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THE ASSOCIATION OF STUDENT ACHIEVEMENT AND THE FREQUENCY OF CURRICULUM SUPERVISION AND EVALUATION PRACTICES OF PRINCIPALS ACROSS COMPARABLE SCHOOL CLUSTERS

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THE ASSOCIATION OF STUDENT ACHIEVEMENT AND THE FREQUENCY OF
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ACROSS COMPARABLE SCHOOL CLUSTERS

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by

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My application for enrollment into the Ph.D. program at VCU was submitted before the COVID-19 pandemic. A lot has changed since then. I remember telling my dad I wanted to earn my doctorate by 2024. At the time, he was in critical care at Duke University Hospital, battling glioblastoma, a brain cancer. I remember him smiling with excitement when he heard about my ambitions. During my first semester in the program, my father passed away. It was a challenging semester, both in grieving my father's passing and working full-time in a school district during a pandemic. For me, the first semester of the program was by far the most challenging. At times, I contemplated if I should pause my studies until life was a little easier. However, I recall receiving so much support from my family, friends, colleagues, professors, and classmates that I continued forward with my studies. I remember the many conversations with friends and families, the words of encouragement from my colleagues, and the support and sympathy from my professors and classmates.

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DEDICATION

This dissertation is dedicated to my family: my wife, Renée Jeanne Reynolds; to my sons, James Sydnor Reynolds, V, and Hugh Jakob Reynolds; to my father, James Sydnor Reynolds, III; to my mother, Rita Campbell Reynolds; and to my two sisters, Kristen Kiewiet de Jonge, and Lindsey Hix. I am forever grateful for their constant love and support.

ABSTRACT

This study examined the frequency of principals' curriculum supervision and evaluation practices across comparable school clusters. It was hypothesized that principals of the schools at the top of each cluster, sorted by student achievement, are more frequently involved in practices pertaining to the evaluation and supervision of written, taught, and tested curricula. Schools were grouped based on their enrollment and demographics using a cluster analysis approach, sorted from greatest to least by their composite student achievement score, then classified as a top or bottom-performing school within their cluster. This study identified differences in the frequency of the principal's curriculum leadership practices of schools in the top half and top tertile of each cluster compared to the schools in the bottom half and bottom tertile of each cluster. Further, this study determined the extent to which these practices changed prior to and after the initial outbreak of the pandemic. Several statistical differences were discovered, indicating principals were more engaged in curriculum practices within schools in the bottom half and bottom tertile of each cluster. Findings also suggested a statistically significant increase in the frequency of many curriculum leadership practices from the 2018-2019 school year to the 2021-2022 school year.

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Educational leadership is a broad term that includes many roles and responsibilities of school administrators. Principals operate as educational leaders, overseeing both instruction and business operations for their schools. These responsibilities require different knowledge and skills that can be funneled into two categories: operational management and instructional leadership (Sebastian et al., 2019). Instructional leadership is multidimensional and can be narrowed into more specific domains. Hallinger (2005) reconceptualized instructional leadership as tasks which focus on the following:

- "creating a shared sense of purpose in the school, including clear goals focused on student learning;
- fostering the continuous improvement of the school through cyclical school development planning that involves a wide range of stakeholder;
- developing a climate of high expectations and a school culture aimed at innovation and improvement of teaching and learning;
- coordinating the curriculum and monitoring student learning outcomes;
- shaking the reward structure of the school to reflect the school's mission;
- organizing and monitoring a wide range of activities aimed at the continuous development of staff; and
- being a visible presence in the school, modeling the desired values of the school's culture" (p. 233).

As noted, instructional leadership is an extensive concept with many layers. Hattie (2015) further explains principals who serve as instructional leaders are "concerned with the teachers' and the school impact on student learning and instructional issues, conducting classroom observations, ensuring professional development that enhances student learning, communicating high academic standards, and ensuring that all school environments are conducive to learning" (p. 37). Between Hallinger (2005) and Hattie (2015), there are many parallels that tie instructional leadership to a focus on students and their learning outcomes.

More narrowly, curriculum leadership is a facet of instructional leadership that involves

"coordinating the curriculum and monitoring student learning outcomes" (Hallinger, p. 13,

2005). Curriculum leadership includes evaluating the written, taught, and assessed curriculum for

alignment, quality of design, and implementation, as well as supervising each of these

curriculum domains by building staff capacity through ongoing feedback, support, and

professional development. Sorenson et al. (2011) define curriculum leadership as "connecting

curriculum, instruction, assessment, and evaluation to improve learning and understanding" (p.

8). Research has shown that principals who serve as curriculum leaders can positively impact

student achievement (Valentine & Prater, 2011). Effective principals are central to curriculum

supervision and evaluation practices within their schools (Steller, 1988). However, the frequency

with which principals participate in these curriculum practices differs across schools (Hallinger

& Heck, 1998).

Curriculum Leadership in Differing School Contexts

Insight into which curriculum leadership practices have a significant association with student

achievement would be beneficial to all school leaders. However, before this inquiry, it is

essential to consider how success in student achievement is determined. For example, if School

A, School B, and School C are in Cluster 1 (see Table 1 below) with similar percentages of

students identified as economically disadvantaged, disabled, and English learners, 98%, 99% and

78% of students pass the end-of-year mathematics assessments, respectively, are all three schools

considered to have the same success? One may argue that the school with 78% of students

passing is not as successful when compared to other similar schools. What if three schools,

School E, School F, and School G are in Cluster 2 with similar school characteristics and have

34%, 36%, and 73% of students pass the end-of-year mathematics assessments, respectively?

One could argue School G is more successful than the other two schools of similar

characteristics.

Table 1
Example of Clustering School Demographics

Clust . #	Schools in Cluster	Enrol lment (Avg)	Econ Dis. (%)	Disabl ed (%)	Engl. Learn (%)	Asian (%)	Black (%)	Hispa nic (%)	White (%)	Mult Race (%)
1	A, B, C	1252	3.6	7.9	12.8	39.1	7.5	7.3	41.0	5.1
2	E, F, G	431	84.9	19.7	45.4	2.4	28.3	30.6	32.7	6.0

However, what if we compare School G to School C? Are the instructional practices within

School C (78%) more successful than School G (73%)? When considering their success within

comparable school clusters, one may argue that School G is more successful in implementing

instructional practices as it stands out among comparable schools within its cluster. School G is

at the top of its cluster; School C is at the bottom of its cluster. Consideration of school

characteristics (e.g., enrollment count, percentage of students with disabilities, percentage of

economically disadvantaged) is often excluded when identifying successful schools and using

these schools in research for identifying best curriculum-related practices. Limited research has

considered school characteristics during data analyses to measure success in student

achievement. Even fewer studies utilize comparable school clusters in the identification of

success. There needs to be research combining the identification of successful schools across

comparable school clusters and analyzing the frequency of curriculum leadership practices of

principals.

Curriculum Leadership and the COVID-19 Pandemic

The historic disruption of schooling caused by the COVID-19 pandemic has continued to impact education in various ways. A clear implication of school closures in the Spring of 2020 and then a shift to online or blended learning in the Fall of 2020 was the major disruption of the educational setting (Depuydt, 2021). During the 2020-2021 and 2021-2022 school years, as instruction transitioned back to in-person learning, schools looked and felt different. A majority of administrative conversations, decisions, and practices were dominated by the operational side of running a school building. From online or blended learning to in-person instruction, schools were no longer the same. The day-to-day logistics for all stakeholders involved in education have continued to shift tremendously. In particular, principals' routines and curriculum-related practices were significantly impacted by the COVID-19 pandemic (Depuydt, 2021).

The daunting task of envisioning a new world of education and preparing teachers and staff felt as if administrators were standing at the remains of a recently demolished building. For example, during the 2019-2020, 2020-2021, and 2021-2022 school years, principals and other administrators in Virginia spent an overwhelming amount of time-solving logistical problems by considering operational constraints set by the Virginia Department of Health (VDH), the Center for Disease Control (CDC), and the Virginia Department of Education (VDOE). Outlined in various memorandums, constraints pertaining to instruction, physical distancing, gathering limits, bus capacities, health screenings and temperature checks, face coverings, athletics and extracurricular activities, cleaning, and facility requirements made the 2019-2020, 2020-2021, and 2021-2022 years feel like a complex optimization problem, pushing principals and other administrators to seek innovative solutions continuously. Before the pandemic, however, several

studies show the significance of instructional leadership and principals' impact on teaching and learning (Kearney & Herrington, 2010; Leithwood & Riehl, 2003; Marzano et al., 2005; Pajak & McAfee, 1992). In particular, the curriculum practices a principal enacts throughout the school year can lead to meaningful results (Cotton, 2003). The COVID-19 pandemic resulted in principals investing less time in curriculum leadership practices due to the increased time spent on solving operational and logistical problems within the school (Nielsen, 2021).

This research aims to investigate the differences in the frequency of curriculum supervision and evaluation practices and their association with student achievement and explore this relationship across homogeneous school clusters. In addition, this research aims to compare practices before and after the initial impacts of the COVID-19 pandemic by examining the frequency of principals' curriculum practices during the 2018-2019 and 2021-2022 school years (e.g., pre-post pandemic). The remaining portions of this chapter introduce the study by first discussing the research problem, the significance of the study, the purpose statement, and the theoretical framework, followed by research questions, a summary of the methodology, and finally, the anticipated limitations. Definitions of key terms are provided at the end of this chapter.

Statement of Problem

The supervision and evaluation of a school's written, taught, and assessed curriculum is at the discretion of the principal within each school; therefore, there likely exist differences in the frequency of the implementation of these practices. In addition, the COVID-19 pandemic has affected the day-to-day operations within schools (Nielsen, 2021). These pandemic-related disruptions to education likely influenced the frequency of principals' curriculum leadership

practices as the complexities of operating a school increased during the pandemic. There is limited research studying principals' curriculum leadership practices across schools with similar demographics.

This research explores the association between the frequency of principals' curriculum leadership practices and student achievement across comparable school clusters. Identifying any association between curriculum supervision and evaluation practices and student achievement across comparable schools will provide further significance to the impact of these curriculum leadership practices. Additionally, this research will investigate the impact the COVID-19 pandemic has had on the frequency principals participate in curriculum leadership practices between the 2018-2019 and 2021-2022 school years. Understanding how leadership practices changed helps provide further insight into the initial impact the COVID-19 pandemic had on education.

Significance

There are considerable differences across schools regarding their size, demographics, funding, and available resources. Yet, one common thread among all schools is the existence of a school principal - each making important decisions that impact the daily instructional and operational functions of their building. Hattie (2015) identifies the overall effect size from instructional leaders as 0.42. We also know principals' decisions significantly impact school effectiveness and student achievement (Liebowitz & Porter, 2019). Based on six studies of data with more than 22,000 principals across four states, Grissom et al. (2021) research concluded "principals matter substantially" (p. *xiii*). Additionally, we know that the role and responsibilities of school leaders are complex (Grissom & Leob, 2011).

Hallinger and Heck (1998) explain that many leadership practices differ among school buildings. However, regardless of the school's characteristics, many leadership practices could be implemented in any building. A few examples of leadership practices include instructional leadership strategies specific to monitoring curriculum pacing, alignment, and rigor, administering benchmark assessments, providing adequate time for educators to plan and collaborate, discipline procedures, remediation plans, data collection and analysis, professional development offerings, and scheduling decisions.

While many studies have shown significance in curriculum practices (Stuhlman, 2000; Minor, 2014), limited research remains on the frequency of principals' curriculum supervision and evaluation practices and their association with student achievement across homogeneous school clusters. Additionally, there is limited research regarding curriculum supervision and evaluation of principal practices before and after the COVID-19 pandemic. These pre and post-pandemic measures are captured by the 2018-2019 and 2021-2022 school years. Finally, a closer look at homogeneous groups assists in identifying the patterns in leadership practices that are associated with higher levels of achievement and yield more growth, specifically in schools with similar enrollment and demographic characteristics.

Statement of Purpose

This study aims to determine the frequency of curriculum supervision and evaluation practices across schools with higher rates of student achievement across homogeneous clusters. It was hypothesized that principals of the schools at the top of each cluster, sorted by student achievement, were more frequently involved in practices pertaining to the evaluation and supervision of written, taught, and tested curricula. Schools were grouped based on their

enrollment and demographics using a cluster analysis approach. They were sorted from greatest to least by their composite student achievement score, then classified as a top or bottom-performing school within their cluster. This study evaluated if academic performance is influenced by the frequency of the principal's curriculum leadership practices and the extent to which these practices changed prior to and after the pandemic.

Conceptual Framework

The conceptual framework draws on different principal roles and responsibilities dimensions. The framework begins by broadly examining the leadership roles of school principals through research on educational leadership (a holistic lens on the responsibilities of principals), then narrows in on principals' instructional leadership qualities and further their practices which pertain to curriculum supervision and evaluation. Figure 1 below illustrates the narrowing of the framework used for this research.
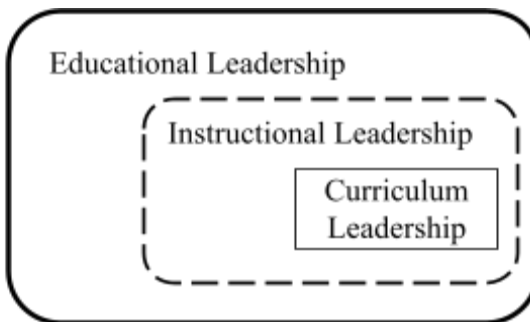
Figure 1. Narrowing of Conceptual Framework.

Educational leadership includes both the business-related and instructional leadership of a principal. Instructional leadership includes all activities that relate to the management of instruction within a school. Curriculum supervision and evaluation practices are specific to actions that improve the written, taught, and assessed curriculum and promote a learning

community.

<u>Educational Leadership</u>

The principal's role in educational leadership is not always clearly defined in the literature. Markle and Vankovering (2013) write, "the complex, responsive nature of school leadership makes it difficult to predict what each day will bring, and thus, successful principals are those individuals who can comfortably adjust when necessary" (p. 9). At any given moment, a principal may be required to pivot and shift their attention to a more immediate priority. Although the roles and responsibilities of a principal are vast, Glatthorn et al. (2019) explain the imperativeness for modern-day principals to (a) have a strong understanding of the curriculum, (b) fully comprehend the curriculum cycle and alignment process, and (c) respond to issues pertaining to curricula with solutions tailored to teaching and learning at all levels.

The National Policy Board for Educational Administration (NPBEA) is a group of organizations committed to improving school and school-system leadership. Through an alliance of research-based organizations, the NPBEA endorsed a set of professional standards for school leaders. These standards include the latest research indicating what students need to be successful (Reston, 2015).

Based on NPBEA research, the following standards were established:

1. Mission, Vision, and Core Values

2. Ethics and professional Norms

3. Equity and Cultural Responsiveness

4. Curriculum, Instruction and Assessment

5. Community of Care and Support for Students

6. Professional Capacity of School Personnel

7. Professional Community for Teachers and Staff

8. Meaningful Engagement of Families and Community

9. Operations and Management

10. School Improvement

The professional standards listed are written through the holistic lens of educational leadership. Although there is an overlap between the standards, the research in this dissertation is primarily focused on the fourth standard: Curriculum, Instruction, and Assessment. Reston (2015) writes, "effective educational leaders develop and support intellectually rigorous and coherent systems of curriculum, instruction, and assessment to promote each student's academic success and well-being" (p. 12). Furthermore, NPBEA expands by highlighting the actions of effective leaders. Reston (2015) states effective leaders implement, align, and focus "coherent systems of curriculum, instruction, and assessment," promote and ensure instructional practices that are challenging and differentiated, encourage "the effective use of technology," employ "valid assessments," and use academic data (p. 12). NPBEA advocates for states to include these standards and associated actions in performance evaluation systems for school leaders.

It is important to note that states may define educational leadership and evaluate principals differently. In Virginia, for example, public school principals are evaluated using similar uniform performance standards. The performance standards define the expected criteria relating to the major duties and responsibilities of principals. Similar to NPBEA, the standards are further broken down to include performance indicators, which are examples of observable behavior that indicate how the principal is meeting the standard.

Since the data used in this research is pulled from the Virginia Department of Education and participants of the survey reside and practice in Virginia, it is important to elaborate on Virginia's principal evaluation system. Figure 2 below highlights the different pillars of Virginia's evaluation system designed for school principals. The evaluation system was developed based on a synthesis of research.
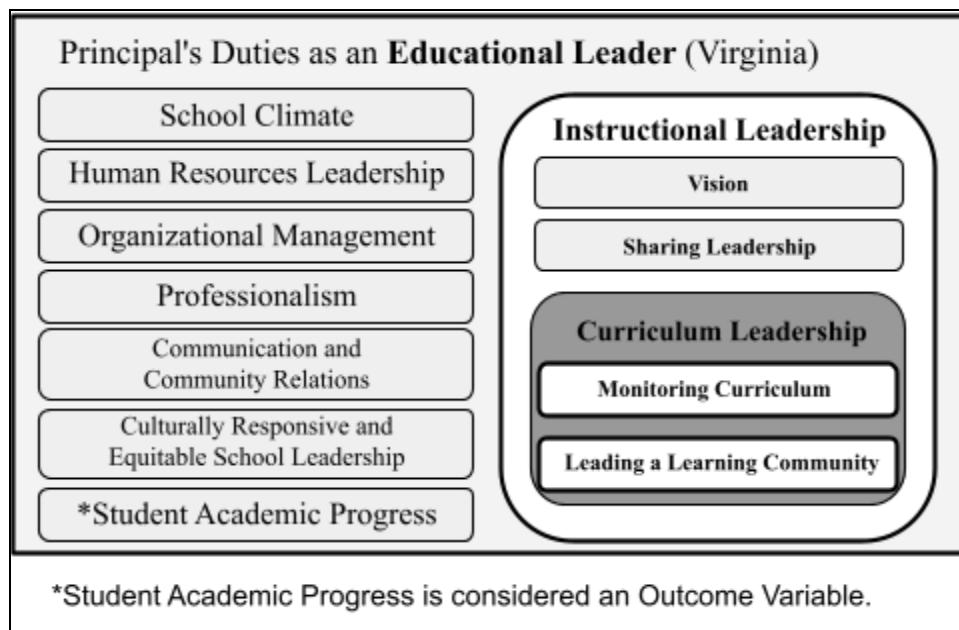
Figure 2. Principal's Duties as an Educational Leader (Virginia)

The *Guidelines for Uniform Performance Standards and Evaluation Criteria for Principals* (2022) include the following principal performance standards for Virginia school leaders:

1. Instructional Leadership - The principal fosters the success of all students by facilitating the development, communication, implementation, and evaluation of a shared vision of teaching and learning that leads to student academic progress and school improvement.

2. School Climate - The principal fosters the success of all students by developing,

advocating, and sustaining an academically rigorous, positive, and safe school

climate for all stakeholders.

3. Human Resources Management - The principal fosters effective human resources

management by assisting with selection and induction and by supporting,

evaluating, and retaining quality instructional and support personnel.

4. Organizational Management - The principal fosters the success of all students by

supporting, managing, and overseeing the school's organization, operation, and

use of resources.

5. Communication and Community Relations - The principal fosters the success of

all students by communicating and collaborating effectively with stakeholders.

