administration. They manage the state testing programs in almost the same way because the testing procedures have been standardized by the rules developed by the VDOE. The departments both coordinate the local Benchmark assessments in order to prepare students for the SOL tests. For data analysis and reporting, they both conduct basic analysis, band analysis, and standard analysis. Two types of division of labor occur in both departments: by service and by task requirement. About 80% of the staff in each department work as specialists. The Accountability Departments of both divisions adopt the same coordination mechanisms, formal rules, chains of command, planning, and lateral communication.

Chapter 7

Analysis and Results of the Checklist Data

In this chapter, the author analyzes the data collected from the checklist survey. The findings inform the fourth and sixth research questions:

- Research Question 4: What are the current characteristics of the Accountability Departments?

- Research Question 6: To what extent are the Accountability Departments similar to each other across the school divisions?

Results and Analysis for Research Question 4

The checklist data inform the fourth research question by providing three sets of information: (a) the sizes of the Accountability Departments, (b) the spans of control of the department Directors, and (c) the extent to which the Accountability Departments are involved in the activities and functions listed on the checklist. The first two sets of information are related to the department structure. The third one is focused on the functions.

Sizes of the Accountability Departments. The size of the Accountability Department is defined as the number of full-time employees (FTE) in the unit. A part-time employee is counted as a 0.5 FTE. In the sample of this study, the department size ranged from one to 37 with a standard deviation of 9.9. The average size of the Accountability Departments was 8.3. Table 39 and Figure 23 display the frequency count and distribution. More than 80% of the departments had 10 or less full-time employees,

while 12.4% of the departments had a size between 19 and 25. The largest two

Accountability Departments, representing 6.2% of the sample, had 36 and 37 full-time

staff members, respectively. Notably, in five Accountability Departments in the sample,

there was only one full-time employee. This suggests that some school divisions in

Virginia have created a position, instead of a unit, to perform the accountability functions.

Table 39

Frequency Count of the Department Size

Department size	Frequency	Percent	Cumulative Percent
1.0	5	15.6%	15.6%
1.5	1	3.1%	18.8%
2.0	5	15.6%	34.4%
3.0	1	3.1%	37.5%
4.0	3	9.4%	46.9%
5.0	4	12.5%	59.4%
6.0	2	6.3%	65.6%
7.0	1	3.1%	68.8%
8.0	2	6.3%	75.0%
9.0	1	3.1%	78.1%
10.0	1	3.1%	81.3%
19.0	1	3.1%	84.4%
22.0	1	3.1%	87.5%
23.0	1	3.1%	90.6%
24.0	1	3.1%	93.8%
36.0	1	3.1%	96.9%
37.0	1	3.1%	100.0%
Total	32	100.0	
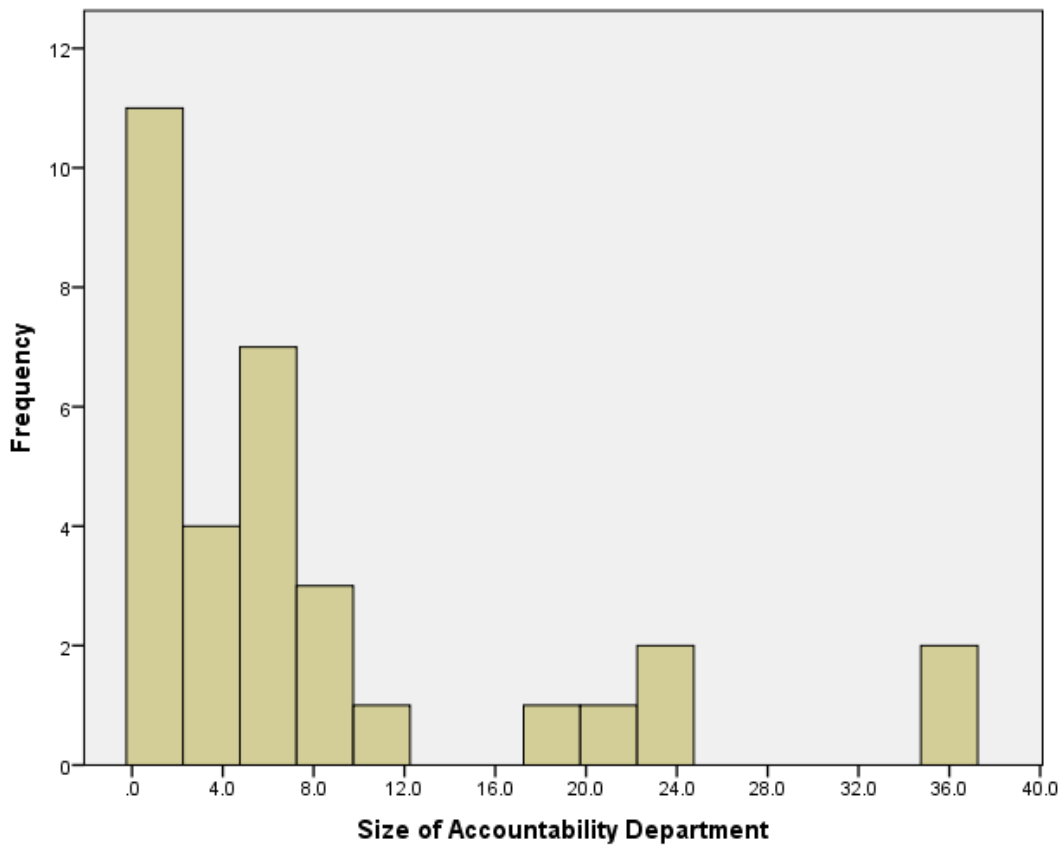
Figure 23. Frequency Distribution of the Size of the Accountability Department

Spans of control of the Directors. The span of control refers to the number of

full-time staff members in the Accountability Department who directly report to the

department Director. Data suggest that on average the Directors manage 3.6 direct reports.

The spans of control of the Directors range from zero to 11 with a standard deviation of

3.0. Table 40 and Figure 24 show the frequency count and distribution. For more than 90%

of the Directors, their spans of control are less than seven. Five Directors in the sample

do not supervise any direct reports, because they are the only personnel staffing the

Accountability Department.

Table 40
Frequency Count of the Spans of Control of the Directors

Spans of Control of Directors	Frequency	Percent	Cumulative Percent

.0	5	18.5%	18.5%
.5	1	3.7%	22.2%
1.0	3	11.1%	33.3%
2.0	1	3.7%	37.0%
2.5	1	3.7%	40.7%
3.0	3	11.1%	51.9%
4.0	2	7.4%	59.3%
5.0	4	14.8%	74.1%
6.0	2	7.4%	81.5%
7.0	3	11.1%	92.6%
9.0	1	3.7%	96.3%
11.0	1	3.7%	100.0%
Total	27	100.0%	
Missing	5		
Total	32		
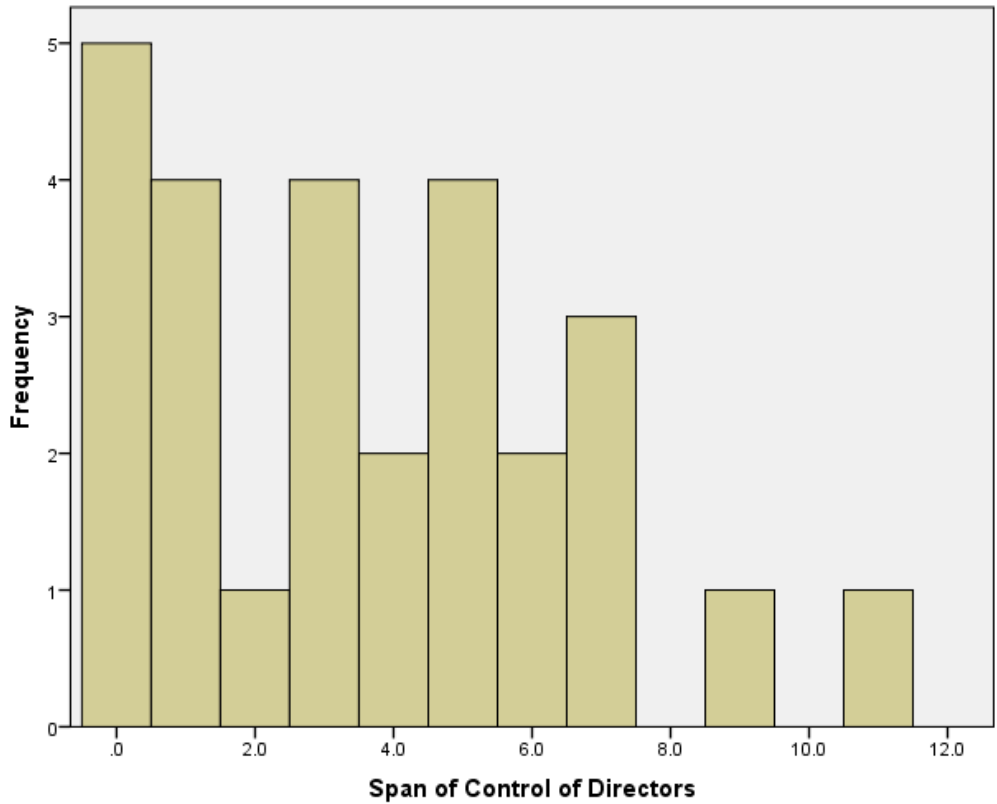
Figure 24. Frequency Distribution of the Spans of Control of the Directors

Functions of the Accountability Departments. The Function Checklist contains

32 statements describing the activities related to educational accountability. These

statements are divided into six categories: (a) state-wide standardized testing, (b)

division-wide assessment, (c) data management and data-driven decision making, (d)

research and program evaluation, (e) support for lower-performing schools, and (f) other

support for curriculum, instruction, parental involvement, and teacher quality

improvement. The respondents are asked to indicate the extent to which the

Accountability Department is involved in each activity.

The data are analyzed for each activity and function category and the results are

compared across the categories. The findings are organized using the framework below.

Table 41

Organization of the Findings about the Functions of the Accountability Departments

Categories 1-5	– Involvement in the function category
	– Involvement in each activity of this category:
	   – Are the Accountability Departments involved in each activity?
	   – To what extent are the Accountability Departments involved in each activity?

Category 6	– Involvement in each activity of this category:
	   – Are the Accountability Departments involved in each activity?
	   – To what extent are the Accountability Departments involved in each activity?

Other functions and activities	– What other functions and activities are performed by the Accountability Departments, if not shown on the checklist?
Comparative analysis	– In what functions are the Accountability Departments most/least involved?

Category 1: state-wide standardized testing.

Involvement in the function category. The first category contains seven activities

related to the state-wide standardized testing (ST). The mean score of these activities (ST_i)

for each Accountability Department (see the formula in Figure 25) is considered as the

extent to which each department is involved in the first category, as perceived by the

Director. Figure 26 displays the distribution of the ST_is among the Accountability

Departments in the sample. Thirty-one Directors (96.9%) reported "moderate" to

"extensive" ($3 \leq ST_i < 4$) involvement of the Accountability Departments in the state

testing programs. For only one department (3.1%), the degree of involvement was

reported to be less than "moderate" ($ST_i = 2.14$). The average degree of involvement in

the first function category ($\overline{ST_i}$,) is 3.78.

$$ST_i = \frac{ST1_i + ST2_i + ST3_i + ST4_i + ST5_i + ST6_i + ST7_i}{7}$$

Figure 25. Degree of Involvement of Each Accountability Department in the First

Category

Note. $ST1_i$, $ST2_i$, $ST3_i$, $ST4_i$, $ST5_i$, $ST6_i$ and $ST7_i$ are the scores assigned to the

Accountability Department for each activity in the category.

Figure 26. Distribution of the ST_is is among the Accountability Departments

Involvement in the activities of this category. Data show that 31 Accountability

Departments (96.9%) performed all seven of the activities. One department (3.1%),

however, was involved in five activities. The two activities it did not perform were

monitoring and observing testing (ST3) and organizing logistic issues (ST5).

Table 42

Number and Percentage of Accountability Departments Involved in the Activities

Category 1: state-wide standardized testing (ST)	Number	Percentage (%)
ST1. Examine Student Data Upload files	32	100
ST2. Train School Test Coordinators (STC) on the testing procedures	32	100
ST3. Monitor and observe testing	31	96.9
ST4. Resolve technical problems	32	100
ST5. Organize logistic issues (e.g., pack and ship the test materials)	31	96.9
ST6. Disseminate test reports to students, parents,	32	100

and schools		
ST7. Prepare test reports to the school board	32	100

Table 43 shows the distribution of the scores assigned to the Accountability

Departments for each activity. The mean scores at the top represent the average degrees

of involvement of the departments in all activities. All these scores are between 3 and 4,

suggesting that the average degrees of involvement are between "moderate" and

"extensive", as perceived by the Directors. Among the seven activities, the

Accountability Departments are least involved in resolving technical problems

($\overline{ST4_i}$=3.47), but most involved in examining Student Data Upload files ($\overline{ST1_i}$=3.97) and

training School Test Coordinators ($\overline{ST2_i}$=3.94).