6. Culturally Responsive and Equitable School Leadership - The principal

demonstrates a commitment to equity and fosters culturally inclusive and

responsive practices aligned with division and school goals, priorities, and

strategies that support achievement for all students.

7. Professionalism - The principal fosters the success of all students by

demonstrating professional standards and ethics, engaging in continuous

professional development, and contributing to the profession.

8. Student Academic Progress - The principal's leadership results in acceptable,

measurable student academic progress based on established standards. (p. 7-8).

Similar to the standards set forth by NPBEA, Virginia's principal performance standards also

serve as a holistic measure of the effectiveness of a principal's educational leadership. For the

purposes of this research, only a portion of the first principal performance standard, Instructional

Leadership, will be examined. Based on the research of Stronge and Leeper (2012), the Virginia Department of Education (VDOE) furthers the definition of instructional leadership.

<u>Instructional Leadership</u>

Defined as a focus of factors that promote and support teaching and learning, instructional leadership is unpacked by Stronge and Leeper (2012) into four domains: vision, sharing leadership, leading a learning community, and monitoring curriculum and instruction.

The instructional leadership indicators specific to Virginia public school principals as outlined by *The Guidelines for Uniform Performance Standards and Evaluation Criteria for Principals* (2022) are as follows:

1.1 Leads the collaborative development and sustainment of a compelling shared vision for educational improvement and works collaboratively with staff, students, parents, and other stakeholders to develop a mission and programs consistent with the division's strategic plan.

1.2 Collaboratively plans, implements, supports, monitors, and evaluates instructional programs that enhance teaching and student academic progress and lead to school improvement.

1.3 Connects both initiatives and innovative strategies to maximize the achievement of each student.

1.4 Analyzes current academic achievement data and instructional strategies to make appropriate educational decisions to improve classroom instruction, increase student achievement, and improve overall school effectiveness.

1.5 Acquires and shares knowledge of research-based instructional best practices in

the classroom.

1.6   Works collaboratively with staff to identify student needs and to design, revise, and monitor instruction to ensure effective delivery of the required curriculum.

1.7   Generates, aligns, and leverages resources for the successful implementation of effective instructional strategies.

1.8   Monitors and evaluates the use of diagnostic, formative, and summative assessment to provide timely and accurate feedback to students and parents and to inform instructional practices.

1.9   Provides collaborative leadership for the design and implementation of efficient schedules that protect and maximize instructional time.

1.10   Provides the expectation and focus for continuous learning of all members of the school community.

1.11   Promotes and supports professional development and instructional planning and delivery practices that incorporate the use of achievement data and result in increased student progress.

1.12   Demonstrates the importance of sustained professional development by participating in and providing adequate time and resources for teachers and staff for professional learning (i.e., peer observation, mentoring, coaching, study groups, learning teams, action research).

1.13   Evaluates the impact professional development has on the staff, instructional practices, school improvement, and student academic progress.

The performance of a principal is determined at the standard level rather than the indicator level.

The indicators for exemplary principal performance are listed above; however, it is important to note that the list of indicators is not exhaustive.

The research included in this dissertation focused on two of the four domains outlined by VDOE's evaluation of the instructional leadership of principals that are directly related to curriculum leadership: leading a learning community and monitoring curriculum and instruction. Most of the indicators listed above are connected to these two domains. For example, indicator 1.2 states, "collaboratively plans, implements, supports, monitors, and evaluates instructional programs." To do this, a principal must implement curriculum supervision and evaluation practices. Indicator 1.4 states, "generates, aligns, and leverages resources for the successful implementation of effective instructional strategies," which requires a principal to monitor the alignment of the written, taught, and assessed curriculum. Finally, indicator 1.11 includes "promotes and supports professional development," which is included as one of the curriculum supervision practices of an instructional leader.

Supervision and evaluation of the written, taught, and assessed curriculum is critical to school reform (Glatthorn et al., 2019). Research supports principals' role in leading professional development initiatives by providing meaningful staff development (Marzano et al., 2005). Further, research supports the principal's involvement in ongoing professional development - specifically learning alongside educators (Pristine & Nelson, 2003).

Curriculum Supervision and Evaluation Practices

Kienapfel (1984) writes, "good schools and good programs don't just happen. Where there is a good school and a good program, there will also be a principal doing a good job of curriculum supervision" (p. 52). He continues, "curriculum supervision without some sort of

periodic evaluation is neither complete nor effective" (Kienapfel, 1984, p. 56). This distinction

between supervision and evaluation is an essential concept for this research. Curriculum

supervision and evaluation practices encompass two of the four domains outlined in Virginia's

Performance Evaluation Standards for principals: curriculum leadership and leading a learning

community.

Curriculum supervision is an active and ongoing process that involves facilitating the

school's evidence-based curriculum practices and procedures. Mwambo (2022) defines

curriculum supervision as "improving instruction, increasing teacher satisfaction, creating

learning communities, [and] expanding students' classroom events" (p. 6). On the other hand,

curriculum evaluation is a formal process that is reflective in nature and measures the

effectiveness of supervision. McCormick and James (2018) define curriculum evaluation as "the

task to ascertain whether or not the pre-specified goals (aims and objectives) have been

achieved" (p. 98). In other words, supervision practices include preparation and training, whereas

the evaluation encompasses the effectiveness of those practices through monitoring or formal

observations.

The practices related to supervising and evaluating curriculum can be divided across

three of the domains outlined in Glatthorn et al. (2019): the written, taught, and assessed

curriculum. The practices for supervising and evaluating each domain are different but have

common threads, such as alignment, the quality of design, and implementation. *Figure 3* below

provides a structure for this framework.

Principals' Curriculum Leadership Practices	Written Curriculum	Taught Curriculum	Assessed Curriculum
Supervision (active) building capacity	Development & Organization	Instructional Coaching	Cyclical Data Analysis
Evaluation (reflective) assigning merit	Monitoring Artifacts	Formal Observations	Quality & Validity

Figure 3. Supervision and evaluation practices for written, taught, and assessed curriculum

The following three categories, based on commonalities across literature, have been developed for these curriculum leadership concepts to summarize curriculum supervision practices: development and organization, instructional coaching, and cyclical data analysis. Likewise, the following three categories were created for curriculum evaluation practices across the written, taught, and assessed domains: monitoring artifacts, formal observations, and quality and validity. Grissom et al. (2021) highlight the importance of some of these actions by stating "forms of engagement with teachers that center on instructional practice, such as teacher evaluation, instructional coaching, and the establishment of data-driven, school-wide instructional program to facilitate such interactions" is a skill and expertise needed to be successful (p. *xv*).

Written Curriculum

The written curriculum includes all documents and materials which support instruction. For example, pacing guides, curriculum guides, written lesson plans, textbooks, worksheets, activities, materials, and other resources used for instruction. English and Steffy (2001) simply define a written curriculum as "the plan of work" (p. 89). Glatthorn et al. (2019) expand this definition as "the written curriculum indicates a rationale that supports the curriculum, the

general goals to be accomplished, the specific objectives to be mastered, the sequence in which those objectives should be studied, and the kinds of learning activities that should be used" (p. 464).

Supervision practices of the written curriculum were categorized as Development & Organization. Based on research by Kearney & Harrington (2010), Leithwood & Riehl (2003), Fink & Resnick (2001), Marzano et al. (2005), and Cotton (2003), the following are examples of practices that are classified as curriculum supervision of written curricula were developed by synthesizing the stated literature:

The principal

- ensures staff has access to local pacing and curriculum guides through a well-maintained and organized curriculum platform,
- sets a curriculum development schedule and protocol within the school,
- communicates clear expectations for lessons plans, and
- has conversations about expectations regarding curriculum alignment.

These practices may take a different form, depending on the school setting and available resources. However, the idea behind these practices remains the same. Pajak and McAfee (1992) explain that "outstanding principals agree that certain knowledge, attitudes, and skills related to the curriculum were relevant to the effective performance of their jobs with respect to curriculum" (p. 23). Included on this list is "assisting teachers in understanding curriculum materials [and] establishing reasonable time frames for curriculum implementation" (p. 24). A well-organized curriculum platform is essential for staff to have clear expectations for instruction, space, and common language to collaborate effectively.

A clearly defined curriculum development schedule and process ensure quality curriculum documents and materials are created and stored for current and future educators. Oliva & Gordon (2019) explain, "if the curriculum is perceived as a plan for the learning experience that young people encounter under the direction of the school, its purpose is to provide a vehicle for ordering and directing those experiences" (p. 19). Oliva & Gordon (2019) continue, "both leaders and followers need to develop skills in [the] group process. Among the competencies necessary for the curriculum leader are skills in producing change, in decision making, in interpersonal relationships, in leading groups, and in communicating" (p. 99).

When principals communicate clear expectations for lesson plans, educators are more likely to engage in those behaviors. Sorenson et al. write, "curricular leadership demands high principal expectations. High expectations propel every individual in a school to greater levels of efficiency and excellence" (p. 55). In addition, when principals have conversations about curriculum alignment, noting the importance of content and cognitive level, educators become more intentional and informed when developing or selecting curriculum materials and resources. English (2001) points out, "alignment can work, but cheap alignment, which consists only of providing information to teachers without the support of supervisors and administrators, is not likely to be effective" (p. 97).

Evaluation practices of the written curriculum were categorized as <u>Monitoring Artifacts</u>. Grounded on research by Fink & Resnick (2001), Pajak & McAfee (1992), Ruebling et al. (2004), the following examples of practices that may be classified as curriculum evaluation of written curricula were developed by synthesizing literature:

The principal

- evaluates the alignment of curriculum materials and resources,

- evaluates the alignment of lesson plans,

- assesses lesson plans for the quality of lesson design, and

- evaluates the scope and sequence of lesson plans.

The principal's role in evaluating the alignment of curriculum materials and resources is critical to ensuring the reliability of the desired outcome in student learning. Similarly, an evaluation of an aligned lesson plan is important to ensure instruction is prepared based on plans which are centered on the intended outcome. Squires (2012) writes, "when instruction is aligned with curriculum-embedded tests (and students have the opportunity for reteaching on the test's content), student outcomes tend to improve" (p. 95). In addition to the alignment of the lesson plans, the quality of the lesson design should also be evaluated to determine if it is producing the most yield in student understanding. Finally, the scope and sequence of a lesson plan are important to evaluate as it captures the pace and depth of a curriculum. Pajak and McAfee (1992) suggest evaluating the scope and sequence of the curriculum as one of the important roles of the principal.

Taught Curriculum

The taught curriculum is the instruction of the written curriculum. Supervision practices of the taught curriculum are categorized as Instructional Coaching, as it focuses on the development of teacher and staff capacities. The act of supporting taught instruction can come in a variety of forms. For example, professional learning opportunities, informal observations or walkthroughs with follow-up support and feedback, and peer observations are all effective

curriculum supervision practices (Cotton, 2003). Established on research by Kraft et al. (2018), Marzano et al. (2005), Prestine & Nelson (2003), Portin et at. (2003), the following are considered examples of curriculum supervision practices:

The principal

- Assigns targeted professional development to individual staff based on need,

- Participates alongside teachers in professional development when instructional strategies are being taught for future implementation,

- Visits classrooms prior to formal observations,

- Follows-up with staff to provide detailed, constructive feedback after informal visits, and

- Require teachers to complete peer observations.

Being intentional with professional development assignments by providing meaningful learning opportunities is a best practice when building an individual's capacity (Marzano et al., 2005). Equally important is the principal's investment in professional development. As effective curriculum leaders, principals should participate in professional learning alongside staff to stay current on best practices (Prestine & Nelson, 2003). Principals must be knowledgeable about effective curriculum, instruction, and assessment practices to help facilitate conversations around teaching and learning (Grissom et al., 2021; Fullan, 2001).

Principals should visit classrooms and provide detailed, constructive feedback before formally observing or evaluating staff (Grissom et at., 2021; Fink & Resnick, 2001; Pajak & McAfee, 1992; Ruebling et al., 2004). Glatthorn et al. (2019) write, "the purpose of a walk-through is not to pass judgment on teachers but to coach them to higher levels of

performance. Walk-throughs are not teacher evaluations; they are a method for identifying opportunities for improvement and supporting the sharing of best practices across the school" (p. 245). Heck (1992) concluded "the amount of time principals spend directly observing classroom practices was one of the three most important predictors of student achievement" (p. 30). Finally, peer observations have been shown to influence teacher growth positively (Vincent, 2018).

Evaluation practices of the taught curriculum were classified as Formal Observations. Many researchers (Butler, 1997; DeBevoise, 1984) have identified a link between classroom observations and student achievement. Fink & Resnick (2001), Marzano et al. (2005), Pajak & McAfee (1992), and Ruebling et al. (2004) provided research to establish examples of evaluating taught curriculum:

The principal

- evaluates the alignment of verbal instruction to the curriculum standards,

- evaluates the quality of the instructional delivery, and

- evaluates the pace of the instruction.

The evaluation of the alignment between the written curriculum and the verbal instruction includes an assessment of the verbal instruction to the content vocabulary. For example, is the teacher using the correct academic language when teaching? Evaluating the alignment of the taught curriculum is essential to ensure students are receiving the appropriate content and cognitive level of instruction. Bradley et al. (2018) write, "unfortunately,...developing learning objectives does not always reflect the actual teaching and learning that occurs in the classroom" (p. 81). The alignment between the content or cognitive level of the written curriculum and the instruction may be off. Squires's (2009) research indicated that aligned instruction is linked to

increased student outcomes. Therefore, it is important for principals to review this alignment when completing observations.

Principals should also review the quality of the instructional delivery to determine if the students are getting the most out of the lesson. For example, is the teacher using the appropriate scaffolds and providing appropriate support to students during instruction? Is the teacher using formative assessments during instruction to check for student understanding? Having an ongoing pulse of student understanding and being responsive to their needs significantly impacts the effectiveness of instruction (Black & Williams, 2010).

Finally, the quality of lesson implementation requires evaluation as it is tied to the pace of the instruction. For example, is the instructional delivery the appropriate speed? Are there structures in place to maximize learning time? Kelleher (2015) writes, "Teachers who hold high expectations for students and are clear about the desired outcomes for them consider it a matter of necessity to create a sense of urgency in the classroom every day" (p. 26). When teachers teach with a sense of urgency and maximize the learning time, students show more academic growth (Kotter, 2008).

Assessed Curriculum

The assessed curriculum includes practices relating to formative and summative assessments within the classroom. Assessments are a critical part of teaching and learning and help increase student achievement (Group, 2001). The supervision of the assessed curriculum may be classified as Cyclical Data Analysis as the process of both reviewing and improving the development and administration of assessments include collecting data and providing feedback to educators. Data may be in the form of results from common assessments or data and

conversations that follow from using tools that check the alignment of assessments. One

common tool is a table of specifications, which measures the content and cognitive level of an

assessment. Based on research by Kearney and Harrington (2010), Marzano et al. (2005), Cotton

(2003), and Leithwood and Riehl (2003), the following examples of principal supervision

practices for cyclical data analysis were developed by synthesizing literature:

- administering common assessments,

- training teachers in assessment development,

- analyzing data over time to look for student performance trends to identify

  strengths and limitations of instructional practices, curriculum, research-based

  interventions, and student services,

- providing opportunities for instructional staff to participate in data-centered

  discussions to make instructional decisions,

- collecting, compiling, analyzing, and using relevant student group data to

  determine appropriate professional development, and

- set accountability measures for improvement.

Administering common assessments provides a way to supervise and monitor instruction

across a school. In addition, it allows for a principal to ensure the targeted learning outcome is

the same for all students studying the same course. Erkens (2016) writes, "when common

assessments are developed and employed properly, as a collaborative, formative system aimed at

improving learning for teachers and learners alike, the gains in teacher efficacy and student

achievement can be staggering" (p. 4). Training teachers in assessment development extends the

reliability and validity of classroom assessments created by teachers for individual classes.

Analyzing data over time, in a cyclical process, provides the principal with insight into students' understanding and the students overall educational experience. The practice of using data to make informed decisions is critical for student success and school improvement. Cotton (2003) writes, "given the principals' interest in promoting learning gains, it is not surprising that the schools are characterized not only by high achievement but also by a norm of continuous improvement" (p. 29). Information from data analysis allows principals to arrange targeted professional development for areas of need. These professional development offerings should be systematic, intensive, and ongoing (Mastropieri & Scruggs, 2007). Finally, during a cyclical data analysis, principals need to consider actionable steps by identifying goals for improvement. Pajak and McAfee (1992) identify setting goals and objectives as an essential skill for principals in regard to curriculum. This actionable next step pushes a school forward in improvement to better meet students' needs.

The evaluation of the assessed curriculum can be categorized as <u>Quality & Validity.</u> After providing staff with the capacity to develop assessments, the principal must continue to evaluate assessments to ensure the quality of design and administration is maintained. Based on a synthesis of the literature, principals' curriculum evaluation practices relating to assessments include the following:

The principal

- evaluates the alignment of classroom assessments,

- evaluates the design of classroom assessments, and

- evaluates the administration of classroom assessments.

Evaluating the alignment of classroom assessments allows principals to determine if the

supervision of the alignment is effective. Squires (2009) provides research on the four criteria for alignment of assessments to the written curriculum: content, performance, level of difficulty, and balance and range (Rothman, Slattery, Vranek, & Resnick, 2003). Content refers to the direct mapping to the standards, Squires (2009) explains; performance considers the appropriate skills; level of difficulty questions the rigor of the assessment; and, balance and range asks, "does the test as a whole gauge the depth and breadth of the standards and objectives outlined in the state standard documents" (p. 51). All four criteria are important when considering the alignment of state standards to assessments administered.

Similar to alignment, a formal evaluation of the design of classroom assessments and the administration of these assessments provides the principal with insight into how to make significant improvements in the supervision of these practices. Three types of assessments include traditional assessments, performance assessments, and portfolio assessments. Quansah (2018) writes, "assessment is changing for many reasons. Changes in the skills and knowledge needed for success; in an understanding of how students learn; and in the relationship between assessment and instruction have necessitated the change in assessment strategies" (p. 21). Traditional assessments include conventional methods of testing students' knowledge. Traditional assessments include quizzes and tests. Performance assessments target real-life context and skills with the taught content. For example, a performance assessment may include tasks where students construct something. Finally, Qiamsah (2018) defines an assessment portfolio as "a compendium of reports, papers, and other material, together with the student's reflection on his or her learning and on strengths and weaknesses" (p. 22). Depending on the knowledge or skills required, one form of assessment design may be preferred over another.