Table 43

Mean Scores and Distribution of Scores in the First Category

	ST1: Examining student files	ST2: Training School Test Coordinators	ST3: Monitoring and observing	ST4: Resolving technical problems	ST5: Organizing logistic issues	ST6: Disseminating test reports	ST7: Preparing test reports for school board
Mean score	3.97	3.94	3.72	3.47	3.91	3.63	3.84
	Score distribution (%)						
Score	ST1: Examining student files	ST2: Training School Test Coordinators	ST3: Monitoring and observing	ST4: Resolving technical problems	ST5: Organizing logistic issues	ST6: Disseminating test reports	ST7: Preparing test reports for school board
1= No involvement	0.0	0.0	3.1	0.0	3.1	0.0	0.0
2= Limited involvement	0.0	3.1	0.0	12.5	0.0	12.5	3.1
3= Moderate involvement	3.1	0.0	18.8	28.1	0.0	12.5	9.4
4= Extensive involvement	96.9	96.9	78.1	59.4	96.9	75.0	87.5

Note. %=Percentages of the Accountability Departments to which the scores "1", "2", "3", and "4" are respectively assigned for each activity of the function category.

Category 2: division-wide assessment.

Involvement in the function category. The second category contains eight

activities related to division-wide assessment programs (DA). The mean score of these

activities (DA_i) for each Accountability Department (see the formula in Figure 27) is

considered to be the extent to which each department was involved in the second

category, as perceived by the Director. Figure 28 displays the distribution of the DA_is

among the Accountability Departments in the sample. Data show that the degrees of

involvement of the Accountability Departments range from 1.38 to 4.00. Half of the

departments have "moderate" to "extensive" ($3 \leq DA_i \leq 4$) involvement in the division-

wide assessments. For 37.5% of the departments, the degrees of involvement are between

"limited" and "moderate" ($2 \leq DA_i < 3$). For 12.5% of the departments, the degrees of

involvement are reported to be less than "limited" ($1 < DA_i < 2$). The average degree of

involvement in the second function category ($\overline{DA_i}$,) is 2.84.

$$DA_i = \frac{DA1_i + DA2_i + DA3_i + DA4_i + DA5_i + DA6_i + DA7_i + +DA8_i}{8}$$

Figure 27. Degree of Involvement of Each Accountability Department in the Second

Category

Note. $DA1_i$, $DA2_i$, $DA3_i$, $DA4_i$, $DA5_i$, $DA6_i$, $DA7_i$, and $DA8_i$ are the scores assigned to

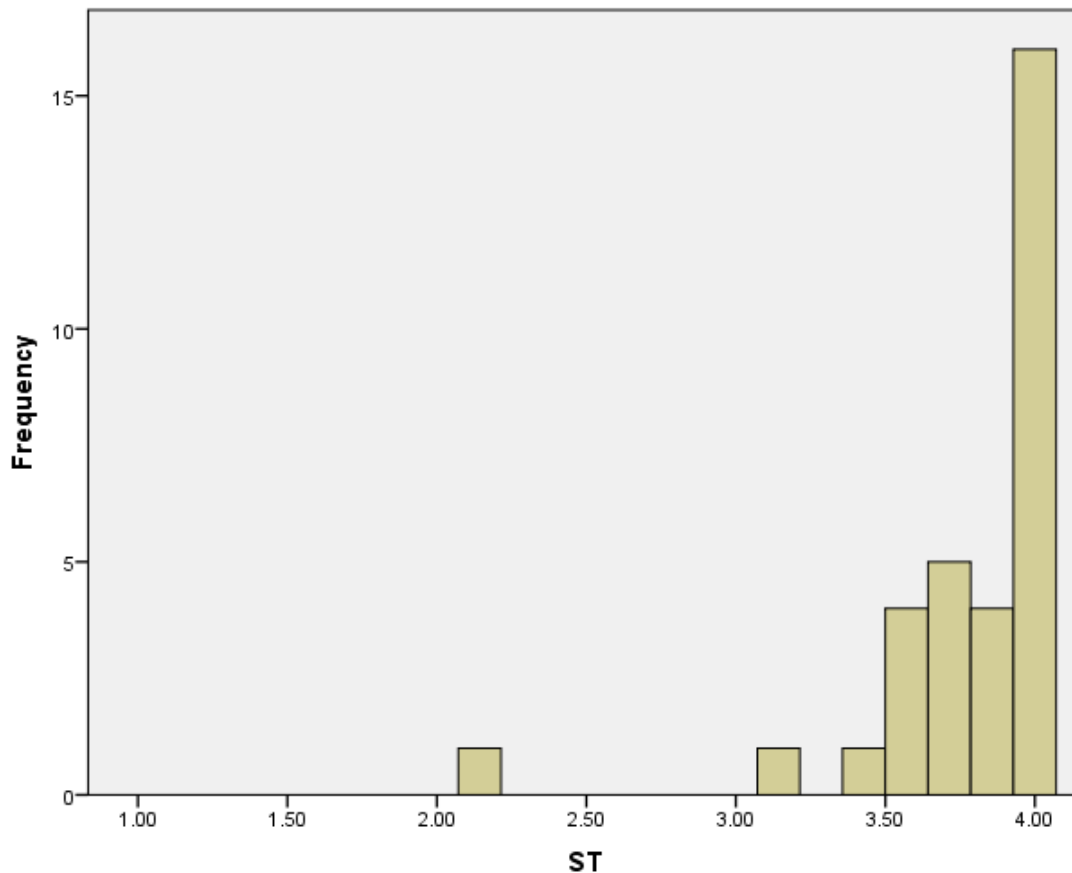the Accountability Department for each activity in the category.
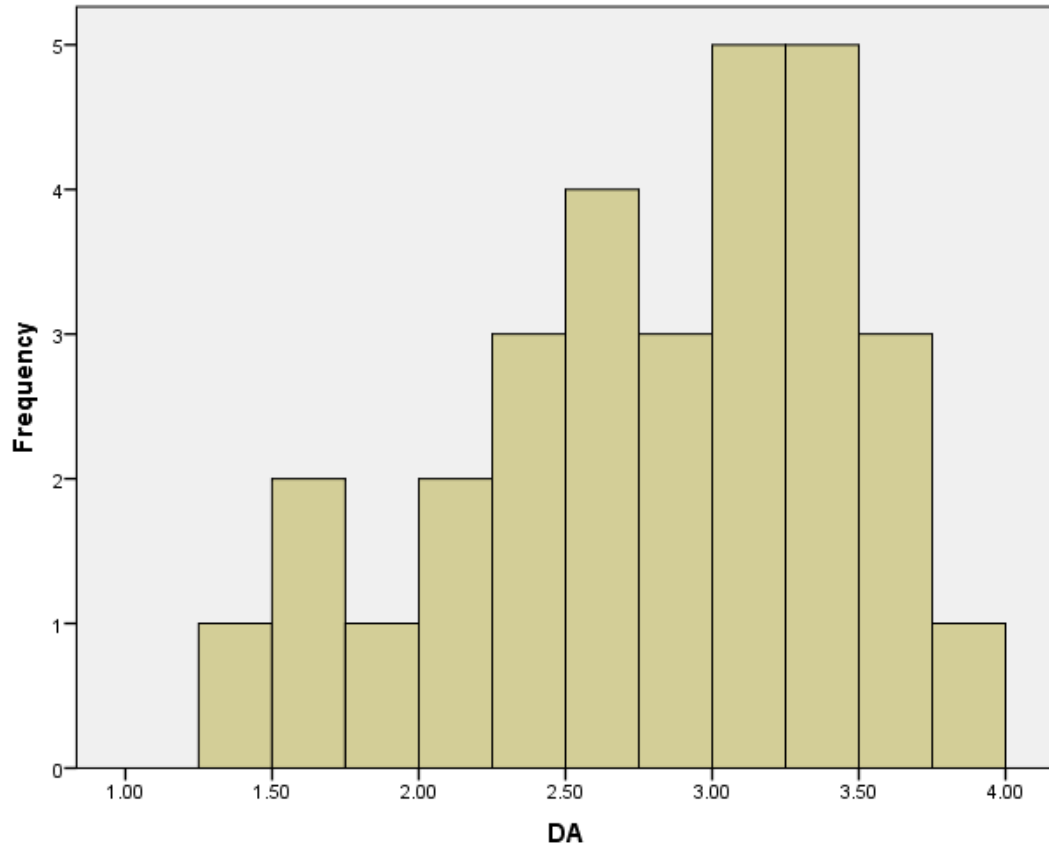
Figure 28. Distribution of the DA_is among the Accountability Departments

Note. The heights of the bars indicate the number of Accountability Departments which have scores that fall on the corresponding intervals on the x axis. For example, the second bar suggests that there are two Accountability Departments which have scores between 1.5 and 1.75 ($1.5 \leq DA_i < 1.75$). The last bar suggests there is one Accountability Department which has a score between 3.75 and 4.00 ($3.75 \leq DA_i \leq 4.00$).

Involvement in the activities of this category. As shown by Table 44, more than 93% of the Accountability Departments are involved in the following activities: training teachers on the testing procedures (DA2), monitoring and observing testing (DA3), and resolving technical problems (DA4). 81%-85% of the departments perform such

activities as developing assessment questions (DA1), disseminating test reports to

students, parents, schools, and school board (DA7 and DA8), and organizing logistic

issues (DA6). Only 37.5% of the departments grade students' responses on the division-

wide assessments (DA5).

Table 44

Number and Percentage of Accountability Departments Involved in the Activities

Category 2: division-wide assessments (DA)	Number	Percentage (%)
DA1. Develop assessment questions	27	84.4
DA2. Train teachers on the testing procedures	31	96.9
DA3. Monitor and observe testing	30	93.8
DA4. Resolve technical problems	30	93.8
DA5. Grade students' responses	12	37.5
DA6. Organize logistic issues (e.g., print and distribute the test materials)	27	84.4
DA7. Disseminate test reports to students, parents, and schools	26	81.3
DA8. Prepare test reports to the school board	27	84.4

The distribution of the scores assigned to the Accountability Departments for each

activity is presented in

Table 45. The mean scores at the top represent the average degrees of involvement in all activities. For four activities of the category, the average degrees of involvement are between "moderate" and "extensive". These activities are training teachers on the testing procedures ($\overline{DA2}_t$=3.13), monitoring and observing testing ($\overline{DA3}_t$=3.00), resolving technical problems ($\overline{DA4}_t$=3.16), and preparing test reports to the school board ($\overline{DA8}_t$=3.19). The Accountability Departments have "limited" to "moderate" involvement in the activities including developing assessment questions ($\overline{DA1}_t$=2.94), organize logistic issues ($\overline{DA6}_t$=2.78), and disseminating test reports to students, parents, and schools ($\overline{DA7}_t$=2.84). The departments are least involved in grading students' responses on the assessments ($\overline{DA5}_t$=1.66).

Table 45

Mean Scores and Distribution of Scores in the Second Category

	DA1: Developing questions	DA2: Training teachers	DA3: Monitoring and observing	DA4: Resolving technical problems	DA5: Grading responses	DA6: Organizing logistic issues	DA7: Disseminating reports	DA8: Preparing reports for school board
Mean score	2.94	3.13	3.00	3.16	1.66	2.78	2.84	3.19
	Score distribution (%)							
Score	DA1: Developing questions	DA2: Training teachers	DA3: Monitoring and observing	DA4: Resolving technical problems	DA5: Grading responses	DA6: Organizing logistic issues	DA7: Disseminating reports	DA8: Preparing reports for school board
1= No involvement	15.6	3.1	6.3	6.3	62.5	15.6	18.8	15.6
2= Limited involvement	18.8	21.9	31.3	9.4	15.6	18.8	15.6	9.4
3= Moderate involvement	21.9	34.4	18.8	46.9	15.6	37.5	28.1	15.6
4= Extensive involvement	43.8	40.6	43.8	37.5	6.3	28.1	37.5	59.4

Note. %=Percentages of the Accountability Departments to which the scores "1", "2", "3", and "4" are respectively assigned for each activity for the function category.

Category 3: data management and data-driven decision making.