Commonalities Across Curriculum Practices

Perhaps the most dominant thread across curriculum supervision and evaluation practices is the concept of alignment. Developed by Dr. Fenwick W. English, the curriculum management audit process was first implemented in 1979 (Minor, 2014). A curriculum audit is a systematic process that examines the alignment of written, taught, and assessed curriculum within a school or school system. Squires (2012) defines alignment as "an agreement or a match between two categories, such as state standards matching the content of district curriculum" (p. 129). Based on the literature, three instructional leadership practices pertaining to the supervision and evaluation of curriculum have been identified: monitoring the alignment of the written curriculum (e.g. pacing guides, curriculum guides, and instructional materials), supervising the alignment of the taught curriculum (informal lesson observations or classroom walkthroughs), and monitoring the alignment of the tested curriculum. Squires (2012) explains, " The written curriculum is usually the curriculum document produced by the school district…. The taught curriculum… may take the form of lesson plans or … actual classroom instruction. The tested curriculum consists of standardized or state tests and curriculum-embedded tests" (p. 130). In addition, Squires (2012) provides evidence of a significant positive correlation between instruction aligned to standards and student achievement. Figure 4 below shows English and Steffy's (2001) concept of alignment across three levels of an organization.
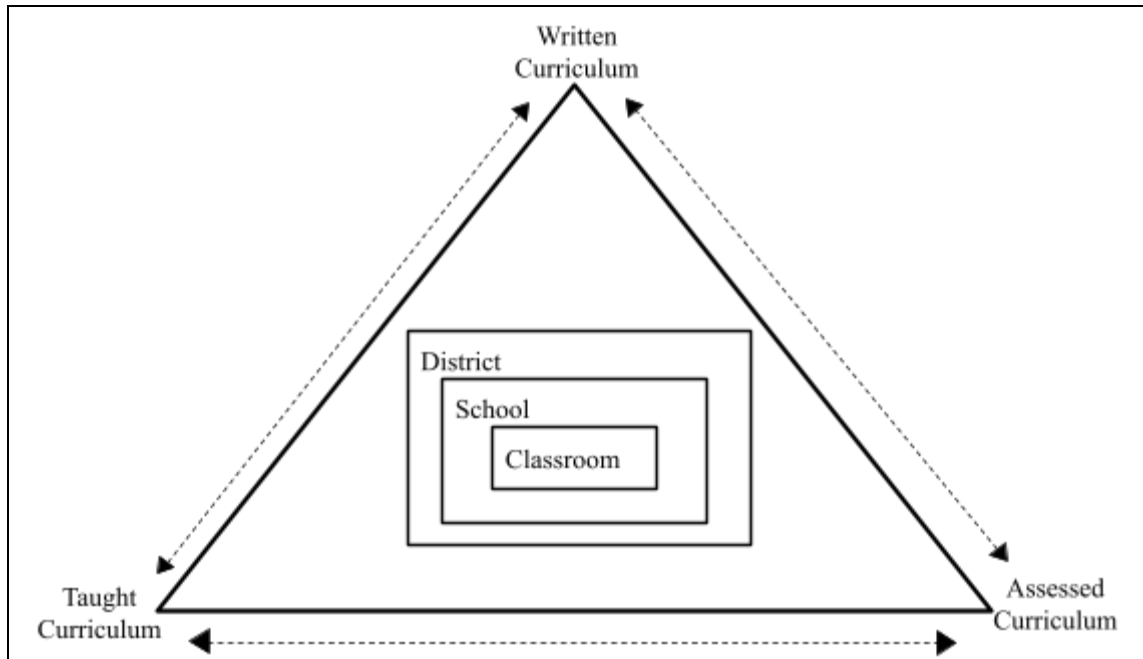
Figure 4. English and Steffy's (2001) concept of alignment nested in three levels

In the figure above, the alignment between the written, taught, and assessed curriculum is

indicated by the dotted lines. The triangle of alignment includes the district or school system,

along with the subsets of school and classroom. To achieve deep alignment, all three levels must

be tightly aligned between the three curriculum domains shown above.

When the curriculum is not aligned, a series of issues and concerns can quickly arise in a

school (Glatthorn et al., 2019). Alignment is essential in school reform, as it tightens the written,

taught, and assessed curriculum to the objectives and goals of a school. A curriculum audit is one

tool for checking the alignment between the written, taught, and assessed curriculum. A critical

feature of the curriculum audit, the review of instructional documents, is supported by research.

English (2000) illustrates the intent of a curriculum as a series of identifying gaps, determining

the gaps that are the most critical, and finding a means to fill the gaps. English (2000) also

grounds curriculum audits on effective principles, which, if implemented correctly, would

increase productivity.

Another similarity between curriculum supervision and evaluation across all three domains include the quality of design. Backward design is a process that takes learning outcomes and goals and sets them at the starting block of the curriculum design process. McTighe and Thomas (2003) explain, "schools can integrate these two approaches at both the school and district levels by first thinking carefully about the desired results and then working backward to develop meaningful assessments and learning plans" (p. 52). Once established, these learning outcomes are paired with reliable and valid assessments that measure the student's understanding and skills that align with the targeted learning outcomes. Finally, the written and taught curriculum are developed to ensure these outcomes are met.

Kouzes and Posner (2017) noted "exemplary leader behavior makes a profoundly positive difference in people's commitment and motivation, their work performance, and the success of their organization…how [a] leader behaves is what makes a difference in explaining why people work hard, their commitment, pride, and productivity" (p.19). For a curriculum leader, a principal's role in supervising and evaluating the quality of curricula is integral for school improvement (Cotton, 2003; Kearney & Herrington, 2010; Leithwood & Riehl, 2003; Marzano et al., 2005; Pajak & McAfee, 1992). The quality of the written, taught, and assessed curriculum should be communicated by the principal to build capacity among staff. In addition, the evaluation of the supervision practices should be considered to determine ways for improvement.

Finally, the quality of the implementation is another similarity across the supervision and evaluation of the written, taught, and assessed curriculum. Supervising the implementation of

written curriculum and instruction or the administration of the assessments allows principals to

increase capacity in current best practices relating to the instructional delivery and measurement

of student understanding.
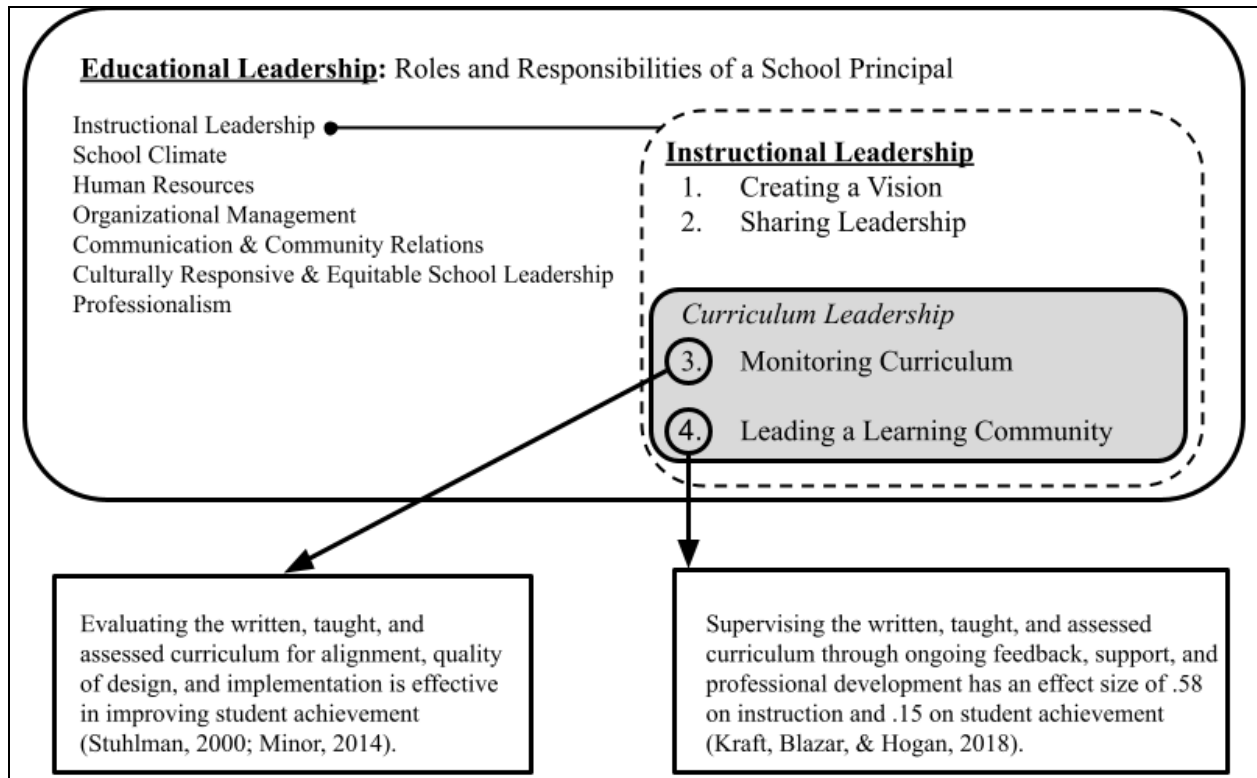
Figure 5. Roles and Responsibilities of a School Principal

Figure 5 above shows the many different roles and responsibilities, in general terms, of a

building principal. Both "monitoring curriculum" and "leading a learning community" are part of

curriculum leadership. Monitoring curriculum includes the evaluation of the written, taught, and

assessed curriculum, whereas leading a learning community includes supervising by providing

ongoing feedback, support, and professional development for each of these curricula

components. It is important to note the instructional leadership role of leading a learning

community extends beyond curriculum leadership to other components within and outside of

instructional leadership.

Research Questions

The research questions for this study are as follows:

1. Are principals' curriculum supervision and evaluation practices of top-performing schools, as defined by the school's rank in student achievement based on pass rates of math and reading standardized test scores within a comparable school cluster, significantly different from principals' curriculum supervision and evaluation practices of bottom-performing schools?

    a. Null Hypothesis: The curriculum supervision and evaluation practices of top-performing schools are the same as principals' curriculum supervision and evaluation practices of bottom-performing schools.

    b. Alternative Hypothesis: Principals' curriculum supervision and evaluation practices of top-performing schools are different from principals' curriculum supervision and evaluation practices of bottom-performing schools.

2. Are there differences between the frequency of curriculum leadership practices from before and after the start of the COVID-19 pandemic?

    a. Null Hypothesis: The frequency of curriculum leadership practices from before the COVID-19 pandemic (2018-2019 school year) is the same as the curriculum leadership practices after the COVID-19 pandemic (2021-2022 school year).

    b. Alternative Hypothesis: The frequency of curriculum leadership practices from before the COVID-19 pandemic are different from curriculum leadership practices after the COVID-19 pandemic.

Summary of Methodology

This study involves a three-phase quantitative approach to address the proposed research questions. Figure 6 below provides a visual overview of the planned methodology for this research.
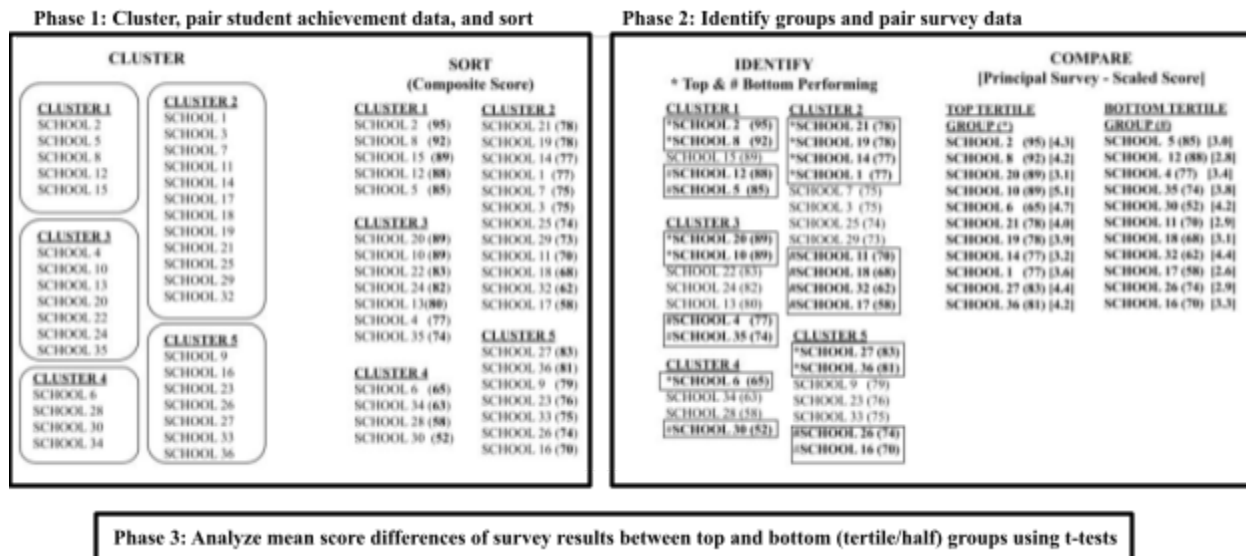
Figure 6. A visual of the methodology used in this study using artificial data

The first phase involved using a cluster analysis statistical procedure to group Virginia's elementary, middle, and high schools based on the following characteristics: school enrollment count, percentage of students who are economically disadvantaged, percent of students with disabilities, percent of students receiving English as a Second Language (ESOL) services, percentage of different racial demographics to include Asian, lack, Hispanic, White, and multiple races. These characteristics were selected due to ease and availability of public school data. Next, schools within each cluster were paired with a student achievement composite score (based on pass rates of math and reading standardized test scores) and sorted from greatest to least. The

composite score was calculated using pass rates of standardized state-administered mathematics and reading assessments.

In the second phase, the schools in each cluster were sorted and divided into halves and tertiles. Schools were then identified and labeled as being in the top or bottom half. Additionally, schools were identified and labeled as either being in the top, middle, or bottom tertile. Next, a scale score from the 25-item principal survey was calculated and paired with the school's composite student achievement data. Schools in the same tertile or half that also included a paired survey result were grouped together for analysis.

In the third phase, the mean scores were calculated for each group and analyzed using a two-sample t-test. For example, the group of schools labeled as top-performing (based on being in the top tertiles across all clusters) was compared to the group of schools labeled as bottom-performing schools (the group of schools in the bottom tertile across all clusters). This same grouping and analysis were also conducted based on halves. As a result, this analysis determined if the frequency of principals' curriculum supervision and evaluation practices of top-performing schools are significantly different from the frequency of principals' curriculum supervision and evaluation practices of bottom-performing schools (RQ1).

The second research question was answered following the same approach with grouping schools into halves and tertiles, except the analysis also included a whole group mean score and was conducted to determine if the frequency of principals' curriculum practices between the 2018-2019 school year and 2021-2022 school year were significantly different (RQ2).

Summary

In chapter one, the context of this research has been introduced. The theoretical

framework, the purpose and significance of this study, and the research questions have been identified. In chapter two, the existing literature will be reviewed to identify key instructional leadership practices and strategies within the context of curriculum supervision and evaluation. In chapter three, the research methodology and design will be presented. The adoption of the quantitative, three-phase research approach was justified, and the broader research design was discussed. Chapter four includes the results and findings. Finally, chapter 5 includes a discussion regarding this research.

Definition of Terms

For a better understanding of this study, the following terms are defined in the context of this research.

Top-performing Schools. A group of all schools at the top half or tertile of their cluster sorted by a student achievement composite score (based on pass rates of math and reading standardized test scores).

Bottom-performing Schools. A group of all schools at the bottom half or tertile of their cluster, sorted by a student achievement composite score (based on pass rates of math and reading standardized test scores).

Curriculum. The written, taught, and assessed content within a school.

Instructional Leadership. Refers to all activities that relate to the management of instruction within a school.

Curriculum Supervision. Building educators capacity for best practices relating to written curriculum, instruction, and assessments.

Curriculum Evaluation. Formally monitoring or observing the effectiveness of curriculum

supervision practices.

Alignment. The agreement between the content and rigor of written, taught, and assessed curriculum.

Student Achievement. Students passing end-of-year state assessments based on math and reading standardized test scores

Homogeneous Schools. Refers to clusters of schools with statistically similar demographics and enrollment that were established based on the k-means clustering algorithm.

II.   REVIEW OF LITERATURE

A large body of literature on curriculum theory and the association of school principals' curriculum supervision and evaluation practices with student achievement provides a basis for the present study. This chapter examines both the theoretical and empirical studies in the field, as well as literature relating to the proposed methodology. The theoretical literature review is divided into seven sections: curriculum history, organizational theory, curriculum theory, instructional leadership, curriculum supervision, curriculum evaluation, and the principal's role in curriculum leadership. The theoretical literature provides a foundation and understanding to recent empirical studies outlined. The empirical studies within this review are organized into two sections: the impacts of curriculum evaluation on student achievement and principals' leadership practices on student achievement. A literature review of related cluster analyses was also included. The search processes used in this research is provided at the beginning of this chapter.

Search Process

This literature was compiled and synthesized through a systematic review process. The first step in this process was establishing the research questions. Once the research questions were formed, a protocol was developed, and a systematic search was conducted. The systematic search included search strategies, text-mining techniques, and documentation. The databases selected for this literature search included Google Scholar and ERIC Proquest Advanced, as well as other databases within Virginia Commonwealth University's library. The literature was documented and organized using Paperpile, a web-based commercial reference management software.

The following folders were established within Paperpile to organize literature collected during the systematic review process: curriculum evaluation, cluster analysis, curriculum history, curriculum theory, principal's roles with curriculum leadership, curriculum evaluation and student achievement, principals leadership practices and student achievement, curriculum significance, subgroup performance and diverse schools.

Theoretical Literature

<u>Curriculum History</u>

Exploring the history of curriculum and its focus is important as it highlights the change in curriculum meaning and direction over the past century. These changes in the curriculum have a direct impact on the current state of education. In addition, how the curriculum has shifted may provide further insight into some of the core pillars of its existence.

Over the past 100 years, the intent and focus of curricula in K-12 schools have ebbed and flowed drastically. Glatthorn et al. (2019) identified nine different eras in curriculum history: academic scientism (1890-1916), progressive functionalism (1917-1940), developmental conformism (1941-1956), scholarly structuralism (1957-1967), romantic radicalism (1968-1974), privatistic conservatism (1975-1989), technological constructivism (1990-1999), modern conservatism (2000-2009), and technological functionalism (2010-present). Across the first five eras, from academic scientism to romantic radicalism, there were shifts in the purpose of schooling - moving from efforts centered around academics and scientific inquiry to child-centered curricula, then later curricula that focused on developmentally appropriate skills and knowledge that were currently relevant for students, next shifting to emphasizing math and

science, then finally back promoting student choice (Glatthorn et al., 2019). However, it wasn't until the privatistic conservatism era that the scholarly eye was placed on written, taught, and tested curricula (Glatthorn et al., 2019). The significance in reporting the shifts between the different eras highlights the fluidness of the conceptualization of curricula and its purpose. This research narrows in on the privatistic conservatism and proceeding eras' conceptualization and purpose of curricula.

One of the exemplary leaders in the curriculum field from the conservatism era, Goodlad (1983) researched and published a series of articles examining curricula across 38 schools. His research compared written, taught, and assessed curricula and questioned their alignment with school purpose and goals. Another influential leader during this time, Bloom (1956), defined educational objectives, which had a subsequent impact on the development of curricula. A connection between the work of Goodlad and Bloom is highlighted in prevailing trends throughout the privatistic conservatism era. Glatthorn et al. (2019) identified school effectiveness and school reform, rigor, critical thinking, and accountability as themes during this time.

A standards-based movement developed during the technological constructivism era of the 1990s (Glatthorn et al., 2019). Throughout the decade, more emphasis was placed on curriculum alignment. Research and recommendations in this field snowballed. Jones (2000) stressed the importance of school boards requiring well-aligned assessments to enhance student learning. As noted in the *2013 Annual Report on the Condition and Needs of Public Schools in Virginia* (2013), the Standards of Learning Program began in the Commonwealth in 1998, which folded into the standards-based movement during the 1990s.