Involvement in the function category. The third category includes six activities

related to data management and data-driven decision making (DM). The mean score of

these activities (DM_i) for each Accountability Department (see the formula in Figure 29)

is considered to be the extent to which each department is involved in this function

category, as perceived by the Director. Figure 30 displays the distribution of the DM_is

among the Accountability Departments in the sample. Data show that the degrees of

involvement of the Accountability Departments range from 1.67 to 4.00. About 68.7% of

the departments have "moderate" to "extensive" ($3 \leq DM_i \leq 4$) involvement in this

function category. For 25% of the departments, the degrees of involvement are between

"limited" and "moderate" ($2 \leq DM_i < 3$). For 6.3% of the departments, the degrees of

involvement are reported to be less than "limited" ($1 < DM_i < 2$). The average degree of

involvement in data management and data-driven decision making ($\overline{DM_i}$,) is 3.29.

$$DM_i = \frac{DM1_i + DM2_i + DM3_i + DM4_i + DM5_i + DM6_i}{6}$$

Figure 29. Degree of Involvement of Each Accountability Department in the Third

Category

Note. $DM1_i$, $DM2_i$, $DM3_i$, $DM4_i$, $DM5_i$, and $DM6_i$ are the scores assigned to the

Accountability Department for each activity in the category.
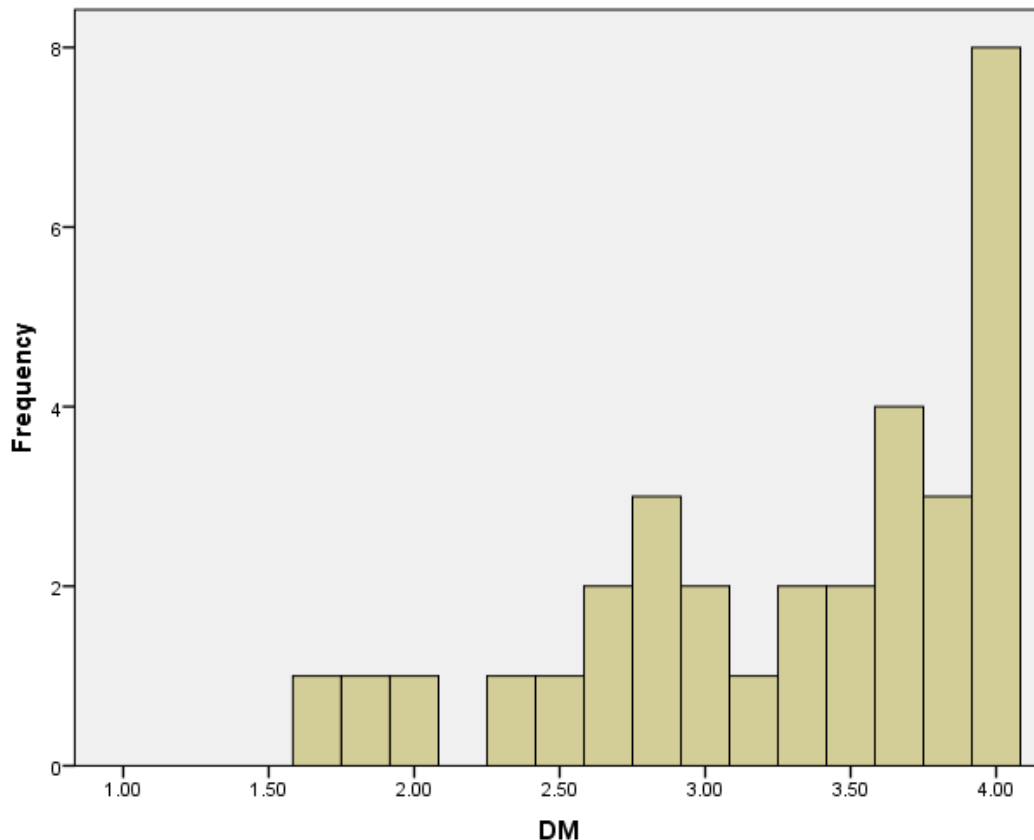
Figure 30. Distribution of the $DM_i s$ among the Accountability Departments

Involvement in the activities of this category. As shown by Table 46, all

Accountability Departments are involved in the following activities: creating and/or

maintaining a database of student test data (DM2), using data to identify division-wide

strengths and weaknesses (DM3), and using data to help principals and teachers

understand student performance (DM4). About 94% of the departments communicate

with teachers and principals on how to make data-driven instructional decisions (DM6).

Approximately 84% of the Directors reported that student data are used to revise

assessment questions in their departments (DM5). About 78% of the Accountability

Departments are involved in creating and/or maintaining a database of test questions

(DM1).

Table 46

Number and Percentage of Accountability Departments Involved in the Activities

Category 3: data management and data-driven decision making (DM)	Number	Percentage (%)
DM1. Create and/or maintain a database of test questions	25	78.1
DM2. Create and/or maintain a database of student test data	32	100
DM3. Use data to identify division-wide strengths and weaknesses	32	100
DM4. Use data to help principals and teachers understand student performance	32	100
DM5. Use data to revise assessment questions (e.g., local tests)	27	84.4
DM6. Communicate with teachers and principals on how to make data-driven instructional decisions	30	93.8

The distribution of the scores assigned to the Accountability Departments for each

activity is presented in

Table 47. The mean scores at the top represent the average degrees of involvement in all activities. For four activities of the category, the average degrees of involvement are between "moderate" and "extensive". These activities are creating and/or maintaining a database of student test data ($\overline{DM2_\iota}$=3.56), using data to identify division-wide strengths and weaknesses ($\overline{DM3_\iota}$=3.63), using data to help principals and teachers understand student performance ($\overline{DM4_\iota}$=3.72), and communicating with teachers and principals on how to make data-driven instructional decisions ($\overline{DM6_\iota}$=3.22). The Accountability Departments have "limited" to "moderate" involvement in such activities as creating and/or maintaining a database of test questions ($\overline{DM1_\iota}$=2.75) and using data to revise assessment questions ($\overline{DM5_\iota}$=2.84).

Table 47
Mean Scores and Distribution of Scores in the Third Category

	DM1: Maintaining database of test questions	DM2: Maintaining database of test data	DM3: Analyzing division-wide data	DM4: Helping principals and teachers interpret performance data	DM5: Revising test questions	DM6: Supporting data-driven decision making
Mean score	2.75	3.56	3.63	3.72	2.84	3.22
	Score distribution (%)					
Score	DM1: Maintaining database of test questions	DM2: Maintaining database of test data	DM3: Analyzing division-wide data	DM4: Helping principals and teachers interpret performance data	DM5: Revising test questions	DM6: Supporting data-driven decision making
1= No involvement	21.9	0.0	0.0	0.0	15.6	6.3
2= Limited involvement	21.9	9.4	9.4	6.3	25.0	18.8
3= Moderate involvement	15.6	25.0	18.8	15.6	18.8	21.9
4= Extensive involvement	40.6	65.6	71.9	78.1	40.6	53.1

Note. %=Percentages of the Accountability Departments to which the scores "1", "2", "3", and "4" are respectively assigned for each activity of the function category.

Category 4: research and evaluation.

Involvement in the function category. The fourth category includes two activities:

(a) research, and (b) program evaluation (RE). The mean score of the two activities (RE_i)

for each Accountability Department (see the formula in Figure 31) is considered to be the

extent to which each department is involved in this function category, as perceived by the

Director. Figure 32 displays the distribution of the RE_is among the Accountability

Departments in the sample. The degrees of involvement of the Accountability

Departments range from 1.00 to 4.00. About 40% of the departments have "moderate" to

"extensive" ($3<RE_i<4$) involvement in research and program evaluation. The percentage

of the departments which have "limited" to "moderate" ($2<RE_i<3$) involvement is 40%.

For 8.8% of the departments, the degrees of involvement are reported to be less than

"limited" ($1<RE_i<2$). The rest of the departments (8.8%) are not involved in this function

category ($RE_i=1$). The average degree of involvement in research and program evaluation

($\overline{RE_i}$,) is 2.58.

$$RE_i = \frac{RE1_i + RE2_i}{2}$$

Figure 31. Degree of Involvement of Each Accountability Department in the Fourth

Category

Note. $RE1_i$ and $RE2_i$ are the scores assigned to the Accountability Department for each

activity in the category.

Figure 32. Distribution of *the RE$_i$s* among the Accountability Departments

Involvement in the activities of this category. As shown by Table 48, about 81%

of the Accountability Departments conduct research studies to support teaching and

learning (RE1). About 84% of the Directors reported that their departments evaluate

programs with respect to parental involvement, professional development, and other

activities (RE2).

Table 48
Number and Percentage of Accountability Departments Involved in the Activities

Category 4: research and program evaluation (RE)	Number	Percentage (%)
RE1. Conduct research studies to support teaching and learning	26	81.3
RE2. Evaluate school programs with respect to parental involvement, professional development, and other activities	27	84.4

The distribution of the scores assigned to the Accountability Departments for each activity is presented in Table 49. The mean scores at the top represent the average degrees of involvement in all activities. For both activities of the category, the average degrees of involvement are between "limited" and "moderate" ($\overline{RE1_i}$=2.44, $\overline{RE2_i}$=2.72).

Table 49

Mean Scores and Distribution of Scores in the Fourth Category

	RE1: Conducting research	RE2: Conducting program evaluation
Mean score	2.44	2.72
	Score distribution (%)	
Score	RE1: Conducting research	RE2: Conducting program evaluation
1= No involvement	18.8	15.6
2= Limited involvement	40.6	25.0
3= Moderate involvement	18.8	31.3
4= Extensive involvement	21.9	28.1

Note. %=Percentages of the Accountability Departments to which the scores "1", "2", "3", and "4" are respectively assigned for each activity of the function category.

Category 5: support for lower-performing schools.

Involvement in the function category. The fifth category includes five activities with respect to support for lower-performing schools (SL). The mean score of these activities (SL_i) for each Accountability Department (see the formula in Figure 33) is considered to be the extent to which each department is involved in this function category, as perceived by the Director. Figure 34 displays the distribution of the SL_is among the Accountability Departments in the sample. It suggests that the degrees of involvement of the Accountability Departments range from 1.00 to 4.00. About 65.6% of the departments have "moderate" to "extensive" ($3 \leq SL_i \leq 4$) involvement in this category. The percentage of the departments which have "limited" to "moderate" ($2 \leq SL_i < 3$)

involvement is 18.8%. For 9.3% of the departments, the degrees of involvement are reported to be less than "limited" ($1 < SL_i < 2$). About 6.3% of the Directors reported that their departments do not perform any activity in this category ($SL_i = 1$). The average degree of involvement in supporting lower-performing schools ($\overline{SL_i}$) is 2.98.

$$SL_i = \frac{SL1_i + SL2_i + SL3_i + SL4_i + SL5_i}{5}$$

Figure 33. Degree of Involvement of Each Accountability Department in the Fifth Category

Note. $SL1_i$, $SL2_i$, $SL3_i$, $SL4_i$, and $SL5_i$ are the scores assigned to the Accountability Department for each activity in the category.
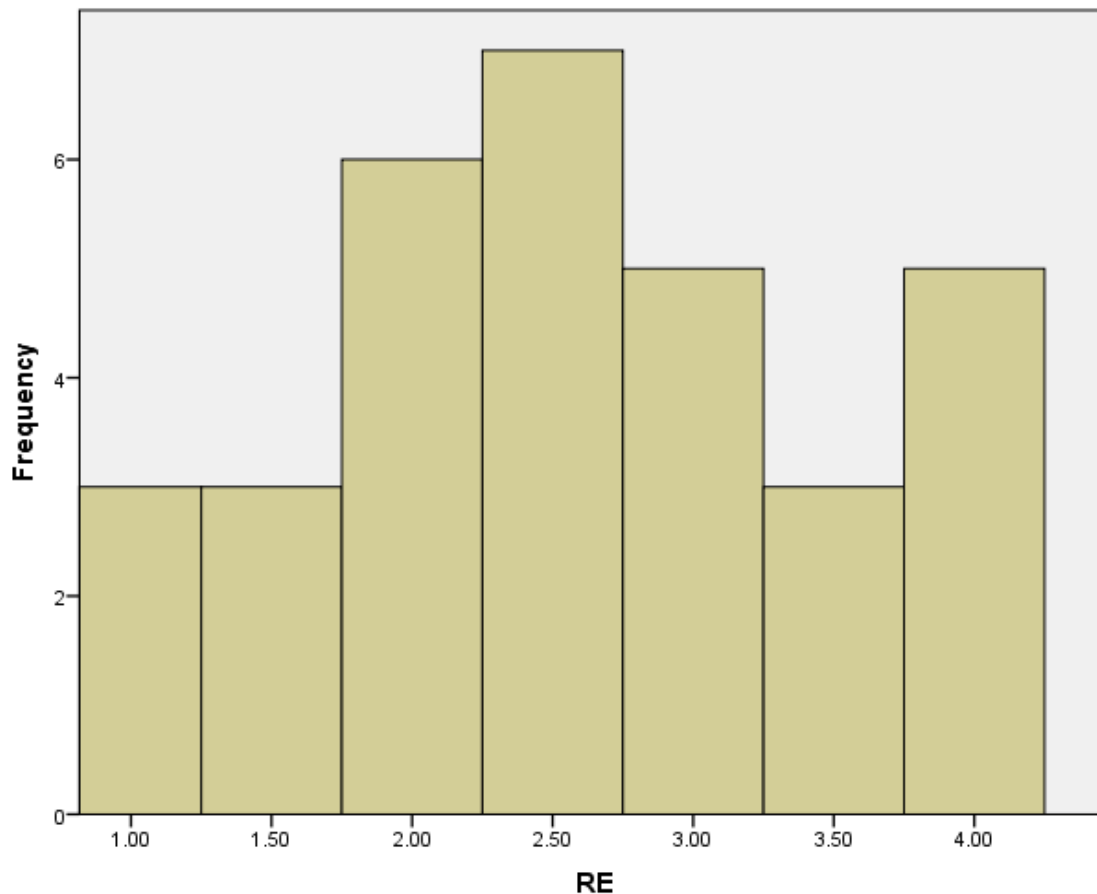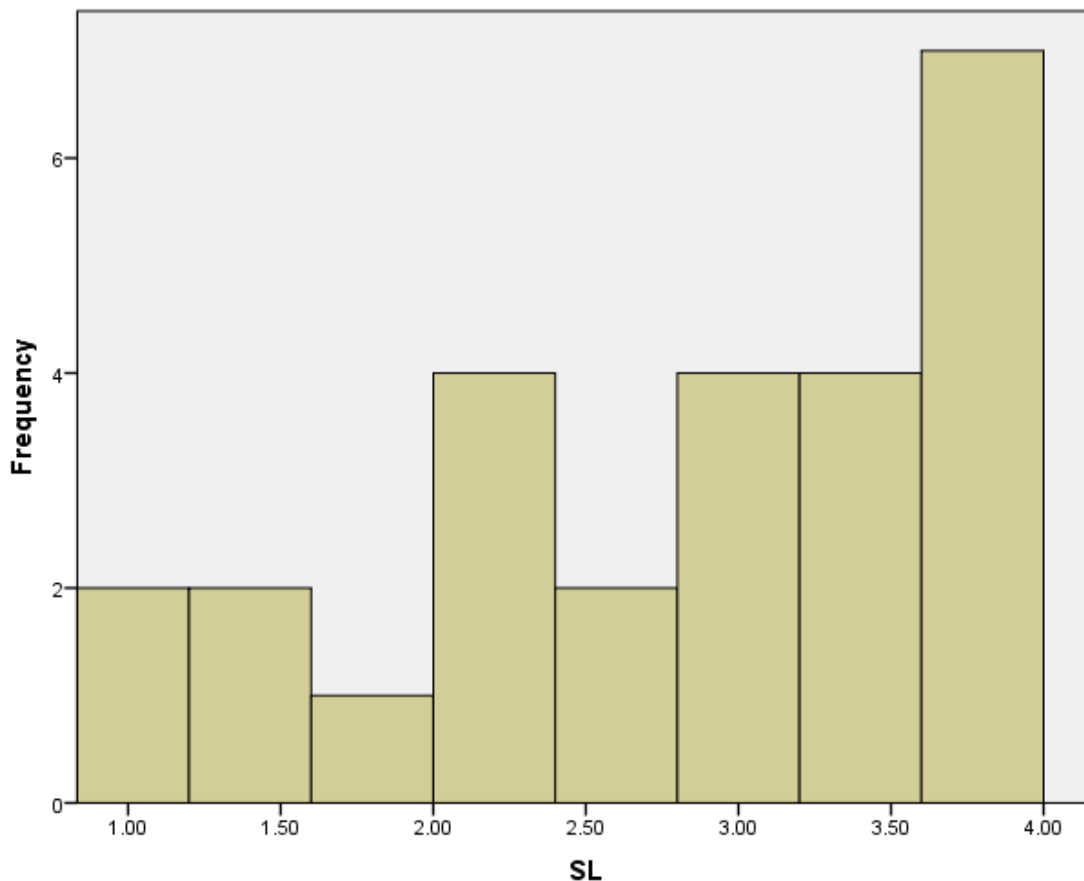
Figure 34. Distribution of the $SL_i s$ among the Accountability Departments

  Involvement in the activities of this category. As shown by Table 50, more than 90%

of the Accountability Departments are involved in the following activities: identifying

schools for improvement, corrective action, and restructuring (SL1) and communicating

more frequently and directly with lower-performing schools (SL3). More than 81% of the

departments perform such activities as assisting in developing the school improvement

plans (SL2) and recommending more professional development opportunities to the

schools (SL4). Approximately 78.1% of the departments recommend programs targeted

at these schools, like after-school tutoring (SL5).

Table 50
Number and Percentage of Accountability Departments Involved in the Activities

Category 5: support for lower-performing schools (SL)	Number	Percentage

		(%)
SL1. Identify schools for improvement, corrective action, and restructuring	29	90.6
SL2. Assist in developing the school improvement plans	28	87.5
SL3. Communicate more frequently and directly with these schools	30	93.4
SL4. Recommend more professional development opportunities to these schools	26	81.3
SL5. Recommend programs (e.g., after-school tutoring) targeted at these schools	25	78.1

The distribution of the scores assigned to the Accountability Departments for each

activity is presented in

Table 51. The mean scores at the top represent the average degrees of involvement in all activities. In two activities in this category, the Accountability Departments have "moderate" to "extensive" involvement: identifying schools for improvement, corrective action, and restructuring ($\overline{SL1_\iota}$=3.16), and communicating more frequently and directly with these schools ($\overline{SL3_\iota}$=3.22). For the other three activities, the average degrees of involvement are between "limited" and "moderate": assisting in developing the school improvement plans ($\overline{SL2_\iota}$=2.88), recommending more professional development opportunities to these schools ($\overline{SL4_\iota}$=2.81), and recommending programs (e.g., after-school tutoring) targeted at these schools ($\overline{SL5_\iota}$=2.84).

Table 51
Mean Scores and Distribution of Scores in the Fifth Category

	SL1: Identify low-performing schools	SL2: Assisting in developing school improvement plans	SL3: Communicating more frequently and directly	SL4: Recommending more professional development opportunities	SL5: Recommending programs targeted at these schools
Mean score	3.16	2.88	3.22	2.81	2.84
	Score distribution (%)				
Score	SL1: Identify low-performing schools	SL2: Assisting in developing school improvement plans	SL3: Communicating more frequently and directly	SL4: Recommending more professional development opportunities	SL5: Recommending programs targeted at these schools
1= No involvement	9.4	12.5	6.3	18.8	21.9
2= Limited involvement	15.6	12.5	12.5	15.6	12.5
3= Moderate involvement	25.0	50.0	34.4	31.3	25.0
4= Extensive involvement	50.0	25.0	46.9	34.4	40.6

Note. %=Percentages of the Accountability Departments to which the scores "1", "2", "3", and "4" are respectively assigned for each activity of the function category.

Category 6: other support. The last category includes four activities identified

from the NCLB Act. Each activity concerns a different area related to educational

accountability (i.e., curriculum, instruction, parent involvement, teacher quality

improvement). So, the degrees of involvement of the Accountability Departments will be

analyzed separately for each activity.

As shown by Table 52, more than 81% of the Directors reported that their

Accountability Departments help schools develop/identify effective instructional

strategies (OS2) and implement activities related to teacher quality improvement (OS4).

71%-75% of the departments help schools develop/identify high-quality curriculum (OS1)

and implement parent involvement activities (OS3).

Table 52
Number and Percentage of Accountability Departments Involved in the Activities

Category 6: Other support (OS)	Number	Percentage (%)
OS1. Help develop/identify high-quality curriculum	24	75.0
OS2. Help develop/identify effective instructional strategies	26	81.2
OS3. Help implement parental involvement activities	23	71.9
OS4. Help implement activities related to teacher quality improvement	26	81.3

The distribution of the scores assigned to the Accountability Departments for each

activity is presented in Table 53. The mean scores at the top represent the average

degrees of involvement in all activities. For all activities of the category, the average

degrees of involvement are between "limited" and "moderate" ($\overline{OS1_t}$=2.63, $\overline{OS2_t}$=2.78,

$\overline{OS3_t}$=2.28, $\overline{OS4_t}$=2.75).

Table 53
Mean Scores and Distribution of Scores in the Sixth Category

	OS1: Curriculum	OS2: Instruction	OS3: Parent involvement	OS4: Teacher quality improvement

Mean score	2.63	2.78	2.28	2.75
	Score distribution (%)			
Score	OS1: Curriculum	OS2: Instruction	OS3: Parent involvement	OS4: Teacher quality improvement
1= No involvement	25.0	18.8	28.1	18.8
2= Limited involvement	15.6	15.6	31.3	21.9
3= Moderate involvement	31.3	34.4	25.0	25.0
4= Extensive involvement	28.1	31.3	15.6	34.4

Note. %=Percentages of the Accountability Departments to which the scores "1", "2", "3", and "4" are respectively assigned for each activity of the function category.

Other functions and activities. The participants were asked to report any function or activity performed by their Accountability Departments, if not shown on the checklist. The responses are presented below.

Table 54

Functions/Activities Reported by the Directors of the Accountability Departments

Functions/Activities	Frequency
1. Grant procurement	1
2. Textbook purchase	1
3. Support for virtual learning	1
4. Teacher evaluation	1
5. Services related to school opening and closing procedures	1
6. Services related to special education	1
7. Services related to driver's education	1
8. Services related to the English as a second language (ESL) programs	1
9. Services related to home schooling	2
10. School calendar development	2

Comparative analysis across the categories. The degrees of involvement of the Accountability Departments vary across the function categories. The Accountability Departments are most involved in the state-wide standardized testing (ST) and data management and data-driven decision making (DM). The mean scores in Table 55 suggest that the departments have "moderate" to "extensive" involvement in these two categories ($\overline{ST_t}$=3.78, $\overline{DM_t}$=3.29).

The average degrees of involvement in all other categories are between "limited"

and "moderate" ($\overline{SL_t}$=2.98, $\overline{DA_t}$=2.84, $\overline{OS2_t}$=2.78, $\overline{OS4_t}$=2.75, $\overline{OS1_t}$=2.63, $\overline{RE_t}$=2.58,

$\overline{OS3_t}$=2.28). Notably, the function in which the Accountability Departments have the

least involvement is supporting parental involvement activities ($\overline{OS3_t}$=2.28).

Table 55
Average Degree of Involvement of the Accountability Departments in Each Category

Categories	1	2	3	4	5	6			
	ST	DA	DM	RE	SL	OS1	OS2	OS3	OS4
Mean score	3.78	2.84	3.29	2.58	2.98	2.63	2.78	2.28	2.75

Note. ST= state-wide standardized testing. DA= division-wide assessments. DM= data management and data-driven decision making. RE= research and program evaluation. SL=support for lower-performing schools. OS1= support for curriculum. OS2=support for instruction. OS3=support parent involvement. OS4= support for teacher quality improvement.

Results and Analysis for Research Question 6

The last research question is: To what extent are the Accountability Departments

similar to each other across the school divisions? Data collected using the checklist reveal

the degree of similarity shared among the Accountability Departments in the following

aspects: (a) the department size, (b) the span of control of the department Director, and (c)

the degree of involvement in the accountability functions. The author uses "variance" to

indicate the degree of similarity. Variance is a measure of "dispersion" used to describe

"the variability of the collection of scores" (Lomax, 2007, p. 46). It indicates how much

the scores are spread out around the mean. Smaller variance suggests more similarity

among the scores; larger variance suggests less similarity among the scores.

Table 56 shows the variances of the Accountability Departments in two structural

dimensions (i.e., department size and span of control of the Director) and the functions

and activities on the checklist. The departments have the least variance in their degrees of

involvement in the state testing programs ($s_{ST}{}^2$=0.14), followed by the functions of data

management and data-driven decision making (s_{DM}^2=0.49), division-wide assessments (s_{DA}^2=0.50), research and program evaluation (s_{RE}^2=0.86), and support for lower-performing schools (s_{SL}^2=0.92). In the last four functions, including providing support for curriculum, instruction, parental involvement, and teacher quality improvement, all variances are more than 1.11. The data suggest, for the functions on the checklist that the Accountability Departments of the sample share the most similarities in their involvement in the state testing programs (s_{ST}^2=0.14); the most differences are found in the departments' involvement in helping schools develop/identify high-quality curriculum (s_{OS1}^2=1.34).

Table 56

Variances of the Accountability Departments in Structures and Functions

	Structural dimensions		Function categories								
	Size	Span of control	ST	DA	DM	RE	SL	OS1	OS2	OS3	OS4
s^2	97.09	9.15	0.14	0.50	0.49	0.86	0.92	1.34	1.21	1.11	1.29

Note. s^2=variance. ST= state-wide standardized testing. DA= division-wide assessments. DM= data management and data-driven decision making. RE= research and program evaluation. SL=support for lower-performing schools. OS1= support for curriculum. OS2=support for instruction. OS3=support parent involvement. OS4= support for teacher quality improvement.

Further Exploration: Does the Size of School Division Matter?

The school divisions in Virginia can be divided into seven categories based on the student population: (a) larger than 10,000, (b) 6,000-10,000, (c) 4,000-6,000, (d) 2,500-4,000, (e) 2,000-2,500, (f) 1,000-2,000, and (g) less than 1,000. One question on the checklist asks the respondents to indicate the category in which their division falls. According to the data, two subgroups are identified (see Table 57). Subgroup 1 (n_1=13) consists of 13 Accountability Departments, which are from the top 28 largest school divisions in Virginia. Subgroup 2 (n_2=10) includes 10 departments from school divisions in which the student population is between 4,000 and 6,000. Each subgroup represents

more than 45% of the Accountability Departments in the corresponding category. Data

from the two subgroups were analyzed to explore whether the size of school divisions

plays a role in the structure and functions of the Accountability Department.

Table 57

Two Subgroups Identified from the Sample

Category	Number of Divisions in Virginia	Number of Divisions in the Sample	Percent (%)
1. larger than 10,000	28	13	46.4
2. 6,000-10,000	15	0	0.0
3. 4,000-6,000	22	10	45.5
4. 2,500-4,000	22	5	22.7
5. 2,000-2,500	13	1	7.7
6. 1,000-2,000	19	3	15.8
7. less than 1,000	13	0	0.0
Total	132	32	

The data analyses were conducted to answer the following questions:

1. Is there any difference between the Accountability Departments of Subgroup

   1 and Subgroup 2, in department size?

2. Is there any difference between the Accountability Departments of Subgroup

   1 and Subgroup 2 in the span of control of the Directors?

3. Is there any difference between the Accountability Departments of Subgroup

   1 and Subgroup 2 in the degree of involvement in the state testing programs?

4. Is there any difference between the Accountability Departments of Subgroup

   1 and Subgroup 2 in the degree of involvement in the division-wide

   assessments?

5. Is there any difference between the Accountability Departments of Subgroup

   1 and Subgroup 2 in the degree of involvement in data management and data-

   driven decision making?

6. Is there any difference between the Accountability Departments of Subgroup 1 and Subgroup 2 in the degree of involvement in research and program evaluation?

7. Is there any difference between the Accountability Departments of Subgroup 1 and Subgroup 2 in the degree of involvement in supporting lower-performing schools?

8. Is there any difference between the Accountability Departments of Subgroup 1 and Subgroup 2 in the degree of involvement in helping schools develop/identify high-quality curriculum?

9. Is there any difference between the Accountability Departments of Subgroup 1 and Subgroup 2 in the degree of involvement in helping schools develop/identify effective instructional strategies?

10. Is there any difference between the Accountability Departments of Subgroup 1 and Subgroup 2 in the degree of involvement in helping schools implement parental involvement activities?

11. Is there any difference between the Accountability Departments of Subgroup 1 and Subgroup 2 in the degree of involvement in helping schools implement activities related to teacher quality improvement?

A t test is performed for each question above. The results are presented below.