In the 2000s, a national state challenge, "Race to the Top," prioritized rigorous standards

and high-quality assessment (Glatthorn et al., 2019). This reform led scholars and schools to examine curriculum design and materials. Parallel to this effort were publications focused on best practices in curriculum design. During this era, Wiggins and McTighe (2005) posed the question, "how do we make it more likely - by our design - that more students really understand what they are asked to learn?" (p. 4). Wiggins and McTighe's book, *Understanding by Design*, influenced change in curriculum development.

Across these eras are orientations that follow a pendulum shift in intent and focus. Eisner and Vallance (1973) define five conceptions of curriculum that impact curriculum organization and development: curriculum as a means for social reconstruction, the education of important subjects, developing cognitive processes, identifying and growing self-potential, and advancing technology. Schiro (1992) narrows these conceptions down to the following four major curriculum ideologies: scholar academic, social efficiency, social reconstruction, and child study. Scholar academic and child study aligns with the education of important subjects and developing cognitive processes, social efficiency correlates with identifying and growing students' potential, and social reconstruction is identical in the need to develop a social stance towards easing the crises that face our society. These competing factors continue to shape the direction of curriculum development within K-12 schools.

Continuous changes in curriculum across the history of public education have influenced contemporary education. As the history of the curriculum has grown, the expansion of curriculum theory and evidenced-based curricular practices has increased. Both aspects of curriculum history and curriculum theory are vital to capturing a holistic understanding of curriculum and the practices which influence its effectiveness.

Curriculum Theory

A comprehensive review of the literature on curriculum theory has revealed the complexity of its definition. In the literature, there are different operational definitions that capture the purpose of curricula in schools. It is important to ground this study in a specific purpose and understanding of curricula. Glatthorn et al. (2019) write, "successful curriculum leaders recognize that educational theory serves as a catalyst for change and higher academic achievement" (p. 67). More importantly, Glatthorn et al. (2019) explain there are no set rules within curriculum theory for principals or other curriculum leaders to follow - only generalities.

Curriculum theory is uncertain knowledge of the best way we go about constructing plans to achieve the intended curriculum. Glatthorn et al. (2019) define curriculum theory as "a way of noting the philosophy of certain approaches and strategies to the development and enactment of curriculum. The theory is often considered a formalized, deductively connected bundle of laws that are applicable in specifiable ways to their observable manifestations" (p 458). Curriculum theory aims to describe the process and predict the outcomes through logic.

Tyler (2013) argues that developing curricula will be driven by skill, process, and subject through determining the learning outcomes and providing relevant experiences. When determining student learning outcomes, Tyler (2013) mentions the importance of considering both the student and society, selecting and organizing relevant experiences, and evaluating the results. An understanding of curriculum theory is valuable to curriculum leaders. Glatthorn et al. (2019) explains, "the role of leadership in reviewing the relationship between theory and practice will be a crucial element in the future success or failure of curriculum change and how it affects schools" (p. 70). The developmental approach and strategies to enact curricula are the core of

curriculum theory. Similarly, Pinar (2012) writes, "curriculum theory is a scholarly effort…to understand the curriculum…[it] is informed by academic knowledge, and it is characterized by educational experience" (p. 2). It can offer tools for the evaluation and supervision of K-12 curricula.

In addition to the variety of definitions of curriculum theory, there is also a variety of curriculum styles. These curriculum styles can assist in identifying the belief in how to use curricula to teach. Miller (2011) termed four common schools of thought: linear, holistic, laissez-faire, and critical theorist. These four curriculum styles are relevant to curriculum leadership because they highlight the complexities of curriculum planning, which serves as an element of curriculum supervision and evaluation practices.

Linear thinkers favor structure, control, and order within an educational environment. Miller (2011) writes, "linearist want education to be as efficient as possible, both fiscally and empirically. In essence, this model mimics scientific management in the way that Frederick Taylor used science to manage business" (p. 34). Linear thinkers have many parallels to scientific processes. For example, in Virginia there are many school curricula that fit within this approach. Most schools and divisions have pacing guides, curriculum maps, and curriculum design techniques to develop resources.

A holistic approach to curriculum provides the teacher with the opportunity to establish an environment to enhance each student's experience and response to the lesson (Glatthorn et al., 2019). Miller (2011) underscores the demands this approach has on teachers, as it requires educators to be more responsive to their students' interests and emotions. "The holist pays attention to the emotional and creative components and to the aesthetics of learning, hoping to

create citizens who are 'productively idiosyncratic' " (Miller, 2011, p. 34). This method uses enjoyable and enlightening experiences to enhance student learning.

The laissez-faire lens of curriculum embraces individual freedom within the classroom. Miller (2011) explains this style is associated with Piaget, who alleged an individual does not learn a concept until they need to know it. Advocates of laissez-faire philosophy may suggest an absence of a school curriculum to allow students to explore their topics for inquiry freely.

Social justice is a central and dominant theme in a critical theorist's approach to curriculum. Miller (2011) writes, "Any curriculum, then, would invoke critical consciousness, advocate for social and educational transformation, and promote the demonstration of respect, understanding, appreciation, and inclusion. With an equitable and rigorous curriculum design, teachers help students enter the world independently, preparing them for leadership" (p. 35). Critical theorists hope to alter the status quo by leveraging curriculum as a vehicle for transformation change.

Glatthorn et al. (2019) note that curriculum as a process is not a physical thing but rather an interaction between educators, students, and knowledge. The curriculum is more than written documents; it includes instruction, assessment, what people do to prepare it, and the supervision and evaluation of each component. A principal's role in the evaluation and supervision of these components is at the center of this research.

Integrating curriculum theory with practice is a crucial responsibility of school leaders. Although there is no scripted step-by-step process for leaders to follow, there are general guidelines and ideas that are founded on research. Glatthorn et al. (2019) explained, "in this age of technological reform, it is crucial that effective leaders formulate an understanding of

curriculum theory if they are truly to evoke educational change in the future" (p.70). Formulating

an understanding of curriculum theory will allow leaders to develop an understanding of

effective practices and the reason for high-quality curriculum evaluation and supervision

procedures. Curriculum theory is an important concept for this research, as it refers to the

development and organization of curricula, the role principals and other individuals play in

curricula, as well as the impacts it has on student learning.

Organizational Theory

Organization Theory, as defined by Jones (2013), is "the study of how organizations

function and how they affect and are affected by the environment in which they operate" (p. 30).

This concept applies within and outside of educational organizations. Understanding how

organizations work and operate can provide meaningful insights into why or why not an

organization is achieving its goal. In an educational organization, principals usually develop

goals that are typically centered around student learning. There are three main domains within

organizational theory: organizational structure, organizational design and change, and

organizational culture. All three domains play an intricate role in the success of an organization.

Elements of organizational theory are present in the structure of educational leadership. The

systems and structure of a school, set by the principal and leadership team, are integral in the

function of organization. Jones (2013) defines organizational structure as "the formal system of

task and authority relationships that control how people coordinate their actions and use

resources to achieve organizational goals" (p. 30). In a school setting, the organizational

structure relates to the relationship and actions between all stakeholders (i.e. principals, teachers,

students, and community members), as well as the materials and resources available (e.g. the

curriculum). Jones (2013) continues, "organizational design is the process by which managers select and manage aspects of structure and culture so an organization can control the activities necessary to achieve its goals" (p. 30). In an educational setting, principals function as managers of their building. For this research, the organizational design of interest is the processes that relate to the principal's supervision and evaluation of the written, taught, and assessed curriculum. Finally, Jones (2013) explains organizational culture as "the set of shared values and norms that controls organization members' interactions with each other and with … customers" (p. 30). In this case, the customers of a school are the students.

Organizational theory plays a vital role in this research as the intent of the study is to examine leadership practices relating to the supervision and evaluation of the curriculum. Because of increased pressures to close achievement gaps and address barriers to equity, organizational design relating to the curriculum has become one of the principal's top priorities. Today, as never before, principals are becoming more involved with curricula in efforts to foster better teaching and learning within their schools.

Instructional Leadership Theory

Instructional, distributed, and social justice are three key theories relating to school leadership (DeMatthews, 2014). Distributive leadership theories emphasize the importance of diffusing leadership practices across multiple stakeholders, rejecting the concept of hierarchy and formal roles. Social justice leadership theory recognizes the role of administrators in identifying inequity and eliminating barriers to success for marginalized student groups. Instructional leadership theory relates to a principal's role in enhancing teaching and learning within a school. Although both distributive and social justice theories about school leadership are supportive and

intersect this theoretical framework, it is important to note instructional leadership is the primary realm of inquiry.

A principal's instructional leadership efficacy is defined by their instructional activities throughout the school year. Instructional leadership practices include developing a school mission and vision, supervising and evaluating curricula, and promoting safe, supportive, and collaborative learning environments for students and teachers (Murphy, 1990).

Stronge and Leeper (2012) write, "principals are aware of instructional practices in their school buildings, are knowledgeable about the curriculum standards, and ensure that they are taught. Principals trust their teachers to implement instruction effectively but visit classrooms regularly to observe the results of that instruction" (p. 5). Grounded by Fink and Resnick's (2001) research is the importance of principals completing classroom observations to monitor curriculum and the quality of instructional practices. Grissom et al. (2021) state, "school leadership matters for a host of important school outcomes, including student achievement" (p. *xiii*).

Curriculum Supervision

Merriam-Webster dictionary defines the term supervise as " to be in charge of" or in other words, to oversee. In education, along with other organizations, the role of supervision includes building capacity among staff. DeMatthews (2014) writes, "principals play an important role in developing high quality, critical, and community-oriented curriculum leadership and renewal. Curriculum leadership is complex and challenging for new and veteran principals" (p. 192). This statement highlights the complexity of curriculum supervision. As noted, curriculum leadership is challenging for first-year principals and experienced principals. This challenge is evidence of

the need for continued evaluation of the principal's role in the supervision of curricula. The process of curriculum supervision involves investigating existing curricula, conducting professional development, and aligning curriculum to student outcomes (DeMathhews, 2014).

There are many tools and methods for supervising the written, taught, and assessed curriculum. However, a common theme in supervision is to provide all staff, including the principal, with ongoing professional development regarding the written, taught, and assessed curriculum. The goal of curriculum supervision is to continuously improve the quality and alignment of the learned curriculum to the intended curriculum. The measure to determine this alignment and effectiveness of the supervision is the curriculum evaluation.

Curriculum Evaluation

Sorenson et al. (2011) defines curriculum leadership as a means to encompass curriculum, instruction, assessment, and evaluation in an effort to improve learning and understanding. Glatthorn et al. (2019) further explain that "curriculum evaluation represents the summation of the written, the supported, the taught, the tested, and the learned curricula. Therefore the process of evaluation is essentially the procedure for determining to what extent the educational objectives are actually being realized by the program of curriculum and instruction" (p. 329). Curriculum alignment occurs when the written, taught, and tested curricula are identical in content and cognitive level.

There are many evaluation models used to review curriculum (Tyler, 1950; Stufflebeam, 1971; Scriven, 1991; Stake, 1983; Eisner, 2002; Bradley, 1985). Glatthorn et al. (2019) underscore the importance of evaluating all aspects of the curriculum. "In too many curriculum evaluations, the team evaluates on the written curriculum… and the learned curriculum (results

on achievement tests). No valid inferences can be drawn from such an assessment because the other three aspects have been ignored" (Glatthorn et al., p. 332, 2019). It may be easy to follow these guidelines in a linear checklist-like evaluation; however, Shadish, Cook, and Leviton (1991) explain that curriculum evaluation has multiple purposes and categorizes them as instrumental, conceptual, and persuasive. Instrumental focuses directly on the evaluation results. A conceptual purpose is when evaluations are used to affect perceptions of the curriculum indirectly. Lastly, persuasiveness intends to convince others that the actions taken before the evaluation was valid.

Levine (2002) expands on these terms to highlight the complexities of evaluations, underscoring the importance of knowing the purpose of the evaluation. For curriculum evaluations with an instrumental purpose, the curriculum is viewed as an evolving process. On the other hand, conceptual and persuasive curriculum evaluations view the curriculum as a fixed product. All of these concepts are linked to pragmatic and constructivist views of curriculum evaluation. Levine (2002) claims the approach to curriculum evaluation should embrace tenets of more modern approaches to curriculum founded in collaborative and constructivist paradigms that value constructs of diversity, uncertainty, and irregularity. Positivist-based curriculum evaluation proceeds by comparing intentions to actual performance. Although this study will lean more toward the positivist-based direction, it is important to acknowledge an alternative lens to curriculum evaluation. Levine (2002) concludes by stating "curriculum evaluation takes on different forms and different trajectories of meaning in different contexts and situations. There is no evaluation model to follow or implement, and no standardized procedures or explicit guidelines" (p. 26). An alternative view of evaluation is to consider it a process that challenges

our thinking, beliefs, and routines.

Empirical Research

Marzano et al. (2005) compiled decades of research that linked curriculum leadership to student achievement. Highlighted in Marzono et al. (2005) research are the following curriculum leader responsibilities: knowledge of curriculum, involvement in the design and implementation of curricula, providing faculty and staff with needed curriculum materials and professional learning opportunities, establishing clear curriculum goals and expectations, challenges the status quo, and evaluates curriculum practices.

Curriculum Evaluation and Student Achievement

Curriculum evaluations are a means to improve education through a comprehensive review of a school's written, taught, and assessed curriculum. A curriculum review audit is one tool for tightening the alignment, design quality, and implementation of the three core pillars of the curriculum. Typically an independent, external analysis of the design and instructional delivery of a school's curriculum, the curriculum management audit is a way for improving teaching and learning. Researchers have shown these tools of curriculum evaluation are effective in improving student achievement within schools (Stuhlman, 2000; Minor, 2014).

Stuhlman's (2000) research was to determine the effect of curriculum management audits on student achievement by comparing school districts that had implemented curriculum management audits to those that had not undergone audits. The study found "the groups of audited districts that received curriculum management audits more recently had gained over the [unaudited] comparison group gains. The audited districts that received curriculum management

audits at an earlier date had less student gain than the non-audited group gains" (Stuhlman, p. 93, 2000). Stuhlman (2000) also found that mathematics showed more of an increase than reading and writing. However, simply conducting a curriculum audit may not be enough to show the significance between the audit and student achievement. A stronger analysis would take into consideration the implementation of the recommendations from the audit.

Minor (2014) examined the influence of curriculum audits on student achievement but through a different lens than Stuhlman. The purpose of Minor's (2014) research was "to determine if a significant relationship existed between the school district personnel's perceptions of the level to which curriculum audit recommendations had been implemented and the achievement scores of students" (p. 11). Minor's (2014) research showed evidence that the implementation of curriculum audit recommendations had a positive influence on students' academic achievement.

Principal's Leadership Practices and Student Achievement

Principals' leadership practices have been shown to have an impact on student achievement. There are a variety of leadership styles and a growing list of principal responsibilities. Shatzer et al. (2014) compared two leadership styles: transformational leadership and instructional leadership. These leadership styles, along with distributive leadership and shared instructional leadership, have been studied substantially in recent educational research. Further, Shatzer et al. (2014) define transformational research as principals who "are able to identify and articulate a school vision, motivate others through example, support a culture of intellectual stimulation, and provide support and development to individual staff members" and instructional leadership as having" three goals: (1) defining the school's mission, (2) managing

the instructional program, and (3) promoting a positive school learning climate" (p. 446-447).

After controlling for school context and principal demographics, the study also examined

whether transformational leadership or instructional leadership would predict student

achievement. In addition, the researchers examined which practices, specific to each leadership

style, had the greatest significance in predicting student achievement.

Shatzer et al. (2014) surveyed a total of 590 elementary teachers across 37 schools in

three school districts. Two leadership surveys, one measuring transformational leadership and the

other instructional leadership, were administered at random to teachers. The Multifactor

leadership questionnaire (MLQ) was administered to measure transformational leadership. The

MLQ survey included eight domains, each containing four items. The items used a 5-point Likert

scale. An average score was calculated across the four items to determine a domain score and

overall transformational leadership score. For the instructional leadership measure, the Principal

instructional management rating scale (PIMRS) was used to evaluate the principal's performance

across ten domains, each including five items. In total, there were 50 items on the PIMRS, each

using a 5-point Likert scale.

The outcome variables used in this study included scores from standardized state

assessments. These criterion-referenced assessments have strong reliability and validity. The

tests include reading, mathematics, and science. Shatzer et al. (2014) included raw scores,

calculated by the total average for each school, and progress scores, which have student growth

measures from one year to the next.

In addition to the surveys administered to measure instructional and transformational

leadership, Shatzer et al. (2014) also collected data on school demographics. Using the

percentage of students in the school who were Asian, African American, Hispanic, Native

American, and Pacific Islander, the percentage of students in the school who were ELL, and the

school's social-economic status (SES). Principal demographics, including their experience and

gender, were also controlled in the study.

Shatzer et al. (2014) used three techniques: multiple regression to analyze leadership

dimensions predicting student achievement, sequential regression analysis to determine the

amount of variation explained by each leadership style on student achievement, and single

regression analysis and multiple regression analysis on survey items to determine their

significance. Shatzer et al. (2014) reported the following instructional leadership dimensions to

be statistically significant in predicting student achievement: protecting instructional time (p

$<.05$), providing incentives for learning ($p < .001$), promoting professional development ($p < .10$),

and monitoring student progress ($p < .05$), communicating the school's goals($p < .10$). However,

the R-squared for this analysis did not reach statistical significance, leaving room for

improvement. Additionally, this study took into account a more narrowed dimension of

instructional leadership, whereas the proposed study would address a more robust definition of

instructional leadership.

Examining instructional leadership through a broader lens, Seashore Louis et al. (2010)

researched whether certain characteristics of leadership behavior contributed to how teachers

work with each other and classroom routines and procedures. In addition, the researchers also

investigated whether leadership behaviors contributed to student achievement. Specifically,

Seashore Louis et al. (2010) examine three behaviors: instructional leadership, shared leadership,

and trust. Instructional leadership was described as improving classroom pedagogy. Shared

leadership emphasizes the distribution of school leadership to individuals at different levels.

Trust was measured through the motivation of high performance through emotions and

emotional intelligence.

The research design included the use of a national US survey that spanned from 2005 to

2008. The Survey Measure of Instructional Leadership was first administered in 2005, then later

revised and administered in 2008 to incorporate several additional items that tapped specific

principal behaviors. In total, the survey was administered across nine states within 45 school

districts, totaling 180 schools. Mathematics scores from a standardized state assessment were the

only student achievement data that was included in the research. Seashore Louis et al. (2010)

combined items from both surveys to construct variables for their analysis. By using the data

collected in 2005 and 2008, the researchers were able to develop scaled scores using factor

analysis. A reliability score of 0.7 or better was reported for every variable.

Seashore Louis et al. (2010) used paired-sample t-tests to compare mean ratings on the

variables to see if differences between buildings existed. In addition, to investigate the

moderating effects, the researchers used hierarchical multiple regression on certain relationships.