Comparative analysis for the sizes of Accountability Departments. As shown in Table 58, data on the department size were gathered from two subgroups, with a Subgroup 1 mean of 10.65 and a Subgroup 2 mean of 4.50. The Welch t' test indicates that the mean differences in the size of the Accountability Department between Subgroup

1 and Subgroup 2 is not significant (Welch $t'(14.61)=1.836$, $p=.087>.05$). The result of the Welch t' test suggests that the null hypothesis that the mean department sizes for Subgroups 1 and 2 are the same cannot be rejected at the .05 level of significance.

Comparative analysis for the spans of control of the Department Directors.
As shown in Table 58, data on the spans of control of the department Directors was gathered from two subgroups, with a Subgroup 1 mean of 4.58 and a Subgroup 2 mean of 1.83. The independent t test indicates that the mean differences in the spans of control of the department Directors between Subgroup 1 and Subgroup 2 is not significant $(t(21)=1.836, p=.077>.05)$. The result of the t test suggests that the null hypothesis that the mean spans of control of the Directors for Subgroups 1 and 2 are the same cannot be rejected at the .05 level of significance.

Comparative analysis for the department function.

State testing. As shown in Table 58, data on the department's involvement in the state testing programs were gathered from two subgroups, with a Subgroup 1 mean of 3.89 and a Subgroup 2 mean of 3.63. The independent t test indicates that the mean differences in the degree of involvement in the state testing programs between Subgroup 1 and Subgroup 2 is not significant $(t(21)=1.604, p=.124>.05)$. The result of the t test suggests that the null hypothesis that the mean degrees of involvement in this function for Subgroups 1 and 2 are the same cannot be rejected at the .05 level of significance.

Division-wide assessments. As shown in Table 58, data on the department's involvement in the division-wide assessments was gathered from two subgroups, with a Subgroup 1 mean of 2.81 and a Subgroup 2 mean of 2.95. The independent t test indicates that the mean differences in the degree of involvement in the division-wide

assessments between Subgroup 1 and Subgroup 2 is not significant ($t(21)$=-.432, df=21,

p=.670>.05). The result of the t test suggests that the null hypothesis that the mean

degrees of involvement in this function for Subgroups 1 and 2 are the same cannot be

rejected at the .05 level of significance.

Data management and data-driven decision making. As shown in Table 58, data

on the department's involvement in data management and decision-making was gathered

from two subgroups, with a Subgroup 1 mean of 3.24 and a Subgroup 2 mean of 3.27.

The independent t test indicates that the mean differences in the degree of involvement in

data management and data-driven decision making between Subgroup 1 and Subgroup 2

is not significant ($t(21)$=-.072, p=.943>.05). The result of the t test suggests that the null

hypothesis that the mean degrees of involvement in this function for Subgroups 1 and 2

are the same cannot be rejected at the .05 level of significance.

Research and program evaluation. As shown in Table 58, data on the

department's involvement in research and program evaluation was gathered from two

subgroups, with a Subgroup 1 mean of 2.65 and a Subgroup 2 mean of 2.70. The

independent t test indicates that the mean differences in the degree of involvement in

research and program evaluation between Subgroup 1 and Subgroup 2 is not significant

($t(21)$=-.116, p=.909>.05). The result of the t test suggests that the null hypothesis that

the mean degrees of involvement in this function for Subgroups 1 and 2 are the same

cannot be rejected at the .05 level of significance.

Support for lower-performing schools. As shown in Table 58, data on the

department's involvement in supporting lower-performing schools was gathered from

two subgroups, with a Subgroup 1 mean of 2.65 and a Subgroup 2 mean of 3.30. The

independent *t* test indicates that the mean differences in the degree of involvement in supporting lower-performing schools between Subgroup 1 and Subgroup 2 is not significant ($t(21)=-1.674$, $p=.109>.05$). The result of the *t* test suggests that the null hypothesis that the mean degrees of involvement in this function for Subgroups 1 and 2 are the same cannot be rejected at the .05 level of significance.

   Helping schools develop/identify high-quality curriculum. As shown in Table 58, data on the department's involvement in helping schools develop/identify high-quality curriculum was gathered from two subgroups, with a Subgroup 1 mean of 1.92 and a Subgroup 2 mean of 3.30. The independent *t* test indicates that Subgroup 1's involvement in helping schools develop/identify high-quality curriculum is **significantly lower** than Subgroup 2 ($t(21)=-3.272$, $p=.004<.01$). The result of the *t* test suggests that the null hypothesis that the mean degrees of involvement in this function for Subgroups 1 and 2 are the same is rejected at the .01 level of significance.

   Helping schools develop/identify effective instructional strategies. As shown in Table 58, data on the department's involvement in helping schools develop/identify effective instructional strategies was gathered from two subgroups, with a Subgroup 1 mean of 2.31 and a Subgroup 2 mean of 3.30. The independent *t* test indicates that Subgroup 1's involvement in helping schools develop/identify effective instructional strategies is **significantly lower** than Subgroup 2 ($t(21)=-2.261$, $p=.035<.05$). The result of the *t* test suggests that the null hypothesis that the mean degrees of involvement in this function for Subgroups 1 and 2 are the same is rejected at the .05 level of significance.

   Helping schools improve parental involvement. As shown in Table 58, data on the department's involvement in helping schools improve parental involvement was

gathered from two subgroups, with a Subgroup 1 mean of 1.62 and a Subgroup 2 mean of 2.80. The independent *t* test indicates that Subgroup 1's involvement in helping schools improve parental involvement is **significantly lower** than Subgroup 2 ($t(21)=-3.625$, $p=.002<.01$). The result of the *t* test suggests that the null hypothesis that the mean degrees of involvement in function for Subgroups 1 and 2 are the same is rejected at the .01 level of significance.

Helping schools improve teacher quality. As shown in Table 58, data on the department's involvement in helping schools improve teacher quality was gathered from two subgroups, with a Subgroup 1 mean of 2.08 and a Subgroup 2 mean of 3.30. The independent *t* test indicates that Subgroup 1's involvement in helping schools improve teacher quality is **significantly lower** than Subgroup 2 ($t(21) = -3.06$, $p=.006<.01$). The result of the *t* test suggests that the null hypothesis that the mean degrees of involvement in this function for Subgroups 1 and 2 are the same is rejected at the .01 level of significance.

Table 58
SPSS Results for t Test for Structural Dimensions and Functions of Accountability Departments

	Subgroup	*Mean*	*t*	*P* value
Structural dimensions				
Size of the Accountability Departments	1	10.65	1.84	.087
	2	4.50		
Span of control of the Directors	1	4.58	1.89	.077
	2	1.83		
Functional areas				
State testing	1	3.89	1.604	.124
	2	3.63		
Division-wide assessments	1	2.81	-.432	.67
	2	2.95		
Data management and data-driven decision making	1	3.24	-.07	.94
	2	3.27		
Research and program evaluation	1	2.65	-.16	.909
	2	2.70		

Support for lower-performing schools	1	2.65	-1.67	.109
	2	3.30		
Helping schools develop/identify high-quality curriculum	1	1.92	-3.27	.004**
	2	3.30		
Helping schools develop/identify effective instructional strategies	1	2.31	-2.26	.035*
	2	3.30		
Helping schools improve parental involvement	1	1.62	-3.63	.002**
	2	2.80		
Helping Schools Improve Teacher Quality	1	2.08	-3.06	.006**
	2	3.30		

Note. *significant at the .05 level. **significant at the .01 level.

Summary

The structures and functions of the Accountability Departments in the sample for this study are analyzed in this chapter. The department sizes range from one to 37, with a variance of 97.09. The spans of control of the Directors range from zero to 11, with a variance of 9.15. The departments are most involved in coordinating the state testing programs and least involved in supporting parental involvement activities. Other functions and activities performed by the Accountability Departments are reported by the Directors and listed in Table 54.

There is variability in the Accountability Departments' involvement in each function on the checklist, as shown in Table 56. The departments in this study are most similar in their involvement in the state testing programs and least similar in their involvement in helping schools develop/identify high-quality curriculum.

Two subgroups were identified from the sample of the study. Subgroup 1 consists of 13 Accountability Departments from larger school divisions (i.e., student population larger than 10,000). The departments in Subgroup 2 are from smaller school divisions (i.e., student population between 4,000 and 6,000). A series of comparative analyses suggest that the Accountability Departments in Subgroup 1 have significantly lower

involvement than Subgroup 2 in helping schools with curriculum, instructional strategies, parental involvement, and teacher quality. In all other functions on the checklist, no significant difference was identified between the two subgroups. The results suggest that school division size may play a role in determining certain functions of the Accountability Departments.

Chapter 8

Discussion and Conclusion

Introduction

The NCLB Act of 2001 has imposed greater accountability on states, school districts, and schools for continuous improvement in student achievement. Each state is required to develop challenging academic content standards, define achievement standards, administer high-quality assessments, disseminate test reports, and implement consequences around the accountability goals (U.S.C. § 6311 (b)(1)). School districts are called on to perform a variety of functions specified by the law, such as reporting school performance (U.S.C. § 6316 (a)(1)(C)), identifying low-performing schools (U.S.C. § 6316 (b)(1)), supporting activities related to parental involvement and teacher quality improvement (U.S.C.6312 § (c)(1)(H)), and conducting program evaluation (U.S.C. § 6316 (a)(1)(D)). Accordingly, some school districts have adjusted their central office structures by creating new units and roles to support the mandated functions.

This study focuses on one structural unit at the central office, called the Accountability Department. A unit is identified as an Accountability Department if its title contains the word "accountability". If there is no department with such a title, the unit which performs the key accountability function (i.e., managing the state assessment program) will be identified as the Accountability Department. Studying the organization of the Accountability Departments can increase an understanding of how school districts are responding to the new accountability requirements. In the existing literature, there are

only a handful of studies on this unit (e.g., Duke, 2005; Darling-Hammond et al., 2005).
In order to address the knowledge gap, this research seeks to generate more empirical
evidence around the following research questions:

1. How did the Accountability Departments originate?

2. How have the Accountability Departments evolved since their inception?

3. Why have the Accountability Departments changed over time?

4. What are the current characteristics of Accountability Departments, including
   their goals, staffing, functions, and structures?

5. How do the Accountability Departments perform their functions?

6. To what extent are the Accountability Departments similar to each other
   across the school divisions?

To answer the six questions, a mixed methods design was adopted in this study. In
the first phase, the researcher collected qualitative data from two Accountability
Departments in Virginia school divisions through in-depth interviews with the
department Directors and analysis of relevant documents. In the second phase, a checklist
was administered to a sample of 32 Accountability Departments. The departments'
Directors were asked to indicate their perceptions of the extent to which the departments
were involved in each function on the checklist. The findings are presented in Chapters 4
to 7.

The remaining part of this chapter is divided as follows. In the next section, the
research findings are summarized and interpreted in light of literature. In Sections 3 to 5,
the author discusses the implications of this research for practices, policies, and theory.
Recommendations for future research are provided in Section 6, followed by a conclusion.

Discussion of Findings in Light of Literature

  Research Question 1: Creation of the Accountability Department. The two case studies conducted in the first phase provide information relevant to the first research question. The findings are organized around three sub-topics in Chapter 6: (a) the time when the Accountability Departments in the Pittsfield City Schools (PCS) and the Scott Valley Public Schools (SVPS) were created, (b) the process by which these departments were created, and (c) the rationales for the creation of the departments.

  In PCS, the Accountability Department evolved from a former unit of the central office in 2003. The former unit, called the Department of Assessment and Instructional Support, was created around January, 1998. In SVPS, the Accountability Department evolved from the Office of Accountability (OA) in 2009. The OA was created in 2003. One of the reasons for creating the two Accountability Departments was to meet the policy requirements at the state and federal levels.

  The finding is consistent with Duke's (2005) study on the Fairfax County Public Schools in Virginia. The Accountability Department at Fairfax County was created in 2001 to meet accountability expectations, including "tough new state accreditation standards" and the *No Child Left Behind Act* (p. 153). The state and federal policies do not mandate the creation of Accountability Departments, but require school divisions to perform a set of new functions (e.g., state testing and data reporting). Accordingly, school divisions have been compelled to adjust their central office structures to support the new functions. The creation of the Accountability Department is one of the restructuring options, as evidenced by the cases of PCS, SVPS, and FCPS. This information appears to support the argument that "the existence of a common legal environment" may shape

organizations in similar ways (DiMaggio & Powell, 1983, p. 150). The creation of the

Accountability Departments in different school divisions (i.e., PCS, SVPS, and FCPS)

may be viewed as an example of "coercive isomorphism" (p. 150).

According to DiMaggio and Powell (1983), when facing uncertainty and

ambiguity, organizations often "model themselves on other organizations". The Virginia

Standards of Accreditation of 1997 assigned a set of new functions to school divisions,

but did not specify whether and how the district central office should be reorganized to

support these functions. Such uncertainty may have caused some school divisions to copy

other divisions' restructuring strategy, namely the creation of an Accountability

Department. Additionally, DiMaggio and Powell (1983) indicate that employee transfer

encourages the diffusion of similar practices (p. 151). The first Director of the PCS

Accountability Department had worked in a similar position in another school district

before she was hired by the PCS. So she should have been familiar with the restructuring

process in the division where she had worked. However, no evidence surfaced to suggest

that the creation of the Accountability Department in PCS was due to the Director's

mimetic behaviors.

Research Questions 2 and 3: Evolution of the Accountability Department.

Data related to the second and third research questions was collected using the case

studies in the first phase. Due to both external and internal challenges (Schein, 1985), the

Accountability Departments in PCS and SVPS have evolved in many aspects, including

their titles, sizes, subunits, and functions. The factors that account for these changes

include policies, recommendations from professional associations, and the school

districts' own problems (e.g., failing to get full accreditation). The findings are summarized in Table 28.

The accountability policies play a role in reorganizing the Accountability Department. For example, the SVPS added two evaluation analysts to the Accountability Department in 2004 in order to review test data (U.S.C. § 6316 (a)(1)(A)) and study the effectiveness of division programs (U.S.C. § 6316 (a)(1)(D)) as required by NCLB. Actually, several school divisions in the neighboring counties also added staff to handle all of the data from required tests (Forest, 2004). This suggests that some school divisions have adjusted their central office structures in similar ways in order to address accountability requirements.

Recommendations from professional associations also have influence on the structure and functions of Accountability Departments. In both PCS and SVPS, the Accountability Departments did not manage the state testing programs when they were first created. In PCS, the testing function was transferred from the Guidance and Counseling Department to the Accountability Department in 2005, as recommended by Virginia Association of School Superintendents (VASS). In SVPS, the Department of Testing was subsumed under the Accountability Department based on the audit report submitted by Phi Delta Kappa (PDK) International in 2004. As DiMaggio and Powell (1983) point out that, organizations such as consulting firms can "spread a few organizational models throughout the land" (p. 152). Such a "mimetic" mechanism can lead to "homogeneity in organizational structures" (p. 151). Findings from the present study are consistent with the above viewpoint, since the PCS and the SVPS adopted similar structural models for their Accountability Departments based on

recommendations from professional associations, though the associations from which they sought for advice were different.

Furthermore, the Accountability Departments have adapted themselves to address their internal needs. When many Pittsfield schools failed to get full accreditation in 2007, the central office leaders decided to transfer two curriculum departments to the Accountability Department so as to support collaboration between the curriculum specialists and the test specialists. When most schools got accredited in 2008, the curriculum departments were removed from the Accountability Department. In SVPS, the technology staff joined the Accountability Department to manage the Student Information System (SIS) in 2009. This change was suggested by the Director, based on the belief that coordination becomes easier when the technology team and test data analysts work within one department.

To sum up, the Accountability Departments in PCS and SVPS have evolved in many respects since their inception. The two units adopted a similar restructuring strategy (i.e., addition of the testing function) based on advice from professional associations, but acted differently to address their own situations. Evidence of "coercive isomorphism" (DiMaggio & Powell, 1983, p. 150) also was found: the political environment has compelled several Virginia school divisions to add more positions in order to perform the accountability functions.

Research Question 4: Structures and functions of the current Accountability Department. Data collected from the two case studies and the checklist survey help to answer the fourth research question. The following discussion focuses on the structure

and functions of current Accountability Departments, as well as the relationship between the Accountability Department and the central office.

Structure of the Accountability Department. In the first phase of the study, the Accountability Departments in PCS and SVPS were found to differ from each other in several structural dimensions (see Table 30). In the second phase, quantitative data was collected on two structural dimensions of Accountability Departments (i.e., size and span of control of the Director). The data analysis results are presented in Table 39 and Table 40. Data show that some Accountability Departments share similarities in terms of size and/or the span of control of the Director. No evidence, however, points to whether the isomorphic structures are the result of coercive mechanisms, mimetic process, or normative pressure (DiMaggio & Powell, 1983)

In other school divisions, the Accountability Departments differ in the above structural dimensions. There are at least two possible reasons for the absence of isomorphism. First, the structure of an organization is closely related to the context within which it functions (Pugh, Hickson, Hinings, & Turner, 1969). Despite the fact that the school divisions are subject to the same political environment at the state and federal levels, the local context still may vary. School divisions may have to structure the Accountability Department in different ways in order to address the unique challenges at the local level. For example, school districts with more funds can hire more individuals to staff the Accountability Departments, while districts with fewer financial resources tend to have smaller Accountability Departments.

Second, "belief systems" constitute a distinctive class of elements that can influence the nature of organizational structure (Scott, 1987, p. 497). Different beliefs

regarding how the Accountability Department should be organized may result in variation in department structure. For example, the Director of the Accountability Department in SVPS believed that coordination becomes easier if the department has a new subunit staffed by technology engineers. Directors with different beliefs, however, might remove certain subunits from the Accountability Department so that the employees can concentrate on fewer functions to avoid any confusion.

This study did not focus on the factors that might account for variability in the structure of Accountability Departments. Future research should collect empirical data on district context and/or belief systems in order to account for variation in the Accountability Department.

Functions of the Accountability Department. Table 31 summarizes the functions performed by the Accountability Departments in PCS and SVPS. Table 55 shows the average degree of involvement of the 32 Accountability Departments in each functional category on the checklist.

Mandatory functions. By definition, all the Accountability Departments in this study were responsible for managing the state assessment programs. The qualitative and quantitative data consistently suggest that the Accountability Departments also perform other functions, but state testing and test data analysis remain the highest priorities. This is probably because federal and state policies have mandated these functions and attached highly visible consequences to the state assessments. It is imperative that the implementation of the state testing program comply with the rules established by VDOE and that the assessment data be accurately analyzed. To respond to the policy requirements, the Accountability Departments under study are all highly involved in state

testing programs and test data analysis, indicating "coercive isomorphism" (DiMaggio & Powell, 1983, p. 150).

However, in other functions required by the NCLB (e.g., support activities related to parental involvement or teacher quality improvement); some departments are not involved at all. This finding suggests that the Accountability Department may not be the only unit that performs accountability functions. Other units at the central office also may play a role. For example, in SVPS, it is the Office of Federal Programs that helps implement the parental involvement activities.

Non-mandatory functions. The function of managing division assessment programs is not required by the state or federal laws, but data show that the Accountability Departments are all involved in this function. The mechanisms that encourage such isomorphism are unclear. Since the state and federal policies do not mandate this function, it is unlikely that school divisions develop and implement local assessment programs due to direct coercive pressures. Mimetic and normative mechanisms (DiMaggio & Powell, 1983) may play a role. The reasons are discussed below.

Federal law (e.g., U.S.C. § 6312 (c)(1)(O); U.S.C. § 6316 (b)(4)(B)) requires school districts to help schools implement effective programs and strategies to improve student performance on state academic assessments. However, no rule or regulation explicitly indicates any program or strategy that should be implemented. The school districts, therefore, are called on to address this challenge without clear solutions. As DiMaggio and Powell (1983) argue, "uncertainty is a powerful force that encourages imitation (p. 151)". So, it is possible that school districts copy the strategies other districts

have already adopted, such as implementing local assessment programs to monitor student progress and diagnose learning problems. Unfortunately, no empirical evidence is found in this study to support the above possibility.

Normative pressure, which stems primarily from professionalism, can be another cause for similarities across organizations (DiMaggio & Powell, 1983). Professionalism concerns the process of establishing "a cognitive base or legitimation" (Larson, 1977; Collins, 1979, as paraphrased in DiMaggio & Powell, 1983, p. 152), as well as the development of norms and standards shared among professional leaders and their staff. Universities and professional training programs are important centers for promoting professionalism. They create "a pool of almost interchangeable individuals" who possess similar professional beliefs and behaviors (Perrow, 1974, as paraphrased in DiMaggio & Powell, 1983p. 152).

Data from the case studies show that the professional staff in the Accountability Departments in PCS and SVPS have university degrees (see Table 35 to Table 37). In addition, both department Directors mentioned that locally developed tests should be used to track student learning progress and identify instructional strengths and weaknesses. They also emphasized that the local tests should be aligned with the SOL tests. Similar comments made by the Directors suggest that they may share a common understanding (i.e., cognitive base) of division assessments, which may shape the implementation of their testing programs in similar ways (see Table 31).

Research Question 5: Division of labor and coordination within the Accountability Department. Only the case study data provides information related to the fifth research question. To answer this question, the researcher focuses on division of

labor and coordination, two of the central issues in an organization ((Bolman & Deal, 1991, p. 51).

Division of labor. In both PCS and SVPS, the functions performed by the Accountability Departments are divided and distributed among different roles and subunits. Different types of division of labor are identified: by service, by task requirement, and by process. In both school divisions, about 80% of the Accountability Department staff work as "specialists" (Weber, 1968, p. 958)

In PCS, despite the division of labor, the specialists in the Accountability Department still have cross-functional responsibilities and need to handle logistical issues. Each specialist in SVPS, in contrast, performs fewer functions and does not perform logistical tasks. Therefore, the Accountability Department in SVPS has a higher degree of specialization, which refers to the "specificity and narrowing down of the tasks assigned to any particular role" (Pugh et al., 1963, p. 302). The difference is possibly due to department size. In PCS, the five employees of the Accountability Department have to complete more than 30 tasks related to four functions. In contrast, the five functions of the Accountability Department in SVPS are distributed among 25 individuals. On average, each staff member in Pittsfield has to perform more job duties than each individual in Scott Valley.

Coordination. The Accountability Departments in both districts rely on formal rules, chains of command, planning, and lateral communication to coordinate the various functions they perform. Subject to the same federal and state rules (see Table 38), the Accountability Departments in both divisions administer the state assessments and report

test data in similar ways. This finding suggests that "coercive isomorphism" (DiMaggio & Powell, 1983, p. 150) is a factor.

More written rules are found in SVPS than in PCS. In SVPS, the rules not only clarify the procedures for various functions, but define roles in a very specific way. For example, the job description for each role specifies the title, supervisor, pay grade, position code, job classification, contract length, essential duties, minimum qualifications, and working conditions. It is through such rules that the roles are standardized (Pugh et al., 1963). In PCS, however, the guidelines for each role have not been written into any formal document yet. The Accountability Department of the SVPS therefore has a higher degree of formalization, which denotes the extent to which rules, procedures, instructions, and communications are codified in a written form (Pugh et al., 1968).

In SVPS, other coordination mechanisms, including chains of command, planning, and lateral communication, also are governed by rules and regulations. For example, job descriptions explicitly indicate that communicating with other staff members is one of the official duties assigned to certain roles. Such provisions, however, are not found in the Accountability Department in PCS. This suggests that the SVPS department exhibits a higher degree of standardization than PCS, since standardization concerns the extent to which activities and roles are subject to general rules and regulations (Child, 1972; Pugh et al., 1963).

The above analysis coincides with several previous studies (Hinings & Lee, 1971; Pugh et al., 1968) which found that larger organizations tend to have great specialization, more formalization, and more standardization than smaller organizations. The Accountability Department in SVPS is five times as large as the department in PCS. It is

likely that the functions assigned to the SVPS department can be divided into more tasks, since there are more staff members to perform the tasks. Also, more written rules may be needed in larger units to delineate communication channels and avoid overlapping responsibilities. So, the functions and roles in larger organizations are more likely to be standardized and formalized.

Specialization, formalization, and standardization are considered as distinct dimensions of bureaucracy (Grinyer & Yasai-Ardekani, 1981; Pugh et al., 1968; Child, 1974). Since the Accountability Department in SVPS has more specialization, formalization, and standardization, it probably functions more as a traditional bureaucratic organization than the department in PCS.

Research Question 6: variation in current Accountability Departments. To answer the last research question, the researcher calculated the variances in the structures and functions of the 32 Accountability Departments. The results are presented in Table 56. The similarities and differences in the structural dimensions (i.e., department size and span of control of the Director) have been analyzed before. So, the following discussion will focus on the functions.

Data shows that there is variability in the degree of involvement of the Accountability Departments in the functions on the checklist. Consistent with the previous analysis, the least variations are found in state testing programs, data management, and division assessment programs. This is probably because all the Accountability Departments surveyed are highly involved in the three functions due to certain isomorphic mechanisms (e.g., coercive and normative pressures) discussed previously.

The greatest variability is found in the functions related to curriculum, instruction, parental involvement, and teacher quality improvement. About 34% to 59% of the Accountability Departments have limited involvement or no involvement in these functions. In contrast, the other departments have moderate to extensive involvement. As stated earlier, one possible reason for such variation is that, in some school divisions, these functions have been assigned to other central office units instead of the Accountability Departments. How the district central office is structured also may have an influence on the functions assigned to the Accountability Department. As a subunit of the central office, the Accountability Department does not necessarily perform all the functions mandated by the law and regulations.

Since the school district's size can affect the functions of the central office (e.g., Desimone et al., 2002; Firestone et al., 1998; Hannaway & Kimball, 1998; Louis et al., 2010; Miller, 2010), a comparative analysis was conducted to identify any difference between two sets of Accountability Departments. The first group consisted of the departments from larger school divisions. The second group of departments represented smaller divisions. The results of the comparison are presented in Table 58. Significant differences were found in the functions related to curriculum, instruction, parental involvement, and teacher quality improvement. The departments from smaller divisions had significantly higher involvement in these functions than the departments from larger divisions.

A possible explanation for the significant differences between larger and smaller school divisions is that the central offices of larger divisions tend to have more subunits and staff members, so that the functions listed above can be assigned to the units rather

than the Accountability Department. For example, in Pittsfield and Scott Valley, which are among the largest school divisions in Virginia, the Accountability Departments do not perform the functions related to curriculum, instruction, parent involvement, and teacher quality improvement. These functions are performed by the curriculum departments and the departments dedicated to federal programs in the two divisions. In smaller school divisions, however, the central offices are more likely to have few subunits and employees. Therefore, it is more likely that the above functions are integrated with other accountability functions and are assigned to the Accountability Department.