Finally, to examine the direct and indirect effects of leadership on achievement, the researchers

used structural equation modeling. The results of the study "indicate that student math

achievement scores are significantly associated with focused instruction, professional community

and teacher' trust in the principal, but are not significantly associated with principal behaviors"

(Seashore Louis et al., p. 323-324).

The second part of their analysis included stepwise regression analysis to explore

predictors. They found that professional community and trust in the principal were significant

indicators. Seashore Louis et al. (2010) note that principal behavior had an indirect effect on student achievement, yet instructional practices significantly affected achievement.   Similar to Shatzer et al. (2014), Seashore Louis et al. (2010) research has a narrow scope of instructional leadership. The survey used in the study only captures seven items pertaining to the frequency with which principals complete instructional leadership-related tasks. In addition, this research was not specific to the principal's role in the supervision and evaluation of the written, taught, and assessed curriculum. Using a cluster analysis approach helps to address the limitation in the leadership literature by controlling for school characteristics that are associated with student achievement and by examining the use of these leadership practices across comparable groups of schools.

III.   RESEARCH DESIGN AND METHODOLOGY

This study aimed to understand principals' curriculum supervision and evaluation practices across comparable school clusters. It was hypothesized that principals of top-performing schools are more frequently involved in practices pertaining to the supervision and evaluation of written, taught, and tested curricula. By using a cluster analysis approach, schools were grouped by demographics, then classified as top or bottom-performing schools based on their student achievement ranking in their assigned cluster. This study assisted in determining if an association exists between academic performance and the frequency of curriculum supervision and evaluation practices of school principals. This chapter will present the research design and methodology, including population sampling, data collection, and data analysis.

Positionality Statement

Currently, I am an Assistant Superintendent for a small school district in Florida, overseeing all district administrative services, support services, and all educational programs and related professional development. As a former Director of Curriculum and Assessment for a small school division in Virginia with an educational background and experience centered on quantitative approaches, I understand and am aware of the influences of my situation. My experience as an educator has shaped my view on curriculum supervision and evaluation practices. I have attended many professional developments pertaining to the supervision and evaluation of curricula. Many of the resources used in this dissertation were part of my education and experience as a curriculum leader. I naturally hold a post-positivist lens towards research

methodology, as my background is founded in natural science.

The survey data used in this research were collected through a survey administration completed by my previous employer. The survey was designed to assist in organizational growth. The items in the survey were developed based on research which also serves as a foundation of the curriculum framework in this study. Many of the curriculum leadership practices listed in the survey were in place or actively implemented in the school division that previously employed me.

Research Questions

Two research questions for this study are based on the hypothesis that principals of top-performing schools across all clusters are more frequently involved in practices pertaining to the supervision and evaluation of written, taught, and tested curricula.

1. Are principals' curriculum supervision and evaluation practices of top-performing schools significantly different from principals' curriculum supervision and evaluation practices of bottom-performing schools?

2. Are there differences between the frequency of curriculum leadership practices from before and after the COVID-19 pandemic?

The first research question is significant because the implementation of curriculum supervision and evaluation practices may differ among schools - especially those that differ in enrollment (Hallinger & Heck, 1998). By using cluster analysis to assist in identifying top and bottom-performing schools based on ranking, this research is able to control and account for some of these demographic differences among schools. For example, research has shown a link between higher socioeconomic status and higher standardized test scores (Armor et al., 2018).

Additionally, schools with a greater enrollment typically have additional administrative staff. With additional administrative staff, principals have more specialized roles and responsibilities due to the additional administrative support. Utilizing homogeneous clusters allows for this research to focus on the curriculum supervision and evaluation practices of schools with similar enrollments and demographics. The study findings provide meaningful information on how different curriculum leadership practices of principals are associated with student outcomes among schools with different compositions. The first research question focuses on the association between student achievement and the principal's curriculum leadership practices. Exploring this relationship across similar clusters will control for many known and unknown variables. Typically, staffing is more comparable with schools of similar size. However, the head principal's involvement in curriculum supervision and evaluation may differ depending on the strengths and weaknesses of the administrators within the school. Additionally, a principal's involvement in curriculum practices may differ based on the allocation of responsibilities among the administrative team, varying student population needs and influence on administrative capacity, and teacher attributes (e.g., having a greater number of new or first-year staff). Secondly, the frequency of practices may differ due to a principal's time management skills (Grissom et al., 2015). Knowing the frequency of principal curriculum leadership practices within a specific building type will provide information regarding the association with student achievement, and specific leadership practices can be leveraged within different school settings.

Given the timing of this research and the immeasurable impact of COVID-19 on schools, it was important to account for the pandemic and how the experience of the past three years has influenced curriculum leadership practices. The second research question considers the impact

the COVID-19 pandemic had on the frequency of these curriculum supervision and evaluation

questions. Pandemic impacts were also different across different communities. Thus, seeing how

the frequency of curriculum practices changes within similar settings may also help with

understanding how a focus on the curriculum can remain the same when other conditions might

be pulling leaders in other directions. This research question is significant because it offers a

current state of curriculum leadership within schools across Virginia while recognizing the

influence of the pandemic.

Population

For this study, Virginia Public Schools were selected as the research group due to the

diversity of schools within the Commonwealth and access to publicly available school data on

enrollment, percentage of students who are economically disadvantaged, percentage of students

with disabilities, and other characteristics. There are a total of 132 school divisions with

approximately 2,182 public schools in the Commonwealth of Virginia during the 2020-2021

school year. The data used in this research is considered secondary data.

Research Design Overview

This quantitative study has three phases and relies on the use of existing principal survey

data and school-level achievement scores on the Virginia Standards of Learning Tests.

Phase 1: Creating Comparable School Clusters and Constructing the Student

Achievement Outcome Variable. The first phase involves using a *k*-means algorithm to cluster

all Virginia public schools into groups based on student enrollment and school demographics. In

total, there are three sets of clusters: one set of clusters for elementary, one for middle, and one

for high schools. This clustering technique strengthens the design by controlling for differences among school characteristics. The optimal number of clusters was calculated using an elbow method of analysis. However, the number of clusters was increased to intentionally create groups with fewer numbers of schools. The number of clusters chosen was $k=50$, $k=15$, and $k=15$ for elementary, middle, and high schools, respectively. Having more groups with fewer schools assisted in the identification of schools at the top or bottom of each cluster that also had results from a principals survey.

Next, schools within each cluster were sorted based on a composite score from greatest to least. The composite score was calculated by standardizing each school's assessment results for reading and mathematics tests, scaling the distribution, then averaging the two results to form a composite score. The assessment data used in this research included the Standards of Learning Tests administered through the Virginia Department of Education.

Phase 2: Cluster Tertiles and Constructing School-Level Instructional Leadership Scores. In the second phase, the identification of top and bottom-performing schools was based on halves and tertiles. After sorting the group, each cluster was divided into halves and tertiles based on the size of the cluster. The number of schools in the top and bottom tertile was determined by dividing the total number of schools in each cluster by three, then rounding the number. Each top and bottom tertile includes the same number of schools. For example, if there were 14 schools in the cluster, 14 divided by three equals 4.67. Therefore, the top and bottom tertile would include five schools, and the remaining group of four schools would be included in the middle tertile.

Schools at the top half or third of their cluster, based on composite scores, were labeled

as top-performing schools. Schools in the bottom half or tertile of their cluster were labeled

bottom-performing schools. It is important to note that some schools may likely have greater

composite scores than other groups in the top-performing group but are not placed in the

top-performing group due to their placement within their assigned cluster. Conversely, there may

be schools that have a composite score less than schools placed in the bottom-performing group

but are not included in the bottom-performing group because of their placement within their

assigned cluster.

Also in the second phase, results from the 25-item *Curriculum Leadership Practices -*

Principal Survey (Appendix A) were used to establish a scaled curriculum leadership score for

each school. The scaled score was then paired with the school's composite student achievement

data.

Phase 3. Analyzing Differences Between Top and Bottom Performing Groups. Using

mean scores from the *Curriculum Leadership Practices - Principal Survey,* two-sample t-tests

were conducted to analyze the difference between the frequency of principals' curriculum

supervision and evaluation practices within top and bottom-performing groups.

Instrumentation

The survey used in this research, "Curriculum Supervision and Evaluation Practices -

Principal Survey, 2022," was developed by a school division in Virginia and was created based

on Carrick's (2001) "Principal Survey - Curriculum Monitoring." Both surveys align with

curriculum supervision, and evaluation practices addressed in this research and have established

reliability and validity evidence. Carrick's (2001) survey included a Cronbach Alpha score of

0.874, whereas the "Curriculum Supervision and Evaluation Practices - Principal Survey, 2022"

generated a Cronbach Alpha score of 0.903.

As mentioned in Carrick's (2001) research, "the development of the survey was heavily dependent on the work of John Hill (1989), the role of the principal as the curriculum supervisor and John Goodlad's (1979) six levels of curriculum which identify the different activities that principals can perform at each level" (p. 53). In addition, Carrick (2001) included curriculum experts during the development of the survey, as well as piloted the survey before the full administration.

Since Carrick's (2001) survey was developed at the turn of the millennium, documented revisions were made to the "Curriculum Supervision and Evaluation Practices - Principal Survey, 2022" to modernize the language. Since there were adjustments to Carrick's (2001) survey, the "Curriculum Supervision and Evaluation Practices - Principal Survey, 2022" was piloted with five principals prior to the full administration.

This study used the results from the 25-item "Curriculum Supervision and Evaluation Practices - Principal Survey, 2022," which measures principals' frequency of curriculum supervision and evaluation practices. These twenty-five items are specific to the supervision and evaluation practices of principals relating to the written, taught, and assessed curriculum. Of the 25 items, seven items measure practices relating to the written curriculum, eight items measure practices regarding the taught curriculum, and nine items measure practices pertaining to the assessed curriculum. Table 1 in Appendix A includes the twenty-five items on the survey along with a mapping to their respective curriculum leadership construct.

The items on the survey included two Likert frequency scales. The first Likert scale was 7-point (daily, weekly, monthly, quarterly, each semester, yearly, and never), and the second scale

was 5-point (always, often, sometimes, rarely, never). As shown in *Table 1* (Appendix A), each item mapped to the theoretical framework for this dissertation.

Across the 25-item survey, three scaled scores were calculated based on the principals' responses to the 2018-2019 school year for both supervision and evaluation practices: two written composite scale scores, two taught composite scale scores, and two assessed composite scores. These composite scores are based on their respective items on the survey.

School division contact information was obtained from the Virginia Department of Education's (VDOE) website. Five principals were selected and interviewed to improve the feedback on the survey items to ensure clarity and intention. The remaining public school principals were emailed directions to complete the survey. The cluster analysis and groups were shared with principals who completed the survey as an incentive. A follow-up reminder email was sent one week following the initial email. In total, 51 principals responded to the survey. Of the principals who responded, 33 were elementary principals, nine were middle school principals, and nine were high school principals. In total, 1,751 principals were emailed, resulting in a response rate of 2.9%.

Understanding Cluster Analysis

It is important to note there are many inequities that exist between schools (Campbell, 2000). In addition, these inequities often negatively affect student achievement. Talbert-Johnson (2004) writes, "The status concerning African American students, poverty, and urban education can best be described as alarming because of the myriad of problems associated with the success of these students" (p. 22). This research used a *k*-means clustering algorithm to examine principals' curriculum practices across homogeneous school clusters to account for the inequities

between schools. Using cluster analysis as a tool in this research allows for the comparison between schools while accounting for multiple variables equally. Other methods include controlling for a single variable; however, this multivariate approach allows for a grouping of schools without weighing variables. Other statistical approaches use parametric approaches, which imply underlying distributions (e.g., latent class analysis). Additionally, other methods include a reduction of information to reduce the noise of the variables (e.g., principal component analysis). In this case, there was no reason to assume underlying distributions or to force a reduction in the number of variables; therefore, a simple k-means clustering algorithm was utilized to form groups of schools with similar enrollment and demographics.

k-means Clustering Algorithm

Everitt et al. (2011) summarize cluster analysis techniques as "concerned with exploring data sets to assess whether or not they can be summarized meaningfully in terms of a relatively small number of…individuals which resemble each other in which are different in some respects from individuals in other clusters" (p. 13). The k-means algorithm is one clustering technique that has been heavily utilized for the past 30 years or more. The purpose of the k-means clustering algorithm is to organize a dataset into a predetermined number of clusters. The algorithm plots data in an n-dimensional space based on the number of variables in the dataset then plots centroids based on euclidean measures. Data points are then clustered together based on the nearest centroid. As mentioned earlier, the number of centroids is predetermined. An optimal number of centroids or clusters for the dataset can be determined using a separate algorithm and interpretation of results.

K-means clustering has been used in a variety of applications. In educational research,

Moubayed et al. (2020) used k-means to cluster students based on engagement metrics,

Kuswandi et al. (2018) clustered student perceptions on project-based learning models with the

k-means algorithm, Sari et al. (2018) used *k*-means as a data mining technique to organize

student information, and Halsell (2007) employed clustering methods to determine homogeneous

demographic subsets of schools.

This research considered a sample application of clustering similar to Halsell (2007) -

exploring a relationship among homogeneous clusters of schools with similar demographics.

Halsell (2007) established clustering based on the standardized proportion of the following

school populations: American Indian, Asian, Hispanic, African American, White, students with

disabilities, English learners, and free-and-reduced lunch rates. Halsell (2007) notes the

importance of this clustering method by stating, "while designed to narrow the achievement gap,

with emphasis placed on eventually eliminating the academic disparity between minority and

nonminority students, as well as disadvantaged children and their more advantaged peers, no

provisions were included to accommodate the achievement gap that currently exists" (p. 172). As

schools continue to work towards closing achievement gaps, school comparisons should take

into consideration the existence of these gaps.

In this research, a *k-means* algorithm was used to cluster schools together. In this

algorithm, *k* represents the number of clusters determined by the user of the algorithm. For every

cluster, there exists a centroid, which is calculated based on vectors within the initial clusters.

The algorithm improves the location of the centroid and the elements assigned to the cluster until

a termination condition is met. Shen (2007) describes the three termination criteria as conditions

that include no change in the dataset or assignment of clusters. Clusters are assigned based on

each element's euclidean distance to the centroid.

As Shen (2007) states, "the Euclidean distance between two data points X_1 and X_2, each represented by a *p*-dimensional vector, $X_1=(X_{1_1}, X_{1_2}, \dots X_{1_p})$ and $X_2=(X_{2_1}, X_{2_2}, \dots X_{2_p})$, is denoted as $d\_Euc\ (X_1, X_2)$, and defined as follows:

$$d\_Euc\ (X_1, X_2) = \sqrt{\sum_{i=1}^{p}(X_{1_i} - X_{2_i})^2}$$

" (p. 44).

The *k*-means algorithm uses these distances to determine the sum of squared distances for each data point to the centroid. The algorithm is an optimization technique that searches for the global minimum across all clusters until no better solution is found.

As stated earlier, the optimal number of clusters was calculated using an elbow method of analysis. Bholowalia and Kumar (2014) explain the elbow method as "a method which looks at the percentage of variance explained as a function of the number of clusters.This method exists upon the idea that one should choose a number of clusters so that adding another cluster doesn't give much better modeling of the data" (p. 18). Although this method requires an interpretation of graphical results, it allows the researcher to determine a reasonable number of clusters based on statistical analysis. However, there is room to alter the recommended number of clusters. In this case, the number of clusters was intentionally increased to create groups with a fewer number of schools. Having more groups with fewer schools assisted in the identification of schools at the top or bottom of each cluster, which could be linked to results from the principal's survey.

Cluster Analysis Results

To prepare for research, the cluster analysis mentioned above was utilized to assemble the needed dataset for inquiry. As mentioned, a k-means clustering algorithm helped separately cluster Virginia's elementary, middle, and high schools. School-level data were obtained from the Virginia Department of Education, including a SchoolID, the number of students enrolled full-time, and the number of students within each of the following categories: economically disadvantaged, disabled, English learners, Asian, Black, Hispanic, White, and multiple races. Percentages of each category were calculated and used during clustering. In addition, the student enrollment count was also standardized to reduce the influence of other variables. In total, there were 317 high schools, 324 middle schools, and 1,088 elementary schools included in the three separate cluster analyses. A k-means clustering algorithm requires the operator to select the number of k clusters. The Elbow method approach was used to calculate the optimal number of clusters for the elementary, middle, and high school groupings. However, the results of the Elbow method were not ideal for the second part of this study, as the results included a limited number of clusters which would force a greater number of schools within each group. In the second phase of this study, the survey data was paired with schools. It was likely that many of the schools which also had survey responses would rank in the middle of a cluster with more schools. For example, it is likely that many of the schools that completed the survey would be within the middle tertile, making it difficult to identify top and bottom-performing schools that also had survey results. Therefore, it was decided to force a larger number of k clusters, so fewer schools were included within each cluster. Fifteen clusters were selected for the high school and for middle school groupings. Fifty clusters were selected for the elementary school groupings.

The number of schools in each cluster and the average enrollment and percentages of

demographics is provided in *Appendix C*.

Merging Clustering and Principal Survey Data

The results of the principal survey were merged with the cluster analysis data. In total, 51

principals or designees responded to the survey and were included in the study. Using a school

identification number, each principal survey was linked to the corresponding school's cluster

data. Within each cluster, schools were sorted based on a standardized composite reading and

math score. Each school in the cluster was identified as being in the top third, middle third, or

bottom third of the cluster. In addition, each school within each cluster was identified as being in

the top half or bottom half. Descriptive statistics for each domain and survey item were

calculated for the whole group (i.e. all schools in the study), all schools which fell in a top tertile

across all clusters, all schools which were fell in the bottom tertile across all clusters, all schools

which were in the top half of a cluster, and all school in the bottom half of a cluster. Calculations

were made for both the 2018-2019 school year and the 2021-2022 school year. Further,

descriptive statistics were calculated for composite scores identifying the written, taught, and

assessed curriculum framework. These composite scores were an average of all items identified

as measuring the written, taught, or assessed domain.

Data Analysis

The third phase served as a point of convergence between the first two phases. A

two-sample *t*-test was used to determine if principals' curriculum supervision and evaluation

practices of top-performing schools are significantly different from principals' curriculum

supervision and evaluation practices of bottom-performing schools across written, taught, and

assessed practices. T-tests were completed between the top and bottom halves and top and

bottom tertiles. Descriptive statistics were analyzed to determine how the frequency of

principals' curriculum supervision and evaluation practices differ across school clusters in

Virginia. Finally, a comparison between the mean score from the 2018-2019 school year and the

2021-2022 school year was calculated using a two-sample t-test.

Summary

This study involves the analysis of existing survey data for 51 VA public school

principals and school enrollment, demographics, and student achievement data. The

methodology was chosen based on the research questions. Study findings are presented in

chapter four and summarize the curriculum supervision and evaluation practices of principals

and their association with student achievement across comparable clusters of Virginia public

schools.

IV.   RESULTS AND FINDINGS

The purpose of this study was to identify the curriculum supervision and evaluation practices common across schools with higher rates of student achievement across comparable school clusters. In addition, the study investigated the difference in the frequency of curriculum practices from the 2018-2019 school year to the 2021-2022 school year to account for changes in practices associated with leadership responses to the pandemic. A cluster analysis was used to identify top and bottom-performing schools among schools within the same cluster and ranked based on student achievement. School demographic data were merged with data obtained from a principal survey regarding the frequency of principals' curriculum supervision and evaluation practices. Finally, a two-sample *t*-test was conducted between survey responses of the top-performing schools and bottom-performing schools within each cluster, along with *t*-tests measuring the significant difference between the 2018-2019 curriculum practices and the 2021-2022 curriculum practices.