The above analysis and the empirical evidence provided by the cross-group comparison suggest that, despite the isomorphic mechanisms (e.g., the same policy environment, the uncertainty of how to achieve educational accountability, or a common understanding of some issues), the Accountability Departments may still behave in different ways possibly due to different local contexts (Pugh et al., 1969) or belief systems (Scott, 1987). This is true even when the isomorphic pressure is strong. For example, all the Accountability Departments are coordinating the state assessments due to the coercive force of current policies. However, the extent to which the departments are involved in state testing programs varies by school division. The case study data show that variation may result from whether or not the technology function is integrated into the Accountability Department. If the technology staff members work within the department, the Accountability Department is likely to be more involved in generating and disseminating state test reports since these activities require the operation of the online testing system.

Relationship between the Accountability Department and the central office.

Although the study mainly focuses on the Accountability Department, the findings reveal

the relationship between the department and the central office. As mentioned earlier, the

Accountability Department performs the function of state testing by definition and tends

to concentrate on testing and assessment data to meet the federal and state requirements.

However, other accountability functions (e.g., identifying high-quality curriculum and

effective instructional strategies) also are mandated by NCLB. It appears that whether

these functions are assigned to the Accountability Department relies to some extent on

the structural and functional design of the central office. In PCS, for example, the

Information Technology (IT) Department maintains all technology infrastructure and

software systems across the division. Therefore, the IT Department, instead of the

Accountability Department, is charged with responsibilities for managing the SIS. In

SVPS, however, the technology staff works within the Accountability Department, so the

maintenance of the SIS is part of the department's responsibilities.

The central office can either assign the accountability functions to a few structural

units or distribute the functions across more units or positions. Both "integrated" and

"differentiated" structures are identified in the current study. The checklist data show that,

in about 68% of the school divisions surveyed, all the functions required by the NCLB

Act (see Table 1) are assigned to the Accountability Department alone, suggesting a more

integrated structure. The PCS central office, however, can be viewed as an example of a

differentiated structure. The Accountability Department in PCS mainly manages

assessment programs and conducts test data analysis. Other accountability functions, such

as managing student data, identifying and developing high-quality curriculum, and

supporting parental involvement activities, are assigned to the IT Department, the curriculum departments, and the Title I Department, respectively.

The integrated and differentiated structures have their own strengths and weaknesses. In an integrated structure, individuals performing accountability functions work in the same department, so it may be easier for them to understand the relationships among their job duties and develop a more comprehensive picture of their practices. However, it may be more difficult to prioritize the tasks and identify the key functions of the department, since it is charged with so many responsibilities.

On the other hand, the more highly differentiated a school district's central office (with lots of people doing many different things), the less likely staff members will become confused about what they are expected to do (Bolman & Deal, 1997, as paraphrased in Duke, 2010, p. 89). However, the more differentiated a structure, "the harder it is to integrate it all into a focused, tightly coupled enterprise" (Bolman & Deal, 1997, p. 60). Accordingly, the problem of coordination can arise. When people perform accountability functions in different structural units, it is likely that "people in one unit have little occasion to interact with people in other units". As a result, they may not understand how their work is related to each other, which makes it difficult to ensure all organizational units work cooperatively in the same direction (Duke, 2010, pp. 89-90).

The above analysis may explain one of the structural changes in SVPS when a group of technology staff were moved from the Department of Technology to the Accountability Department. This change enabled the test data analysts and the database engineers to work in the same unit and avoid any problem of cross-department coordination.

It should be emphasized that, in this discussion, the integrated and differentiated structures are loosely defined based on the number of units that perform the required accountability functions (see Table 1) at the central office. Since the two concepts are beyond the focus of the study, the author does not intend to draw any conclusion about extent to which the two types of structures characterizing the Virginia school divisions. The purposes of the discussion are to (a) describe the different central office structures that support accountability functions using specific examples (e.g., the PCS Accountability Department vs. the Accountability Departments that perform all the required functions), and (b) analyze the possible implications of the structural differences in light of organization theory. As suggested later, future research should examine how the two structural models (i.e., integrated vs. differentiated) support accountability functions.

Implications of the Study

In this study, the researcher explored the structure and functions of Accountability Departments in Virginia school divisions. Similarities and differences in various aspects of the Accountability Departments were identified. The possible reasons for organizational isomorphism (or the lack of isomorphism) are discussed in light of the literature. The findings have implications for administrative practice, policies, and organization theory.

Implications for administrative practice. School systems have been called on to perform various functions in order to achieve educational accountability. It is imperative that the central office is properly structured to support these functions. Federal and state policies provide little guidance on this matter. The present study provides examples of

practice and structural models of Accountability Departments to help school systems make decisions regarding how to perform accountability functions.

For example, the researcher described how the Accountability Departments in PCS and SVPS analyzed the student assessment data to inform instruction. Three data analysis models (i.e., basis analysis, band analysis, and standard analysis) were identified. Such information is important for district administrators and staff members for the following reason. The current policies have placed significant emphasis on the use of standardized tests to promote student achievement. An implicit assumption embedded within the policies is that the data produced from these tests can be turned into "actionable information" (Wayman, 2005, pp. 195–196) by local education authorities. However, very little is known about how local school districts are using accountability data (Coburn & Talbert, 2006; Datnow, Park, & Wholstetter, 2007; Earl & Katz, 2002; Honig & Coburn, 2008; Ingram, Louis, & Schroeder, 2004). The models presented in this research are specific examples of how assessment data can be used in relation to teaching and learning. School districts may consider these models as options when analyzing their test data; although the effectiveness of the models needs to be determined.

In addition, this study suggests that there are two options for school districts to organize their accountability functions. The districts can adopt a more integrated approach by assigning all the functions to a single unit (i.e., Accountability Department), or adopt a more differentiated approach by distributing the functions to a number of units at the central office. School divisions should be aware of the strengths and weaknesses of each approach (Duke, 2010, pp. 89-90) when making decisions.

This research also indicates that the structure and functions of the Accountability Department tend to evolve over time. Various changes were initiated to respond to new policies, implement professional recommendations, and address division-specific problems (e.g., low student achievement and coordination problems within the central office). This suggests that pressures for change can be both external and internal (Duke, 2005, p. 3). Therefore, it is important that central office administrators understand the external environment, as well as the internal conditions, of the school districts in order to make informed decisions on the structural and functional adjustments needed for an effective accountability system.

Implications for policies. Evidence of "coercive isomorphism" (DiMaggio & Powell, 1983, p. 150) is found among the Accountability Departments in Virginia school divisions. This suggests that the contemporary accountability policies may be a source of isomorphic change. In order to meet federal and state standards, school districts may implement any program or model required by the policies. Due to the differences in the local context, however, the required programs or models may not necessarily work in every school district (e.g., Stein et al., 2004). Therefore, policy makers need to be aware that external pressures (e.g., rewards and sanctions) that result in organizational isomorphism may not necessarily mean that the accountability goals can be achieved in all school districts. Policies should allow some degree of flexibility so that districts can make adaptations to address the local needs.

In this study, variation was also found in some aspects of the Accountability Departments, despite of the same policy environment in which they operated. This suggests that local conditions, such as district size, funding, and technical capacity, may

play a role. Policy makers should reconsider whether and how the unique local context should be addressed when developing the accountability models (e.g., AYP status model described in Chapter 2). Actually, VDOE (2012b) has announced very recently that "Virginia schools and school divisions will no longer have to meet arbitrary and unrealistic NCLB benchmarks in reading and mathematics or the federal law's mandate that all students – regardless of circumstance – achieve grade-level proficiency by 2014". The Virginia Board of Education has adopted a new accountability model that takes into account the previous achievement levels of students so that school divisions are no longer expected to meet the same proficiency goals. "Annual benchmarks will be set with the goal of reducing the failure rate in reading and mathematics by 50 percent – overall and of each student subgroup – within six years" (VDOE, 2012b).

Additionally, policy makers should direct more attention to the capacity building of school districts, rather than merely rely on traditional control mechanisms (e.g., rewards and sanctions) to motivate school districts. This is because some policy requirements, like the administration of state assessments, do not directly link to student learning. Data generated from the standardized tests must be turned into evidence useful to schools and teachers before they can change the practice of teaching and learning (Coburn & Talbert, 2006; Kerr, Marsh, Ikemoto, Darilek, & Barney, 2006). In the case studies of the Accountability Departments in PCS and SVPS, both Directors mentioned that the state SOL tests cannot automatically lead to academic growth. So, their departments do not merely analyze test data to determine student progress on the required accountability indicators, but actively transform data into "actionable information" (Wayman, 2005, pp. 195–196) for school principals and teachers. In SVPS, the

Accountability Department even implements a variety of training programs to increase

the capacity of teachers and staff members to make informed decisions based on student

data. The finding suggests that whether the accountability goals can be achieved, to some

extent, depends on the capacity of district administrators, teachers and staff members to

translate the policy requirements (e.g., implementing standardized tests) into meaningful

information and use such information to change practice in the desired direction.

Therefore, school districts and schools may benefit from any guidelines developed by

policy makers regarding how to boost capacity to achieve required goals.

Implications for organization theory. Data for this study was collected and

analyzed based on the framework provided by the theory of structuralism. Accountability

Departments were found to exhibit certain predictable bureaucratic features, such as

specialization, standardization, and formalization.

Also, evidence of institutional isomorphism was found among the Accountability

Departments (see Table 59), suggesting that the theory of institutional isomorphism

(DiMaggio & Powell) may apply. In this study, the Accountability Departments perform

many of the same functions, including coordinating state and division assessment

programs and conducting test data analysis in spite of differences in their structural

dimensions (e.g., department size and span of control of the Director). The finding is

consistent with the previous studies which found that the characteristics of the

organizations may be attributed to the common rules and regulations (Meyer, Scott, &

Deal, 1981), technical uncertainty (March & Olsen, 1976), and shared belief systems

(Meyer & Rowan, 1977).

Another finding, however, indicates that, despite the same policy requirements, the Accountability Departments have different degrees of involvement in functions related to curriculum, instruction, parental involvement, and teacher quality improvement. Such variation may relate to the size of school district in which the departments are operated.

The above findings suggest that both similarities and differences exist among Accountability Departments. The behaviors of these departments may depend on the institutional systems characterized by the common beliefs and rules (Meyer & Rowan, 1978, p. 96; Scott & Meyer, 1983, p. 149) and the structural dimensions of school divisions, such as division size. The theories of institutional isomorphism can help explain the lack of variation in some aspects of Accountability Departments. It is still necessary to continue to identify the factors in order to account for the variability among Accountability Departments.

Table 59

Evidence of Institutional Isomorphism

Data source	Isomorphic behaviors or characteristics	Isomorphic mechanisms	Evidence
Case studies	1. The Accountability Departments were created in PCS and SVPS.	Coercive	- In PCS, the Accountability Department was created a few months after the adoption of the new Standards of Accreditation (SOA), charged with the responsibility of reporting school performance on the SOL tests. This was a direct response to the SOA, which mandated that school divisions perform the function of data reporting. - In SVPS, Accountability Department was created to "meet *No Child Left Behind* requirements for Adequate Yearly Progress and Virginia's Standards of Accreditation through research based instructional strategies and assessment (SVPS, 2004, p.59)".
	2. A new function (managing the state testing programs) was added to both departments.	Mimetic	- Both Accountability Departments adopted similar recommendations from professional associations.
	3. Both departments analyze and report the accountability data.	Coercive	- The accountability policies mandate this function be performed.
	4. Both departments implement the division assessment programs.	Normative	- The Directors share similar understanding of the role of the division test programs.

Checklist data	5. All departments manage the state testing programs.	Coercive	- The accountability policies mandate this function be performed.
	6. All departments implement division assessment programs.	Possibly mimetic or normative	- NA
	7. All departments are involved in test data analysis.	Coercive	- The accountability policies mandate this function be performed.

Recommendations for future research. More research studies are needed to expand the literature on Accountability Departments in public school systems. Based on the findings of this research, four recommendations are made for future studies.

First, variations were found in the structures and functions of Accountability Departments across the school divisions in this study. However, it is unclear what factors may account for such variation. Data from this study suggest that the district size and the beliefs of department leaders might be associated with some of the variations. In the future studies, both the sample size and the sampling strategy should be improved to increase the validity of the findings. Additionally, variations also may exist within, as well as across Accountability Departments. Staff members' perceptions of department goals and functions, for example, could vary.

Second, this study revealed that district central offices have organized different units and roles to support accountability functions, and the Accountability Department may just be one component of this effort. Future research should focus on the relationship between the Accountability Department and other units, if any, which also are involved in performing accountability functions. The research should address how Accountability Departments communicate and coordinate with other units to achieve the district goals.

Third, the performance of the Accountability Department needs to be evaluated so that school systems can learn from successes and failures. This study provided descriptive information on the structure and functions of Accountability Departments. However, these data are not sufficient to make any judgment on the performance of Accountability Departments. More empirical data needs to be collected to determine if Accountability Departments function effectively. Researchers can investigate this topic

from different angles, since "effectiveness" can be defined in multiple ways. For example, researchers can study whether Accountability Departments achieve department goals successfully. Attention also can be directed to the perceptions of school principals and teachers regarding the services provided by the Accountability Department, as well as the employee's job satisfaction within the department.

Last but not least, future studies should seek to identify the factors that can improve the performance of the Accountability Department. For example, this study suggested that some districts develop a more integrated structure, assigning all accountability functions to the Accountability Department. Other districts, however, adopted a differentiated approach that distributes accountability functions to a number of units. Future research should examine the effectiveness of these two approaches. The findings may help district leaders' make decisions on the central office restructuring.

Conclusion

In an era of accountability, school districts have been called on to shift their practices from performing administrative duties to providing academic support. Many districts have reorganized the central office to highlight the importance of accountability and one of the restructuring efforts is the creation of the Accountability Department. This study contributes to our knowledge base of this structural unit by generating three sets of empirical evidence: (a) the creation and evolution of the Accountability Departments, (b) the current characteristics of the departments, including their goals, staffing, functions, and structures, and (c) the degree of similarity among the departments across Virginia school divisions.

Both similarities and differences were identified among the Accountability Departments in a variety of aspects, including their bureaucratic dimensions (e.g., specialization, standardization, and formalization), as well as the departments' involvement in the accountability functions. Evidence shows that the similarities in some aspects may result from the institutional isomorphic mechanisms, such as coercive and normative pressures. The variability in the departments' involvement in certain functions may be associated with the district size. Although no evidence is found in the current study, the author also discussed the mimetic mechanism and other factors (e.g., funding and beliefs of the organization members) that may be related to the characteristics and behaviors of the Accountability Department.

This study described and compared Accountability Departments in Virginia school divisions in light of organization theories. Evidence generated by this research can help division administrators make decisions regarding how to achieve educational accountability through restructuring their central offices. Moreover, this study makes a contribution to the application of the theory of institutional isomorphism to school district organizations. The isomorphic mechanisms evidenced by this study deepen our understanding of the rationales for school divisions' behaviors.

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UNIVERSITY of VIRGINIA

OFFICE OF THE VICE PRESIDENT FOR RESEARCH

INSTITUTIONAL REVIEW BOARD FOR THE SOCIAL AND BEHAVIORAL SCIENCES

October 4, 2010

In reply, please refer to: Project # 2010-0358-00

Qijie Cai
Daniel Duke
Leadership, Foundations & Policy
201 Marina Drive, Apt. 412
Tuscaloosa, AL 35406

Dear Qijie Cai and Daniel Duke:

The Institutional Review Board for the Behavioral Sciences has approved your research project entitled "Structure and Functions of the Accountability Department in Virginia School Divisions." You may proceed with this study. Please use the approved Consent Form language for participants.

This project # 2010-0358-00 has been approved for the period October 4, 2010 to October 3, 2011. If the study continues beyond the approval period, you will need to submit a continuation request to the Review Board. If you make changes in the study, you will need to notify the Board of the changes.

Sincerely,

Tonya R. Moon, Ph.D
Chair, Institutional Review Board for the Social and Behavioral Sciences

UNIVERSITY *of* **VIRGINIA**

OFFICE OF THE VICE PRESIDENT FOR RESEARCH
INSTITUTIONAL REVIEW BOARD FOR THE SOCIAL AND BEHAVIORAL SCIENCES

In reply, please refer to: Project # 2010-0358-00
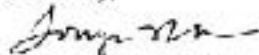
October 18, 2011

Qijie Cai
Daniel Duke
Leadership, Foundations & Policy
201 Marina Drive, Apt. 412
Tuscaloosa, AL 35406

Dear Qijie Cai and Daniel Duke:

The Institutional Review Board for the Behavioral Sciences has approved your October 10, 2011 modification request to your research project entitled "Structure and Functions of the Accountability Department in Virginia School Divisions." You may proceed with this study.

This project # 2010-0358-00 has been approved for the period October 18, 2011 to October 3, 2012. If the study continues beyond the approval period, you will need to submit a continuation request to the Review Board. If you make changes in the study, you will need to notify the Board of the changes.

Sincerely,

Tonya R. Moon, Ph.D.
Chair, Institutional Review Board for the Social and Behavioral Sciences

Appendix B   Informed Consent Agreement

Informed Consent Agreement

Please read this consent agreement carefully **before you decide** to participate in the study.

Purpose of the research study: The purpose of the study is threefold: 1) to describe the current structures and functions of accountability departments, 2) to identify the evolution of these units since their inception, as well as the rationales for the evolution, and 3) to describe any variation in the operation of accountability departments across different school divisions in Virginia.

In this study, accountability department is defined as an individual, formal unit of the central office. The title of the unit contains the word "accountability".

What you will do in the study: You will participate in an audio-taped interview about the characteristics of the accountability department and the evolution of the unit since its inception and provide supporting documents (i.e., job description, strategic plan, policy manual, and school board manual). You can skip any question during the interview that makes you uncomfortable, and you may conclude the interview at any point. You will also be asked to review the transcript of interview.

Time required: The study will require about __1.5__ hours of your time.

Risks: There are no anticipated risks in this study.

Benefits: There are no direct benefits to you for participating in this research study. Final results of the study will be shared with you and may help understand the structure and functions of the accountability department, as well as how this unit performs accountability functions required by the No Child Left Behind Act.

Confidentiality:

The information that you give in the study will be handled confidentially. Your information will be assigned a code number. The list connecting your name to this code will be kept in a locked file. When the study is completed and the data have been analyzed, this list will be destroyed. Your name will not be used in any report. Any audio recordings will be destroyed at the conclusion of the study.

Voluntary participation: Your participation in the study is completely voluntary.

Right to withdraw from the study: You have the right to withdraw from the study at any time without penalty

How to withdraw from the study:

Revision Date: 09-01-07

IRB-SBS Office Use Only		
Protocol #	2010-0594	
Approved SBS S of T	from: 10/4/10	to: 14/3/11

If you want to withdraw from the study, please notify the researcher. If you would like to withdraw from the study during the interview, please tell the interviewer to stop the interview. There is no penalty for withdrawing. If you would like to withdraw after your materials have been submitted, please contact:
Qijie Cai,
201 Marina Drive, Apt. 412, Tuscaloosa, AL, 35406
434-227-0922
qc9n@virginia.edu

Payment: You will receive no payment for participating in the study.

If you have questions about the study, contact:
Researcher: Qijie Cai
201 Marina Drive, Apt. 412, Tuscaloosa, AL, 35406
Telephone: (434) 227-0922
Fax: 205-348-0683
qc9n@virginia.edu

Faculty Advisor: Daniel L. Duke
Department of Leadership, Foundations and Policy
University of Virginia, Charlottesville, VA 22903.
Telephone: (434) 924-3979
dld7g@virginia.edu

If you have questions about your rights in the study, contact:
Tonya R. Moon, Ph.D.,
Chair, Institutional Review Board for the Social and Behavioral Sciences
One Morton Dr Suite 500
University of Virginia, P.O. Box 800392
Charlottesville, VA 22908-0392
Telephone: (434) 924-5999
Email: irbsbshelp@virginia.edu
Website: www.virginia.edu/vpr/irb

Agreement:
I agree to participate in the research study described above.

Signature: _____   Date: _____
You will receive a copy of this form for your records.

Revision Date: 09/01/07

IRB-SBS Office Use Only		
Protocol #		2010-0356
Approved SBS Staff	from 10/4/10	x 10/3/11

Appendix C   Invitation Letter Sent to the Checklist Respondents

Dear (Name of Director of Accountability Department),

My name is Qijie Cai. I am a doctoral candidate at the University of Virginia working on my dissertation. My advisor is Dr. Daniel Duke.

The purpose of my study is to identify the structure and functions of the Accountability Department/Office (i.e., a central office unit that performs accountability functions) of Virginia school divisions. Your department/office has been randomly selected to participate.

You will be asked to complete a **Function Checklist** about the structure and functions of your department. Your responses will increase our understanding of how the district central office performs the accountability functions under the current education policy.

The checklist will take about **10 minutes**. Your responses will be **ANONYMOUS**. You can complete and submit the checklist by clicking the following link: http://www.surveymonkey.com/s/J2PLSDS.

Please note that completing and submitting the survey constitutes consent to participate. (The approval letter from the Institutional Review Board is attached.)

Thank you very much.

If you have questions about the study, contact:
Researcher: Qijie Cai
201 Marina Drive, Apt. 412, Tuscaloosa, AL, 35406
Telephone: (434) 227-0922
Fax: 205-348-0683
qc9n@virginia.edu

Faculty Advisor: Daniel L. Duke
Department of Leadership, Foundations and Policy
University of Virginia, Charlottesville, VA 22903.
Telephone: (434) 924-3979
dld7g@virginia.edu

If you have questions about your rights in the study, contact:
Tonya R. Moon, Ph.D.,
Chair, Institutional Review Board for the Social and Behavioral Sciences,
P.O. Box 800392,
University of Virginia,
Charlottesville, VA 22908-0392.
Telephone: (434) 924-5999

Appendix D   Function Checklist

Description of the Checklist

The Function Checklist provides a common framework for examining the functions related to educational accountability. The checklist categories are developed based on the *No Child Left Behind* policy and a case study of two Virginia divisions.

You will be asked to:

1. respond to a set of background questions about the basic structure of your district and department, and

2. indicate the extent to which your department is involved in each function/activity listed in the survey.

It will take you about 10 minutes to complete the checklist. Your responses will be ANONYMOUS.

Thank you very much for participating in this survey.

Background information about the school division and the accountability department

1. What is the student population of your school division?

   ☐ Larger than 20,000 (14 divisions)

   ☐ 10,000 ~ 20,000 (14 divisions)

   ☐ 6,000 ~ 10,000 (15 divisions)

   ☐ 4,000 ~ 6,000 (22 divisions)

   ☐ 2,500 ~ 4,000 (22 divisions)

   ☐ 2,000 ~ 2,500 (13 divisions)

   ☐ 1,000 ~ 2,000 (19 divisions)

   ☐ Less than 1,000 (15 divisions)

2. How many full-time employees are working in your department?

   _____

3. How many people directly report to you in the department?

   _____

The following pages list a set of functions/activities related to educational accountability. Please indicate the extent to which your department is involved in EACH function/activity.

Function Checklist

The following pages list a set of functions/activities. Please indicate the extent to which **your department** is involved in EACH function/activity.

Functions/Activities	Extensive involvement	Moderate involvement	Limited involvement	No involvement
1. *State-wide* standardized testing				
1.1. Examine Student Data Upload files	E	M	L	N
1.2. Train School Test Coordinators (STC) on the testing procedures	E	M	L	N
1.3. Monitor and observe testing	E	M	L	N
1.4. Resolve technical problems	E	M	L	N
1.5. Organize logistic issues (e.g., pack and ship the test materials)	E	M	L	N
1.6. Disseminate test reports to students, parents, and schools	E	M	L	N
1.7. Prepare test reports to the school board	E	M	L	N
2. *Division-wide* assessment, if any				
2.1. Develop assessment questions	E	M	L	N
2.2. Train teachers on the testing procedures	E	M	L	N
2.3. Monitor and observe testing	E	M	L	N
2.4. Resolve technical problems	E	M	L	N
2.5. Grade students' responses	E	M	L	N
2.6. Organize logistic issues (e.g., print and distribute the test materials)	E	M	L	N
2.7. Disseminate test reports to students, parents, and schools	E	M	L	N
2.8. Prepare test reports to the school board	E	M	L	N
3. *Data management and data-driven decision making*				
3.1. Create and/or maintain a database of **test questions**	E	M	L	N
3.2. Create and/or maintain a database of **student test data**	E	M	L	N
3.3. Use data to identify division-wide strengths and weaknesses	E	M	L	N

3.4.	Use data to help principals and teachers understand student performance	E	M	L	N
3.5.	Use data to revise assessment questions (e.g., local tests)	E	M	L	N
3.6.	Communicate with teachers and principals on how to make **data-driven instructional decisions** (e.g., grouping students, determining the instructional focus, etc.)	E	M	L	N
4. Research and evaluation					
4.1.	Conduct research studies to support teaching and learning	E	M	L	N
4.2.	Evaluate school programs with respect to parental involvement, professional development, and other activities	E	M	L	N
5. Support for lower-performing schools					
5.1.	Identify schools for improvement, corrective action, and restructuring	E	M	L	N
5.2.	Assist in developing the school improvement plans	E	M	L	N
5.3.	Communicate more frequently and directly with these schools	E	M	L	N
5.4.	Recommend more professional development opportunities to these schools	E	M	L	N
5.5.	Recommend programs (e.g., after-school tutoring) targeted at these schools	E	M	L	N
6. Other support					
6.1.	Help develop/identify high-quality curriculum	E	M	L	N
6.2.	Help develop/identify effective instructional strategies	E	M	L	N
6.3.	Help implement parental involvement activities	E	M	L	N
6.4.	Help implement activities related to teacher quality improvement	E	M	L	N
7. Other functions/Activities:					

Appendix E   Interview Questions

General information	- What are the missions and goals of the Accountability Department? - What are the major functions of the department? - When was the Accountability Department created? - Why was the department created?
Hierarchy	- Who do you directly report to? - What are the reporting relationships within the department? - Have these been changed? And why?
Span of control	- How many people directly report to you in the department? - What titles do they have? - What kind of job tasks do you supervise? - Have these been changed? And why?
Division of labor	- What are the subunits in the Accountability Department, if any? - What are the job positions in the Accountability Department? - What are the major responsibilities of each subunit and/or position in the department? - Have these been changed? And why?
Procedure & Procedure standardization	- What are the functions/activities performed by the Accountability Department? - How does the department perform each function/activity? - Are there any rules that guide the process? What are they? - Have these been changed? And why?
Specialist role	- Are there any job positions that require special training or credentials? - What are these jobs? - What training or credentials are required? - What are the responsibilities of these jobs? - Have these been changed? And why?
Role standardization	- Are there any rules that define the job positions? - Are there any rules that suggest the qualifications for the jobs? - Are there any rules that suggest what job behaviors are appropriate for producing the desired outcomes? - Have these been changed? And why?
Formalization	- Are there any written policies, rules, and regulations guiding the operation of the department? - What are they about?