As an overview, this study found that schools in the bottom half or bottom third of their cluster were reporting more frequent supervision and evaluation practices with significant differences in written supervision, along with four survey items regarding supervision of the written, taught, and assessed curriculum. Second, this study explored the difference between the 2018-2019 school year and the 2021-2022 school year. Of the 23 non-binary survey items, 20 items indicated an increase in frequency, two items showed no change, and one item decreased in frequency. The domains of written supervision, assessed supervision, and assessed evaluation all showed a significant increase from the 2018-2019 school year to the 2021-2022 school year.

Research Question One

The first research question examined differences in reported curriculum supervision and evaluation practices of principals in top and bottom-performing schools. It was hypothesized principals' curriculum supervision and evaluation practices of top-performing schools are significantly different from principals' curriculum supervision and evaluation practices of bottom-performing schools.

In order to answer the first research question, an f-test was utilized to determine if the variances of the top and bottom tertile or the top and bottom half within each cluster were equal. In most cases, the variances were equal, which allowed for a one-tailed, two-sample t-test to be used to determine if significant differences existed between the two groups. Significant levels of 0.10 and 0.05 were utilized to determine if there were statistical differences between the top and bottom tertile or the top and bottom half. In Table 2 below, mean values and the results of the t-tests are reported for the 2018-2019 school year for each curriculum domain and survey item. Mean values range between zero and seven, based on the survey response items. Values closer to seven indicate more frequent practices. In contrast, values closer to zero indicate less frequent curriculum practices. For each t-test, the associated p-value is reported.

Table 2

Curriculum Supervision and Evaluation Practices Across Clusters 2018-2019: Mean Scores and Significant Tests by Domain

	Written - Supervision	Written - Evaluation	Taught - Supervision	Taught - Evaluation	Assessed - Supervision	Assessed - Evaluation
Whole Group	3.12	4.47	3.80	4.20	3.91	3.52
Tertile 1	2.98	4.10	3.60	4.03	3.75	3.56
Tertile 3	3.21	4.53	3.95	4.32	4.08	3.47
Tertile *t*-Test p-value	0.168	0.211	0.137	0.178	0.128	0.441
Top Half	2.95	4.38	3.76	4.18	3.94	3.56
Bottom Half	3.22	4.52	3.83	4.22	3.89	3.49
Half *t*-Test p-value	0.078*	0.367	0.371	0.430	0.418	0.437

*p<0.10.

As indicated in Table 2, there was no significance at the 0.05 level across the different domains of curriculum supervision and evaluation. Interestingly, the top tertile (Tertile 1) and top half both included survey item averages less than the bottom tertile (Tertile 3) and bottom half, respectively. The written and taught curriculum items included greater averages in the bottom tertile and bottom half group, indicating more frequent curriculum supervision and evaluation practices in bottom-performing schools. The written supervision domain was determined to be statistically different at the 0.10 significance level between schools in the bottom half and top half across all clusters. This finding suggests that bottom-performing schools may participate in more supervision practices of the written curriculum than top-performing schools.

Table 3 below includes the average and t-tests of each survey item calculated based on the whole group (all schools in study), schools in the top tertile (Tertile 1), bottom tertile (Tertile 3), top half, and bottom half. T-tests were calculated to test the difference between the top and

bottom tertile, as well as the top and bottom half of schools across all clusters. Significant levels

of 0.10 and 0.05 were used to determine if statistical differences existed.

Table 3

Curriculum Supervision and Evaluation Practices Across Clusters 2018-2019: Mean Scores by Survey Item

Survey Questions	Whole Group	Tertile 1	Tertile 3	Tertile *t*-test	Top Half	Bottom Half	Half *t*-test
Written Curriculum - Supervision							
1. Does your staff have access to local pacing and curriculum guides through a well-maintained and organized curriculum platform? (e.g. a website or shared drive)	1.96	2.00	1.90	0.136	2.00	1.94	0.138
2. Is there a curriculum development schedule and protocol in place at your school? (e.g. a calendar with a written process for writing or revising curriculum)	1.65	1.50	1.65	0.210	1.58	1.69	0.221
3. How often do you communicate expectations for writing and posting lesson plans?	4.06	3.42	4.55	0.046**	3.32	4.50	0.011**
4. How often do you communicate expectations about curriculum alignment (e.g. content and cognitive level)?	4.80	5.00	4.75	0.310	4.89	4.75	0.355
Written Curriculum - Evaluation							
5. How often do you evaluate the alignment of curriculum materials and resources to the VA Standards of Learning? (e.g. reviewing assignments for content and cognitive level).	4.18	3.92	3.95	0.480	4.21	4.16	0.456
6. How often do you evaluate the alignment of lesson plans to the VA Standards of Learning?	4.73	4.50	4.80	0.325	4.68	4.75	0.446
7. How often do you evaluate lesson plans based on the design of the lesson? (e.g. lesson structure, student vs. teacher-centered,	4.53	4.00	4.95	0.064	4.32	4.66	0.240

etc.)

8. How often do you evaluate the scope and sequence of lesson plans? (e.g. on pace with pacing guides, etc.)	4.43	4.00	4.40	0.257	4.32	4.50	0.331
Taught Curriculum - Supervision							
9. How often do you require targeted professional development to individual staff based on need?	3.49	3.00	3.80	0.080	3.26	3.63	0.190
10. How often do you participate alongside teachers in professional development?	3.96	3.25	4.20	0.042**	3.74	4.09	0.173
11. Prior to conducting formal observations, how often do you informally visit classrooms to observe instruction? (e.g. walkthroughs or learning walks)	5.41	5.75	5.40	0.210	5.84	5.16	0.031**
12. After informal visits, how often do you follow up with instructional staff to provide detailed, constructive feedback?	4.02	3.67	4.20	0.034**	3.74	4.19	0.060*
13. How often do you require teachers to complete peer observations?	2.14	2.33	2.15	0.336	2.21	2.09	0.370
Taught Curriculum - Evaluation							
14. How often do you evaluate the alignment of verbal instruction to the Virginia Standards of Learning (e.g. academic vocabulary used by staff)?	3.69	3.25	3.95	0.170	3.58	3.75	0.380
15. During a formal observation, how often do you evaluate instructional delivery (e.g. effective strategies and progression)?	4.61	4.58	4.75	0.279	4.58	4.63	0.416
16. During a formal observation, how often do you evaluate the progression of the instruction (e.g. sequence and speed of instructional delivery)?	4.31	4.25	4.25	0.500	4.37	4.28	0.357

Assessed Curriculum - Supervision

Question							
17. How often does your school administer common assessments?	4.24	4.17	4.35	0.350	4.26	4.22	0.450
18. How often do you train teachers in assessment construction (e.g. using a table of specifications to ensure alignment)?	2.02	1.75	2.20	0.194	2.00	2.03	0.469
19. How often do you analyze data to identify patterns or trends in student performance to make decisions about instruction?	4.75	4.75	4.80	0.446	4.89	4.66	0.216
20. How often do you provide opportunities for instructional staff to participate in data-centered discussions to make instructional decisions? (e.g. data meetings)	4.73	4.83	4.95	0.393	4.84	4.66	0.299
21. How often does your team collect, compile, and analyze relevant student group data to determine appropriate professional development for instructional staff?	3.88	3.33	4.25	0.031**	3.74	3.97	0.273
22. Following data review, how often do you set accountability measures for improvement (e.g. next steps)?	3.84	3.67	3.95	0.204	3.89	3.81	0.384

Assessed Curriculum - Evaluation

Question							
23. How often do you evaluate the alignment of classroom assessments to the Virginia Standards of Learning?	3.71	3.83	3.85	0.491	3.68	3.72	0.474
24. How often do you evaluate the design of classroom assessments? (e.g. choice of assessment: performance-based, traditional, etc.)	3.65	3.92	3.40	0.235	3.95	3.47	0.185
25. How often do you evaluate the administration of classroom assessments? (e.g. environment, duration, etc.)	3.20	2.92	3.15	0.358	3.05	3.28	0.326

*p<0.10. **p<0.05*

Many items showed differences between the top and bottom tertile, as well as differences between the top and bottom half. In most cases, the bottom tertile or the bottom half had a greater mean value than the top tertile or the top half, respectively. This difference suggests that principals engaged in curriculum supervision and evaluation practices more frequently in bottom-performing schools.

At a 0.05 significance level, the following survey item averages were found to be significantly different between the bottom tertile and top tertile: "how often do you communicate expectations for writing and posting lesson plans," (Written Supervision) "how often do you participate alongside teachers in professional development," (Taught Supervision) "after informal visits, how often do you follow up with instructional staff to provide detailed, constructive feedback," (Taught Supervision) and "how often does your team collect, compile, and analyze relevant student group data to determine appropriate professional development for instructional staff" (Assessed Supervision). Each of these items mentioned fall into the supervision category - an active and ongoing process that involves facilitating the school's evidence-based curriculum practices and procedures. The findings suggest that principals in bottom-performing schools engage in these practices more frequently.

Communicating expectations for writing and posting lesson plans had a mean score of 3.42 for Tertile 1. This mean score indicates principals in top performing schools, on average, are communicating expectations between twice a year (or each semester) or quarterly. Tertile 3 had a mean score of 4.55, indicating bottom performing schools are communicating expectations for writing and posting lesson plans more frequently - between quarterly and monthly. Principals in top-performing schools responded as participating alongside staff between "sometimes" and

"often" as indicated by a score of 3.25; however, principals in bottom performing schools

reported participating in professional development alongside staff between "often" and "always."

Similarly, principals in top-performing schools reported providing constructive feedback to

teachers following informal visits between "sometimes" and "often;" whereas, principals in

bottom-performing schools reported following up with constructive feedback as "often" or

"always." Using data to inform decisions regarding professional development was between each

semester to quarterly for top-performing schools. Bottom-performing schools reported using data

to inform professional development between quarterly and monthly.

There were four non-binary items which included means greater in the top tertile group

than the bottom tertile group: "how often do you communicate expectations about curriculum

alignment" (Written Supervision), "prior to conducting formal observations, how often do you

informally visit classrooms to observe instruction" (Taught Supervision), "how often do you

require teachers to complete peer observations" (Taught Supervision), and how often do you

evaluate the design of classroom assessments" (Assessed Evaluation). At the 0.05 significance

level, there was a significant difference between principal practices pertaining to the item "prior

to conducting formal observations, how often do you informally visit classrooms to observe

instruction." Informal observations include walkthroughs and other forms of learning walks. This

finding suggests that principals in top-performing schools engage in more informal walkthroughs

than principals of bottom-performing schools.

Both principals of top and bottom-performing schools reported visiting classrooms

between monthly and weekly. However, principals in top-performing schools had a mean score

of 5.84 indicating visits were conducted more on a weekly basis, than a monthly. Principals in

the bottom-performing ground had a mean score of 5.16, indicating informal classroom visits occurred more monthly.

As stated, the hypothesis for this research question was that principals in top-performing schools were more frequently implementing curriculum supervision and evaluation practices. For most of the items in the survey, the hypothesis was not supported, suggesting principals within bottom-performing schools engaged in more curriculum supervision and evaluation practices. The exception within this item analysis is the frequency of informal walkthroughs and the amount of time principals spend in classrooms.

Research Question Two

The second research question of this study was "are there differences between the frequency of curriculum leadership practices from before and after the start of the COVID-19 pandemic?" It was hypothesized that the frequency of curriculum leadership practices from before the COVID-19 pandemic was different from the frequency of the curriculum leadership practices after the COVID-19 pandemic.

Table 4
Curriculum Supervision and Evaluation Practices Across Clusters 2018-2019 Compared to 2021-2022: Mean Scores and Significant Tests by Domain

	Written - Supervision	Written - Evaluation	Taught - Supervision	Taught - Evaluation	Assessed - Supervision	Assessed - Evaluation
2018-2019	3.12	4.47	3.80	4.20	3.91	3.52
2021-2022	3.20	4.61	3.81	4.28	4.07	3.69
t-Test	0.011**	0.064*	0.477	0.068*	0.001**	0.030**

*$p<0.10$. **$p<0.05$

Across the different supervision and evaluation domains, there was a significant difference in the frequency of curriculum practices between the 2018-2019 school year and the 2021-2022 school year. Differences in curriculum practices relating to written supervision, assessment supervision, and assessment evaluation were significant at the 0.05 level. Differences in practices relating to the evaluation of written curriculum and taught curriculum were significantly different at the 0.10 significance level. The only domain without significance is the frequency of supervision of the taught curriculum.

The significant findings at the domain level included mean scores which were between 3.00 and 5.00. A mean score of 3.00 indicates practices within this domain occurred on a semester frequency. A mean score of 4.00 indicates the practices occurred on a quarterly frequency. Finally, a mean score of 5.00 indicates these practices within the domain occurred on a monthly frequency.

Table 5

Curriculum Supervision and Evaluation Practices Across Clusters 2018-2019 Compared to 2021-2022: Mean Scores and Significant Tests by Survey Item

Survey Questions	2018-2019	2021-2022	*t*-Test
Written Curriculum - Supervision			
1. Does your staff have access to local pacing and curriculum guides through a well-maintained and organized curriculum platform? (e.g. a website or shared drive)	1.96	2.00	0.080*
2. Is there a curriculum development schedule and protocol in place at your school? (e.g. a calendar with a written process for writing or revising curriculum)	1.65	1.63	0.284
3. How often do you communicate expectations for writing and posting lesson plans?	4.06	4.20	0.026**
4. How often do you communicate expectations about curriculum alignment (e.g. content and cognitive level)?	4.80	4.98	0.030**
Written Curriculum - Evaluation			
5. How often do you evaluate the alignment of curriculum materials and resources to the VA Standards of Learning? (e.g. reviewing assignments for content and cognitive level).	4.18	4.29	0.147
6. How often do you evaluate the alignment of lesson plans to the VA Standards of Learning?	4.73	4.90	0.053
7. How often do you evaluate lesson plans based on the design of the lesson? (e.g. lesson structure, student vs. teacher-centered, etc.)	4.53	4.67	0.090*
8. How often do you evaluate the scope and sequence of lesson plans? (e.g. on pace with pacing guides, etc.)	4.43	4.59	0.044**

Taught Curriculum - Supervision

9. How often do you require targeted professional development to individual staff based on need?	3.49	3.61	0.112
10. How often do you participate alongside teachers in professional development?	3.96	3.96	0.500
11. Prior to conducting formal observations, how often do you informally visit classrooms to observe instruction? (e.g. walkthroughs or learning walks)	5.41	5.47	0.352
12. After informal visits, how often do you follow up with instructional staff to provide detailed, constructive feedback?	4.02	4.02	0.500
13. How often do you require teachers to complete peer observations?	2.14	1.98	0.073*

Taught Curriculum - Evaluation

14. How often do you evaluate the alignment of verbal instruction to the Virginia Standards of Learning (e.g. academic vocabulary used by staff)?	3.69	3.75	0.259
15. During a formal observation, how often do you evaluate instructional delivery (e.g. effective strategies and progression)?	4.61	4.69	0.105
16. During a formal observation, how often do you evaluate the progression of the instruction (e.g. sequence and speed of instructional delivery)?	4.31	4.41	0.048**

Assessed Curriculum - Supervision

17. How often does your school administer common assessments?	4.24	4.37	0.026**
18. How often do you train teachers in assessment construction (e.g. using a table of specifications to ensure alignment)?	2.02	2.12	0.128
19. How often do you analyze data to identify patterns or trends in student performance to make decisions about instruction?	4.75	4.90	0.016**
20. How often do you provide opportunities for instructional staff to participate in data-centered discussions to make instructional decisions? (e.g. data meetings)	4.73	4.90	0.030**

21. How often does your team collect, compile, and analyze relevant student group data to determine appropriate professional development for instructional staff?	3.88	4.08	0.001**
22. Following data review, how often do you set accountability measures for improvement (e.g. next steps)?	3.84	4.06	0.010**
Assessed Curriculum - Evaluation			
23. How often do you evaluate the alignment of classroom assessments to the Virginia Standards of Learning?	3.71	3.90	0.020**
24. How often do you evaluate the design of classroom assessments? (e.g. choice of assessment: performance-based, traditional, etc.)	3.65	3.92	0.017**
25. How often do you evaluate the administration of classroom assessments? (e.g. environment, duration, etc.)	3.20	3.25	0.297

*$p<0.10$. **$p<0.05$

Overall, the majority of the curriculum supervision and evaluation practices appeared to increase from the 2018-2019 school year to the 2021-2022 school year.

Only one non-binary item appeared to decrease from the 2018-2019 school year to 2021-2022: "how often do you require teachers to complete peer observations" (Taught Supervision). The difference between the two school years is statistically significant at the 0.10 significance level. All other items indicated an increase in the frequency of each practice.

The following differences between items were determined to be statistically significant at the 0.05 significance level: "how often do you communicate expectations for writing and posting lesson plans" (Written Supervision), "how often do you communicate expectations about curriculum alignment" (Written Supervision), "how often do you evaluate the scope and sequence of lesson plans" (Written Evaluation), "during a formal observation, how often do you evaluate the progression of the instruction" (Taught Evaluation), "how often does your school administer common assessments" (Assessed Supervision), "how often do you analyze data to identify patterns or trends in student performance to make decisions about instruction" (Assessed Supervision), "how often do you provide opportunities for instructional staff to participate in data-centered discussions to make instructional decisions" (Assessed Supervision), "how often does your team collect, compile, and analyze relevant student group data to determine appropriate professional development for instructional staff" (Assessed Supervision), "following data review, how often do you set accountability measures for improvement" (Assessed Supervision), "how often do you evaluate the alignment of classroom assessments to the Virginia Standards of Learning" (Assessed Evaluation), and "how often do you evaluate the design of

classroom assessments" (Assessed Evaluation). As hypothesized, there was a significant

difference in the frequency of curriculum supervision and evaluation practices following the

pandemic.

All mean scores for significant items within the written and taught curriculum were

between 4.00 and 5.00. A mean score of 4.00 indicates these practices occurred quarterly. A

mean score of 5.00 indicates these practices occurred monthly. Of the significant practices within

the written and taught curriculum, each shifted from occurring on a quarterly basis to more of a

monthly basis from the 2018-2019 school year to the 2021-2022 school year.

The assessed curriculum had several items take a significant shift from quarterly to

monthly. For example, common assessment, analyzing data to make instructional decisions, and

staff participating in data-centered discussions all had mean scores closer to 5.00 for the

2021-2022 school year. Analyzing student data to determine professional development, setting

accountability measures for improvement, and evaluating the alignment and design of classroom

assessments shifted from each semester to occuring more quarterly.

Summary

Results of this study revealed that the curriculum supervision and evaluation practices

within schools in the bottom tertile of comparable school clusters are more frequent than those in

the top tertile. Four specific curriculum supervision-related practices of schools in the bottom

tertile were shown to have statically significant differences in the frequency - indicating an

increase of frequency in the supervision of the written, taught, and assessed curriculum. A few

curriculum practices were reported as more frequent among principals in schools in the top

tertile. These included: having access to local pacing and curriculum guides through well-maintained and organized platforms, communicating expectations regarding curriculum alignment, informally visiting classrooms to observe instruction, requiring teachers to complete peer observations, and evaluating the design of classroom assessments. However, the only significant difference where the top-performing group had a score greater than the bottom-performing group was related to the frequency of conducting informal observations or walkthroughs.

Further, this study revealed a significant increase in curriculum practices from before and after the COVID-19 pandemic. During the 2021-2022 school year, the principal survey highlighted the increase in many practices across all schools within the survey. At the domain level, all curriculum supervision and evaluation practices, with the exception of taught supervision, were found to have a significant increase from the 2018-2019 school year to the 2019-2022 school year. Of the 25 curriculum practices indicated in the survey, 23 included a 5-point or 7-point Likert scale. Of the 23 Likert-scaled items, 21 items indicated an increase in frequency during the 2021-2022 school year. Of the 21 items, fourteen were found to have a significant difference from the 2018-2019 school year to 2021-2022.

The domains with findings indicating an increase in the frequency of practices at the 0.05 significance level included the following: the supervision of the written curriculum and the supervision and evaluation of the assessed curriculum. The evaluation of the written and taught curriculum both were found to have an increase in practices between the two years at the 0.10 significance level.

The following differences between the 2018-2019 school year and the 2021-2022 school year were determined to be statistically significant at the 0.05 significance level: "how often do you communicate expectations for writing and posting lesson plans?" (Written Supervision), "how often do you communicate expectations about curriculum alignment? (Written Supervision), "how often do you evaluate the scope and sequence of lesson plans?" (Written Evaluation), during a formal observation, how often do you evaluate the progression of the instruction?" (Taught Evaluation), "how often does your school administer common assessments?" (Assessed Supervision), "how often do you analyze data to identify patterns or trends in student performance to make decisions about instruction?" (Assessed Supervision), "how often do you provide opportunities for instructional staff to participate in data-centered discussions to make instructional decisions?" (Assessed Supervision), "how often does your team collect, compile, and analyze relevant student group data to determine appropriate professional development for instructional staff?" (Assessed Supervision), "following data review, how often do you set accountability measures for improvement?" (Assessed Supervision), "how often do you evaluate the alignment of classroom assessments to the Virginia Standards of Learning?" (Assessed Evaluation), and "how often do you evaluate the design of classroom assessments?" (Assessed Evaluation).

The only item which indicated a decrease from the 2018-2019 school year to the 2021-2022 school year required staff to complete peer visits. This decrease is understandable as social distancing was encouraged throughout the COVID-19 pandemic, and mitigating unnecessary interactions (e.g., peer visits) in schools was likely.

V.   DISCUSSION

Overview

The purpose of this study was to examine how principals' curriculum supervision and evaluation practices differed among top and bottom-performing schools within comparable school clusters, as well as study the difference in frequency of these curriculum practices from the 2018-2019 school year and the 2021-2022 school year. The following research questions informed this study:

1. Are principals' curriculum supervision and evaluation practices of top-performing schools significantly different from principals' curriculum supervision and evaluation practices of bottom-performing schools?

2. Are there differences between the frequency of curriculum leadership practices from before and after the COVID-19 pandemic?

To address the research questions, first, a cluster analysis was conducted to statistically identify and group similar schools according to the following characteristics: enrollment count, percentage of students who are economically disadvantaged, percent of students with disabilities, percentage of students receiving English as a Second Language (ESOL) services, percentage of different racial demographics to include Asian, Black, Hispanic, White, and multiple races. Clusters were sorted based on a student achievement composite score for each school in the cluster. The clustering and sorting of schools was the first step in identifying top and bottom-performing. School cluster data was then merged with responses to a principal survey administered to measure the frequency of curriculum practices categorized by their connection to the written, taught, and assessed curriculum. Two-sample *t*-tests were conducted to determine the

significance in the differences of the 2018-2019 curriculum practices between the schools in the top and bottom tertiles, as well as the top and bottom half across all clusters. Two-sample t-tests were also used to measure the difference between the frequency of curriculum practices between the 2018-2019 school year and the 2021-2022 school year. Analyses were conducted at both the domain level (i.e., written supervision, written evaluation, taught supervision, taught evaluation, assessed supervision, and assessed evaluation practices) and the principal survey item level.

This chapter aims to consider the findings within the body of research on curriculum supervision and evaluation practices, make recommendations for applications to practices, and make suggestions for future research. The limitations of this study will also be discussed.

Summary of Findings

Several findings at the 0.05 and 0.10 significance levels emerged from the study. Unexpectedly, many curriculum leadership practices were reported as occurring more frequently within bottom-performing schools than top-performing schools. Most of these items are related to the supervision of the written, taught, or assessed curriculum. At the domain level, curriculum practices pertaining to the supervision of the written curriculum were reported as occurring more frequently with bottom-performing schools than top-performing schools. However, four curriculum leadership practices were found to occur more frequently in top-performing schools: communicating expectations about alignment, monitoring instruction by visiting classrooms prior to formal observations (walkthroughs), requiring teachers to complete peer observations, and evaluating classroom assessments. Brown (2012) supports these practices by finding "schools that have made effective turnaround efforts have created organizational structures to monitor the implementation of the curriculum" (p. 52). Examples of these efforts include visiting

classrooms regularly and monitoring curriculum alignment by evaluating assessments and lesson plans.

Between the 2018-2019 school year and the 2021-2022 school year, most of the curriculum leadership practices were found to occur more frequently after the start of the pandemic. All domains with the exception of the taught supervision, had a significant increase in frequency. Principal curriculum practices relating to the supervision of the written curriculum and the supervision and evaluation of the assessed curriculum all indicated an increase between the two school years at the 0.05 significance level. Of the 25 items included in the principal survey, eleven items were found to have increased between 2018-2019 to 2021-2022 at the 0.05 significance level, and three at the 0.10 significance level. One item was found to have decreased from the 2018-2019 school year to 2021-2022: the requirement of peer visits.

Discussion

Research Question One

Findings in this research suggest that principals in bottom-performing schools were more frequently engaged with many of the curriculum supervision and evaluation practices included in this study than principals in top-performing schools. Most of these curriculum leadership practices were measured as a significant difference within the supervision of the written, taught, or assessed curriculum. Although these findings were unexpected, there are several reasons the results may be inconsistent with the current literature.

First, the survey was centered around Virginia's principal evaluation system. Many of the items on the survey paralleled the research supporting the indicators of effective principals. Although the practices identified in the survey items were not listed in the principal evaluation

system, their development was based on a synthesis of related research topics with many overlapping studies. It is likely that many bottom-performing schools may be in the process of school improvement and under the influence of the state. As part of this designation status, many of the curriculum leadership practices may have been implemented through a directive of the Virginia Department of Education. As for any directive which does not originate authentically, there is always a possibility of practices based on compliance rather than purpose.

Compliance may be the first step in school improvement. Organizational change may first occur as compliance, then gradually shift towards purpose and intensionality. A culture of compliance may occur more frequently in bottom-performing schools than top-performing, as more regulations are placed on schools in the improvement process. However, it is important to note that many of these practices may initially start through compliance of regulations, there is a window of opportunity for principals to take ownership of these practices and implement them as a means for positive student outcomes. Schools in the bottom-performing group may be situated somewhere on this compliance/progress spectrum. On one end, a culture of compliance, defined by Langevoort (2017), "refers to the shared beliefs—'sense-making'—inside any given organization about the importance or legitimacy of legal compliance vis-a`-vis other pressures and goals" (p. 944). On the other end, is a culture centered on students and implementing related curriculum leadership practices for the purpose of improving student outcomes. The concern of operating in a culture of compliance is that practices may be implemented in a mere checklist-like approach. Abbate (2010) further explains, "the problem is believing that the regulations define excellence. Whether in education or anywhere else, there is significant danger for any leader who thinks of accountability only in terms of outside mandates. For those leaders,

compliance becomes a surrogate for quality, and surviving an external evaluation becomes a substitute for strategic thinking" (p. 36). One unknown element in this study is the level of fidelity of how these practices were implemented. Principals may have implemented these practices due to their connection with positive student outcomes, or they may have been implemented to follow compliance with regulations. One way to better measure the effectiveness of these practices is to also administer a teacher survey on their perspectives toward the fidelity of implementation.

Without understanding the purpose and value of these curriculum leadership practices, many practices may occur more frequently but without proper fidelity. The concern regarding the fidelity of curriculum leadership practices parallels one limitation of this study: frequency does not always equate to an outcome, as it does not ensure the quality of implementation. One counter method to better gauge the quality of implementation may be to also survey teachers or support staff. A principal may implement these practices through a checklist approach rather than truly leveraging the benefits or understanding the purpose and their impact on student outcomes.

Third, social desirability bias is more probable to occur by respondents who are not engaging in curriculum practices or doing so in compliance rather than survey participants who are implementing these practices to leverage them for student achievement. With only 51 responses, a type 2 error is more likely to occur in the findings.

Four curriculum leadership practices of principals were more frequent in top-performing schools than bottom-performing schools: communicating expectations about alignment, monitoring instruction by visiting classrooms prior to formal observations (walkthroughs), requiring teachers to complete peer observations, and evaluating classroom assessments. At the

0.05 significance level, the frequency of informal observations occurred more often in top-performing schools.

Instructional leadership parallels school improvement and is the foundation for increasing student achievement. "Numerous research studies confirm that the most important factor contributing to student success is the effectiveness of instruction" (Bright, 2011, p. 33). Implementing classroom visits and monitoring instruction allows effective principals to leverage instructional processes within schools to maximize student outcomes. Downey et al. (2004) explained, "administrators must come to view their primary role as one of an instructional leader promoting improved student achievement" (p. 7). The literature supports the concept that principals who understand and utilize curriculum leadership practices make schools more successful. Marzano et al. (2005) found a significant correlation between effective principals and increased student achievement. Marzano et al. (2011) explained the importance of being visible instructional leaders through observing classrooms: "improving a teacher's strategies and behaviors in the classroom should be the primary focus of supervision and evaluation" (p. 51). Research currently supports the idea that principals should focus on instruction if the goal is to increase student achievement (Kubicek, 2011).

Informal classroom visits are one way to stay informed about instruction. Quick walkthroughs are one way for principals to stay informed. This research adds to the current body of literature by considering practices across top-performing schools. Further, this study identifies the frequency of these practices. Across the clusters, school principals within the top tertile of schools indicated walkthroughs occurred more weekly. Principals in the bottom tertile of schools indicated walkthroughs occurred more monthly.

The combination of the methodology used in identifying top and bottom-performing schools in conjunction with the combination of specific curriculum practices implemented by principals in top-performing schools serves as a primary contributor to current research.

Research Question Two

The study also revealed that many of the curriculum supervision and evaluation practices identified within this study were occurring more frequently during the 2021-2022 school year when compared to the 2018-2019 school year. At the domain level, all curriculum supervision and evaluation practices, with the exception of taught supervision, were found to have a significant increase from the 2018-2019 school year to the 2019-2022 school year. Among the survey items, fourteen were found to have a significant increase from the 2018-2019 school year to 2021-2022.

A flood-like increase in curriculum supervision and evaluation practices during the 2021-2022 school year may be attributed to the COVID-19 pandemic, as learning loss was a global concern. Onyema et al. (2020) explained the COVID-19 pandemic, coupled with already challenged academic realities, created educational disruptions that significantly impacted schools. One hypothesis for these results is a shift in curriculum practices occurred due to principals acknowledging the importance of these practices and their influence on student outcomes. There may have been a shift from a culture of compliance to a culture centered on addressing learning loss created by the pandemic.

Another point of discussion is the number of practices related to the assessed curriculum which showed a significant increase from the 2018-2019 school year to the 2021-2022. Many of these practices may be connected to the concern of learning loss and the importance of

identifying and measuring the amount of learning loss which resulted from the COVID-19 pandemic. Both formative and summative assessments are tools educators use to check for student understanding. An increase in the attention and use of assessments seems natural. Both district and school leaders may have prioritized identifying the scope of learning loss and the status of student learning post-pandemic. An increase in practices relating to the assessed curriculum also influences the frequency of data analyses. Data use could be attributed to greater investment in tools and measures to evaluate the current level of student learning and identify any gaps in knowledge.

Many of the items specific to the supervision of the taught curriculum include interactions between individuals, such as classroom observations, conducting peer visits, and participating alongside staff in professional development. Due to the nature of the COVID-19 pandemic, it is likely these practices did not significantly increase, as COVID-19 mitigation measures involved social distancing. During the 2021-2022 school year, it is likely many principals limited their classroom walkthroughs and removed any requirements of peer visits.

Limitations

The methodology and application of cluster analysis in identifying top and bottom-performing schools is the strength of this study. Schools have many different characteristics outside of instructional practices which impact student achievement (Alcorta, 2011). The design of this study takes factors in many school characteristics to form comparable school clusters. Within each cluster, schools are identified as top and bottom-performing schools based on student achievement.

The study findings are limited by several methodological constraints. These limitations include a narrowed and targeted population of principals, a low response rate, a self-reporting survey, limited data for clustering, and a single measure of frequency pertaining to curriculum practices.

First, the schools selected for this study and the 51 survey participants were only from Virginia. The practices occurring within Virginia may be uncommon or infrequent outside of the state. Virginia was selected for a few reasons: the diversity of the schools, the access to publicly available data, and the convenience of administering the survey. The targeted Virginia population of schools and principals prevents the generalization of the findings.

The low response rate also prevents the generalization of the findings. Only 51 Virginia principals or designees responded to the survey of the 1,751 emails, resulting in a response rate of 2.9%. Wayman et al. (2016) write, "when response rates are low, findings could be biased toward certain types of responders" (p. 20). For example, if only recipients who are interested or involved with many of these curriculum supervision and evaluation practices respond, then the results will not reflect the practices of principals who participate in these practices less frequently. A low response rate can lead to a Type 2 error - often referred to as a false negative. This type of statistical error can lead to the preservation of the status quo.

The data used in this study were collected from a self-reported survey. Principals were asked to self-report their curriculum leadership practices. As with any self-reporting survey, there is room for bias and inaccurate reporting. Social desirability bias may be a primary limitation to this study, as the items within the survey are all practices that many principals recognize as good practices. However, there are many roles and responsibilities of principals - each chipping away

at the time of the school day. Although principals may recognize these practices are desirable, the reality of implementing these practices may differ. Bias is inherent in all survey research. The intentional or unintentional bias of one's self-assessment may have impeded the analysis of this study.

Another limitation to this study is the variables used in this analysis. Although enrollment and different school demographics were used in the study to identify school clusters, there are a number of other variables which would have added value to the research. For example, the amount of school funding differs among schools, along with the number of certified teachers and the percentage of vacancies for first-year teachers. There are several indicators of student achievement beyond the ones utilized in the cluster analysis. Alcorta (2011) explains, "the community traits associated with higher levels of mathematics achievement included … a smaller percentage of parents with an education level of only a high school diploma, …more years of classroom experience of the teacher," and "...an increase in student daily attendance" (p. *iv*). Hattie (2015) also writes about other variables with greater effect sizes that may assist in more meaningful clusters of schools. However, due to the limited publicly available data and the ease of access, the variables in this study were restricted to pass rates in reading and mathematics, school enrollment count, percentage of students labeled as economically disadvantaged or disabled, and the different racial demographics.

Finally, this study was centered on the frequency of curriculum practices. Due to the depth and complexity of the roles and responsibilities of a school principal, the amount of time allocated towards curriculum supervision and evaluation depends on the presence of other priorities at the school, district, or state level. As the head of a school building, the principal

oversees all aspects of the organization (Grissom & Leob, 2011). This includes the instructional and operational aspects of the school. In some buildings, additional staff could manage the different functions of a principal, allowing more time for the principal to serve as an instructional leader. For example, some schools have assistant principals who manage discipline. In smaller schools, there may be only one principal without additional administrative support. The time available to spend as an instructional leader then competes with other responsibilities. This research does not account for these different organizational structures or role allocations but rather focuses on just principals' involvement in the curriculum. The effort to group comparable schools according to size or student enrollment may indirectly account for differences in staff models which are often determined by enrollment. Further, the Standards of Quality in the Virginia Code have required ratios of administrative support based on total student enrollment. Therefore, after clustering schools, it is likely that schools within each cluster will have comparable administrative support.

It should be noted that frequency does not always reflect quality or duration. For example, one principal may engage in a curriculum practice more frequently but does not do it with the quality of another principal. In other words, proficiency in curriculum leadership differs among principals. Some principals are more skilled in curriculum supervision and evaluation than others. This study only considers the frequency in which principals spend time on some behaviors regarding curricula rather than quality. The frequency of a task does not always correlate with the effectiveness of the task. A principal may complete less tasks but have more fruitful outcomes than another principal who completes more tasks but has less impactful outcomes.

Recommendations for Practice

The methodological approach used in this research is one strength of the research which advances and improves the quality of information known about curriculum leadership practices. This technique of clustering and identifying top and bottom-performing schools within each cluster is a means of holding other variables constant. Frequently, administrators and other school staff are hesitant to compare schools or school districts to each other - referencing their differences in enrollment, demographics, or funding. Using a cluster analysis approach provides researchers with a comparable means to conduct analysis. Secondly, the use of this clustering method allows for principals and other instructional leaders to establish a network of peers within comparable settings to communicate ideas, problem solve, and share effective programs or practices. Peer learning networks could be formed through the clustering approach utilized in this research. Although the results of this research did not meet all hypothesized conjectures, the technique used in this study may be considered for future analysis in K-12 education.

There were a few curriculum supervision and evaluation practices identified which support student achievement. One significant finding included the frequency of informal observations (e.g.walkthroughs) throughout the school year. This identification of effective practice suggests increasing learning walks from monthly occurrences to weekly occurrences. This research adds to the evidence that informal observations contribute to student success.

The principal survey used in this study was a modernization of a former survey of the curriculum practices of principals. The survey was developed based on the conceptualization of curricula into three domains - written, taught, and assessed curriculum. The survey was also categorized between supervision and evaluation practices, resulting in a total of six sub-domains:

written supervision, written evaluation, taught supervision, taught evaluation, assessed supervision, and assessed evaluation. These sub-domains may assist future research in the conceptualization and categorization of curriculum practices within schools.

Recommendations for Future Research

Although some findings are inconsistent with established research, this study breaks new ground by identifying a curriculum leadership practice that stands alone from the others: principals within top-performing schools are more frequently in classrooms. This finding adds to the established research by highlighting its significance among top-performing schools within clusters. Understanding the impacts of these practices and the commonalities of top-performing schools could influence decisions regarding curriculum and instruction at the local, state, and federal levels. This research focused on principals in Virginia and included a low response rate. Future research may include using the same methodology but include increasing the number of participants within Virginia and across multiple states.

Secondly, identifying the change in curriculum practices between the 2018-2019 school year may influence further research on the frequency and evolution of curriculum practices. As we recover from a global pandemic, more emphasis on targeted, intentional instruction to address learning gaps is a focus within many schools. Recently, as indicated in this research, more attention has been drawn to the written, taught, and assessed curriculum. This research may serve as a springboard into deeper inquiry beyond the frequency of curriculum practices into methods and quality of curriculum supervision and evaluation practices.

Finally, this research could have been improved through the use of a growth measure. Many states are currently moving forward with growth as an indicator of student achievement.

Using growth as a student outcome, rather than proficiency rates, would help enhance the identification of top and bottom-performing schools. Questions may examine the amount of growth among schools of comparable school clusters.

Conclusion

This study was conducted to better understand the difference in the frequency of curriculum supervision and evaluation practices between schools at the top of comparable school clusters and schools at the bottom of comparable school clusters. This research included a cluster analysis of Virginia K-12 public schools based on enrollment and school demographic percentages. This study leveraged a cluster analysis to identify schools at the top and bottom of each cluster - considering both halves and tertile groups. Findings included identifying practices that were more frequent in top-performing schools than bottom-performing schools and identifying curriculum supervision and evaluation practices that increased from the 2018-2019 school year to the 2021-2022 school year.

Limitations for this study included common challenges associated with data collection, surveys, and other forms of questionnaires. Implications of practice involve the methodological approach utilized in this research to identify instructional practices that positively impact student achievement and leverage the curriculum supervision and evaluation practices that positively impact student outcomes. Recommendations for future research include expanding the study to include more data by involving additional states and principals. Increasing the sample size will assist in eliminating the probability of a type II error.

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APPENDIX A

Table 6

Curriculum Leadership Practices - Principal Survey

Survey Question	Scale
Written Curriculum - Supervision	
1. Does your staff have access to local pacing and curriculum guides through a well-maintained and organized curriculum platform? (e.g. a website or shared drive)	Binary *(yes, no)*
2. Is there a curriculum development schedule and protocol in place at your school? (e.g. a calendar with a written process for writing or revising curriculum)	Binary *(yes, no)*
3. How often do you communicate expectations for writing and posting lesson plans?	Likert, 7-point scale *(daily, weekly, monthly, quarterly, each semester, yearly, and never)*
4. How often do you communicate expectations about curriculum alignment (e.g. content and cognitive level)?	Likert, 7-point scale *(daily, weekly, monthly, quarterly, each semester, yearly, and never)*
Written Curriculum - Evaluation	
5. How often do you evaluate the alignment of curriculum materials and resources to the VA Standards of Learning? (e.g. reviewing assignments for content and cognitive level).	Likert, 7-point scale *(daily, weekly, monthly, quarterly, each semester, yearly, and never)*
6. How often do you evaluate the alignment of lesson plans to the VA Standards of Learning?	Likert, 7-point scale *(daily, weekly, monthly, quarterly, each semester, yearly, and never)*
7. How often do you evaluate lesson plans based on the design of the lesson? (e.g. lesson structure, student vs. teacher-centered, etc.)	Likert, 7-point scale *(daily, weekly, monthly, quarterly, each semester, yearly, and never)*
8. How often do you evaluate the scope and sequence of lesson plans? (e.g. on pace with pacing guides, etc.)	Likert, 7-point scale *(daily, weekly, monthly, quarterly, each semester, yearly, and never)*

Taught Curriculum - Supervision

9. How often do you require targeted professional development to individual staff based on need?

Likert, 7-point scale
(daily, weekly, monthly, quarterly, each semester, yearly, and never)

10. How often do you participate alongside teachers in professional development?

Likert, 5-point scale
(always, often, sometimes, rarely, never)

11. Prior to conducting formal observations, how often do you informally visit classrooms to observe instruction? (e.g. walkthroughs or learning walks)

Likert, 7-point scale
(daily, weekly, monthly, quarterly, each semester, yearly, and never)

12. After informal visits, how often do you follow up with instructional staff to provide detailed, constructive feedback?

Likert, 5-point scale
(always, often, sometimes, rarely, never)

13. How often do you require teachers to complete peer observations?

Likert, 7-point scale
(daily, weekly, monthly, quarterly, each semester, yearly, and never)

Taught Curriculum - Evaluation

14. How often do you evaluate the alignment of verbal instruction to the Virginia Standards of Learning (e.g. academic vocabulary used by staff)?

Likert, 7-point scale
(daily, weekly, monthly, quarterly, each semester, yearly, and never)

15. During a formal observation, how often do you evaluate instructional delivery (e.g. effective strategies and progression)?

Likert, 5-point scale
(always, often, sometimes, rarely, never)

16. During a formal observation, how often do you evaluate the progression of the instruction (e.g. sequence and speed of instructional delivery)?

Likert, 5-point scale
(always, often, sometimes, rarely, never)

Assessed Curriculum - Supervision

17. How often does your school administer common assessments?

Likert, 7-point scale
(daily, weekly, monthly, quarterly, each semester, yearly, and never)

18. How often do you train teachers in assessment construction (e.g. using a table of specifications to ensure alignment)?

Likert, 7-point scale
(daily, weekly, monthly, quarterly, each semester, yearly, and never)

19. How often do you analyze data to identify patterns or trends in student performance to make decisions about instruction?

Likert, 7-point scale
(daily, weekly, monthly, quarterly, each semester, yearly, and never)

20. How often do you provide opportunities for instructional staff to participate in data-centered discussions to make instructional decisions? (e.g. data meetings)

Likert, 7-point scale
(daily, weekly, monthly, quarterly, each semester, yearly, and never)

21. How often does your team collect, compile, and analyze relevant student group data to determine appropriate professional development for instructional staff?

Likert, 7-point scale
(daily, weekly, monthly, quarterly, each semester, yearly, and never)

22. Following data review, how often do you set accountability measures for improvement (e.g. next steps)?

Likert, 5-point scale
(always, often, sometimes, rarely, never)

Assessed Curriculum - Evaluation
23. How often do you evaluate the alignment of classroom assessments to the Virginia Standards of Learning?

Likert, 7-point scale
(daily, weekly, monthly, quarterly, each semester, yearly, and never)

24. How often do you evaluate the design of classroom assessments? (e.g. choice of assessment: performance-based, traditional, etc.)

Likert, 7-point scale
(daily, weekly, monthly, quarterly, each semester, yearly, and never)

25. How often do you evaluate the administration of classroom assessments? (e.g. environment, duration, etc.)

Likert, 7-point scale
(daily, weekly, monthly, quarterly, each semester, yearly, and never)

APPENDIX B

Table 7

Comparison Between Curriculum Leadership Surveys

Original Survey	Updated/ Added Items
You check annually to make certain that all teachers have current copies of the district curriculum.	1.Does your staff have access to local pacing and curriculum guides through a well-maintained and organized curriculum platform? (e.g. a website or shared drive)
You regularly (at least monthly) schedule time for teachers to map actual district curriculum content and the time spent teaching it.	2.Is there a curriculum development schedule and protocol in place at your school? (e.g. a calendar with a written process for writing or revising curriculum)
You regularly (at least monthly) schedule time for teachers to map actual time spent implementing the district curriculum.	4. How often do you communicate expectations about curriculum alignment (e.g. content and cognitive level)?
You review teacher supply and material requisition forms for alignment with district curriculum.	5. How often do you evaluate the alignment of curriculum materials and resources to the VA Standards of Learning? (e.g. reviewing assignments for content and cognitive level).
You cross reference lesson plans monthly to verify adherence to district curriculum.	6. How often do you evaluate the alignment of lesson plans to the VA Standards of Learning?
	3. How often do you communicate expectations for writing and posting lesson plans?
You review lesson plan content to determine whether or not district curriculum goals and objectives are reflected.	7. How often do you evaluate lesson plans based on the design of the lesson? (e.g. lesson structure, student vs. teacher-centered, etc.)
	8. How often do you evaluate the scope and sequence of lesson plans? (e.g. on pace with pacing guides, etc.)
You observe instructional lessons checking for implementation of the teacher's written lesson	11. Prior to conducting formal observations, how often do you informally visit

plan.

classrooms to observe instruction? (e.g. walkthroughs or learning walks)

14. How often do you evaluate the alignment of verbal instruction to the Virginia Standards of Learning (e.g. academic vocabulary used by staff)?

You observe instructional lessons checking for documentation of district goal and objective implementation.

15. During a formal observation, how often do you evaluate instructional delivery (e.g. effective strategies and progression)?

16. During a formal observation, how often do you evaluate the progression of the instruction (e.g. sequence and speed of instructional delivery)?

You speak with teachers to assess the outcomes attained of instructional lessons in achieving district curriculum goals and. objectives.

12. After informal visits, how often do you follow up with instructional staff to provide detailed, constructive feedback?

You speak with students to assess their level of understanding of lesson objectives.

You look for use of instructional materials that support district goals and objectives.

You evaluate the alignment of curriculum materials and resources.

You play an active role in selecting the district testing materials.

17. How often does your school administer common assessments?

You participate in aligning the district curriculum and the district testing instruments.

18. How often do you train teachers in assessment construction (e.g. using a table of specifications to ensure alignment)?

You regularly refer to the district curriculum goals and objectives when supervising teachers.

Following data review, you set accountability measures for improvement (e.g. next steps).

You use curriculum mapping data in the teacher supervision process.

19. How often do you analyze data to identify patterns or trends in student performance to make decisions about instruction?

You use lesson observations to determine if curriculum implementation can be improved.	During a formal observation, you evaluate the quality of the instructional delivery (e.g. the student learning experience).
You include a statement regarding the teacher's coverage of the district curriculum in the teacher evaluation document.	You evaluate the scope and sequence of lesson plans During a formal observation, you evaluate the pace of the instruction.
You annually collect and evaluate data regarding actual curriculum implementation.	21. How often does your team collect, compile, and analyze relevant student group data to determine appropriate professional development for instructional staff? 22. Following data review, how often do you set accountability measures for improvement (e.g. next steps)?
You require that teachers identify the extent to which they implement the district curriculum.	20. How often do you provide opportunities for instructional staff to participate in data-centered discussions to make instructional decisions? (e.g. data meetings)
You require that all teachers develop a timeline for teaching all curriculum content each year.	n/a
You require that teachers continually assess their implementation of district curriculum content.	23. How often do you evaluate the alignment of classroom assessments to the Virginia Standards of Learning? 24. How often do you evaluate the design of classroom assessments? (e.g. choice of assessment: performance-based, traditional, etc.) 25. How often do you evaluate the administration of classroom assessments? (e.g. environment, duration, etc.)

You request that teachers assess the appropriateness of the district curriculum as an instructional guide in meeting student needs. You make certain that teachers are trained in new district curriculum content.

You have conversations about expectations regarding curriculum alignment (content and cognitive level).

You make certain that teachers are trained in new district curriculum content.

n/a

Your job description includes a statement regarding the supervision of curriculum implementation.

n/a

Your annual evaluation contains a statement regarding curriculum supervision.

n/a

Your daily workload and unanticipated events prevent you from engaging in activities related to the curriculum as much you would like.

n/a

n/a

9. How often do you require targeted professional development to individual staff based on need?

10. How often do you participate alongside teachers in professional development?

n/a

13. How often do you require teachers to complete peer observations?

APPENDIX C

Table 8

Virginia Elementary Schools - Cluster Statistics (Averages)

Clust. #	# of School	Enroll ment (Avg)	Econ Dis. (%)	Disabl ed (%)	Engl. Learn (%)	Asian (%)	Black (%)	Hispa nic (%)	White (%)	Mult Race (%)
1	6	1097	34.5	9.9	31.0	28.8	7.5	25.6	32.0	5.1
2	21	909	30.7	11.8	14.6	17.2	18.4	16.9	41.2	5.8
3	3	1252	11.6	7.9	13.8	39.1	7.5	7.3	41.0	4.1
4	46	687	41.8	12.1	14.8	8.2	21.3	20.6	43.0	6.4
5	26	245	53.6	14.1	3.6	1.0	20.9	8.8	64.0	5.2
6	35	790	29.6	12.2	13.4	12.1	14.5	16.2	50.0	6.7
7	20	864	36.8	11.8	17.5	13.4	20.9	24.1	35.3	5.9
8	14	370	48.8	12.8	2.2	1.9	21.4	6.4	62.8	7.4
9	16	500	45.0	14.8	13.1	7.4	29.9	16.4	39.7	6.0
10	16	318	46.1	14.0	2.2	1.2	17.7	6.0	68.6	6.3
11	32	552	48.4	12.0	13.8	5.1	34.1	19.4	34.5	6.4
12	30	829	39.3	12.1	20.3	12.0	20.4	26.9	34.3	6.1
13	21	625	41.3	12.8	13.9	6.0	17.8	19.9	48.7	7.2
14	12	507	52.7	12.7	9.0	2.3	29.7	15.0	46.5	6.2
15	15	489	38.2	13.1	16.6	5.8	14.9	23.7	49.5	5.6
16	13	382	54.0	13.5	12.0	3.7	29.0	16.5	44.8	5.6
17	26	452	56.6	14.8	13.5	3.4	33.7	19.6	38.1	4.9
18	16	514	50.0	14.8	6.1	2.8	33.0	11.5	46.7	5.7
19	5	1031	13.0	11.2	8.4	25.9	9.4	7.8	50.0	6.6

20	29	639	50.9	13.9	8.8	4.1	22.9	17.8	47.7	6.9
21	18	409	53.5	14.0	9.2	1.9	25.6	17.1	50.6	4.6
22	28	595	36.1	12.7	10.3	8.0	17.7	15.5	51.5	6.9
23	38	718	43.1	12.4	15.8	8.1	23.5	22.8	39.4	5.8
24	13	981	18.8	10.7	13.4	20.6	8.6	17.9	45.6	6.8
25	34	755	33.6	12.2	12.6	9.8	17.5	19.1	46.5	6.8
26	18	441	52.3	13.5	9.0	5.7	29.6	12.8	44.7	6.6
27	9	352	51.2	14.2	2.4	0.9	24.6	7.6	60.1	6.6
28	28	524	43.2	13.1	11.8	4.9	23.0	18.5	46.1	7.2
29	26	156	52.6	13.4	0.9	0.5	6.6	4.1	85.5	3.1
30	40	537	46.8	13.2	13.3	5.9	20.5	17.8	48.8	6.6
31	34	609	47.3	12.9	13.3	5.9	31.6	19.1	36.5	6.4
32	29	270	54.6	14.1	1.9	0.5	11.7	6.8	76.3	4.5
33	23	654	33.6	12.9	15.3	7.7	13.8	22.1	49.9	6.1
34	32	582	43.3	12.7	16.9	8.1	22.2	23.2	40.4	5.7
35	26	667	34.5	12.8	13.4	7.3	13.3	21.6	50.6	6.8
36	13	110	48.4	14.1	1.2	0.8	2.3	4.1	89.9	2.6
37	21	478	44.7	13.9	4.4	1.6	14.8	9.5	66.2	7.7
38	13	344	43.4	11.6	4.2	3.2	28.1	8.0	53.3	6.9
39	17	291	54.2	15.3	2.2	1.1	38.7	5.9	49.4	4.5
40	13	360	42.5	12.6	7.5	4.7	24.1	10.9	54.5	5.6
41	14	305	51.9	14.8	4.6	1.2	29.1	9.9	55.2	4.4
42	24	463	48.0	13.3	6.3	2.7	24.6	11.7	54.2	6.3
43	7	376	53.5	15.3	3.7	2.4	42.4	8.6	40.5	5.9

44	19	400	53.8	12.3	4.7	2.6	32.9	9.2	48.6	6.4
45	34	204	55.7	15.5	1.1	0.5	14.9	5.3	75.2	3.9
46	19	332	47.2	14.4	3.9	3.4	15.1	8.1	67.2	5.5
47	21	418	52.3	14.0	9.6	2.7	30.1	16.2	45.1	5.6
48	31	566	44.6	13.2	9.6	6.5	20.4	12.9	53.3	6.6
49	16	393	50.8	13.5	10.8	2.6	22.5	15.6	52.3	6.6
50	28	431	57.9	13.7	9.4	2.4	28.3	13.6	49.1	6.0

Table 9

Virginia Middle Schools - Cluster Statistics (Averages)

Clust. #	# of School	Enroll ment (Avg)	Econ Dis. (%)	Disabl ed (%)	Engl. Learn (%)	Asian (%)	Black (%)	Hispa nic (%)	White (%)	Mult Race (%)
1	23	1351	23.4	11.7	4.4	12.6	14.2	17.9	48.4	6.5
2	18	253	56.7	15.3	0.9	0.6	21.3	7.1	67.9	2.9
3	22	465	48.0	13.8	0.7	0.8	22.8	6.5	65.3	4.4
4	23	780	51.4	14.7	6.1	3.7	34.4	15.7	40.6	5.2
5	11	1553	40.3	12.2	9.3	14.4	22.5	21.6	35.4	5.4
6	16	521	49.8	14.1	2.8	1.5	27.6	8.9	57.1	4.4
7	22	608	45.9	13.9	1.7	2.4	29.0	8.2	53.7	6.4
8	30	934	37.5	14.1	4.2	5.7	24.4	14.5	48.9	6.0
9	29	1188	38.0	13.2	7.7	10.0	19.9	22.7	40.7	6.2
10	16	657	52.2	13.5	4.8	4.1	31.4	14.0	45.6	4.6
11	16	563	46.3	14.4	1.7	1.6	32.7	7.6	52.9	4.9
12	16	713	40.3	13.0	2.9	1.9	14.2	12.0	65.2	6.1
13	17	837	52.5	14.3	4.6	2.0	29.8	17.5	44.1	6.3
14	24	376	55.4	15.6	0.3	0.6	23.2	4.5	67.6	3.8
15	41	1055	40.5	13.8	6.7	10.2	23.9	20.5	39.0	5.8

Table 10

Virginia High Schools - Cluster Statistics (Averages)

Clust. #	# of School	Enroll ment (Avg)	Econ Dis. (%)	Disabl ed (%)	Engl. Learn (%)	Asian (%)	Black (%)	Hispa nic (%)	White (%)	Mult Race (%)
1	14	192	49.6	12.4	10.2	1.6	15.6	13.2	67.1	2.3
2	24	624	50.7	14.8	1.0	0.7	18.6	4.5	73.9	2.1
3	35	1882	32.5	11.5	4.0	8.6	24.0	13.6	47.8	5.5
4	17	1315	37.4	14.0	5.1	1.9	27.9	13.7	51.7	4.5
5	3	4030	30.9	13.7	10.5	12.8	14.3	24.2	43.4	5.0
6	12	2737	28.7	13.5	9.0	16.7	13.7	24.5	38.8	5.9
7	15	864	42.7	15.7	1.6	2.4	20.0	6.7	65.6	5.1
8	21	1159	36.4	12.6	3.2	2.8	22.2	11.6	57.7	5.2
9	20	1024	40.8	13.1	3.1	1.6	27.5	9.1	57.4	4.1
10	23	1454	34.8	14.0	3.3	3.5	22.7	12.1	56.2	4.9
11	32	346	50.1	13.2	1.9	1.0	21.0	5.9	68.4	3.1
12	32	2247	32.7	13.5	9.6	12.4	16.8	25.2	39.9	5.4
13	16	739	40.7	12.5	0.8	1.0	16.4	5.7	72.9	3.6
14	27	494	48.3	12.7	1.0	0.8	23.8	5.8	65.9	3.5
15	25	1660	35.9	13.3	3.9	8.1	32.4	13.0	40.8	5.2