AN ANALYSIS OF THE RELATIONSHIP BETWEEN

PRINCIPAL EMPLOYMENT INTERVIEW SCORES AND THE ACHIEVEMENT SCORES

OF STUDENTS WITH SPECIFIC LEARNING DISABILITIES

BY

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Abstract

The primary purpose of this study was to examine the relationship between five of ISSLC's 2008 leadership standards as measured by a standardized employment interview (ICIS Principal) and the achievement of students with specific learning disabilities in core areas of instruction. Findings did not support the rejection of the null hypothesis. That is, a statistically significant relationship between these leadership measures and achievement levels of students with specific learning disabilities was not demonstrated. The analysis, however, did indicate that the relationship varied for students with specific learning disabilities in comparison to their grade-level peers. This latter evaluation encourages further investigation of methodological and conceptual issues that influence the relationship between principals and student achievement.

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Chapter 1

Introduction

Closing the achievement gap and raising outcomes for all students requires legislation

that increases expectations and accountability for all students (Hess & Petrilli, 2004). Public

Law 107-119, the No Child Left Behind Act of 2001 (NCLB), received bipartisan support,

thereby demonstrating public endorsement of heightened accountability for America's schools.

This legislation mandates that states not only provide a rigorous grade-level curriculum but also

hold schools accountable for student performance on state assessments measuring student

proficiencies in grade-level standards. The expectation for all students to demonstrate

proficiency on grade-level standards was a new direction for school accountability policy.

In addition changes in reporting mechanisms associated with participation, requires

schools to document the involvement of all students in grade-level assessments. Addressing

differences in proficiency, however, would require that educational leaders and researchers

attend to a variety of factors influencing student achievement. While student results inform

school officials of whether changes in curriculum are required, they also inform them of the

degree to which programs and teachers influence student results. Prior to evaluating such

differences, however, it's critical that information be defined and representative of all students.

It's here that NCLB's procedural mandates relating to annual state testing and subsequent

measurement of school success help. In this regard, NCLB holds schools accountable for all

students by limiting exemption practices related to participation in testing including students

with disabilities and English language learners. While there continue to be exceptional situations

in which alternate assessments and/or waivers are supported for individual students, policies

limit schools by placing caps on the total percent of students who can be assigned to alternate

and modified test-types (Federal Register, 2007). That is, in schools where the total percent of students taking alternate assessments exceeds the percent allowed, excess scores will be reported as failing scores within the general assessment category, regardless of whether the original score met accountability targets. In essence, this policy has the effect of increasing the participation rate in general assessments while potentially increasing the failure rate for schools.

In addition to increasing the level of participation in grade-level assessments, the law requires schools to disaggregate student data by subgroup characteristics: disability, race, and socio-economic status. By disaggregating data, the U.S. Department of Education (2011) is able to monitor the progress in reducing the achievement gap among student groupings thereby demonstrating that subgroup disparities exist in meeting grade-level standards. By requiring schools to report the percent of students meeting standards on state assessments by subgroup, the public can assess whether all students perform to grade-level standards. Consequently, school officials have a single tool in which student results can be summarized and compared. This is significant in an era of school accountability because it documents student participation as well as illuminates any discrepancies in meeting the academic needs of subgroups. School success is a measurement of both of these dimensions. If either factor falls below targeted requirements, school accreditation is at risk. This creates an impetus for school officials to identify and address factors associated with less than desirable achievement among groups.

When attempting to address discrepancies in student performance, programmatic factors such as curriculum and enrollment requirements are areas deserving attention from school leaders. As such, school leaders seeking to strengthen curriculum and enhance access have a variety of factors to consider when evaluating school programs. Is district curriculum aligned to state standards and are all students participating in grade-level experiences? Are enrollment

requirements prohibitive to some students, endorsing student participation in below grade-level courses? How does the school schedule affect the ability of students to access additional resources at school? Are there courses that could be created that allow for additional resources and/or time? In probing practices from this perspective, school leaders can address student learning by ensuring student participation in grade-level curriculum that is rigorous and aligned to the state curriculum.

In tandem with these changes, NCLB also requires states and LEAs to consider teacher assignment as an access issue as well. It does so by requiring the assignment of all students to "highly qualified" teachers, ones possessing content-knowledge expertise in core areas of instruction. This mandate underscores the message of the connection between student achievement and professional knowledge held by teachers. In this venue, the degree of a teacher's subject matter proficiency carries weight in defining access to curriculum for students. As with changes to testing practices, this particular NCLB requirement had a greater impact on special education than general education. Previously, special education teachers, who were not content-specialists, were assigned to teach courses in the core curriculum. In these settings, reform mechanisms associated with curriculum access sought to impact achievement by remedying the situation through the "highly qualified" requirement. Students with specific learning disabilities were at risk of not having access to targeted curriculum because they were being pulled from grade-level curriculum and/or being taught by specialists who were not experts in the subject matter. By strengthening the curriculum and increasing access to it, NCLB seeks to create a common experience in which all students have equal access to rigorous, grade-level curriculum. Student performance would then be used to measure a need for further policy change.

The Problem

Annual reports to Congress on the impact of NCLB by the U.S. Department of Education show that mandating the adoption of rigorous grade-level standards and assigning highly qualified teachers may not be enough to guarantee school success. For example, in a somewhat contradictory fashion, both the number of Title I schools placed on improvement and the percent of highly qualified teachers assigned to core classes increased. That is, Title I schools identified for improvement increased from approximately 9,700 to 12,500 from the years 2004-2005 to 2008-2009 while at the same time the percent of highly qualified teachers increased by 15 percentage points, from 78 percent in 2003-2004 to 93 percent in 2008-2009 (U.S. Department of Education, 2011). The report shows efforts to increase highly qualified staff have occurred but student results continue to point to the need for further intervention. Annual reports documenting continued school failure heighten awareness that other factors also contribute to learning. In this context, research on one such factor – the relationship between characteristics and behaviors of the building principal and student achievement – has given weight to the argument that school leaders impact school achievement (Leithwood, Louis, Anderson, & Wahlstrom, 2004) and that there are identifiable characteristics of effective leaders (Waters, Marzano, & McNulty, 2003).

Given this information and evidence that schools are not meeting NCLB goals, research is needed to consider whether human resource models can be adapted to adjust to select building principals who can positively affect student outcomes. The selection process is one way in which districts identify candidates for employment. Where interviews are utilized as part of the selection process, research is needed on whether interview protocols can identify candidates whose leadership skills are associated with student success. Indeed, having stabilized classroom

influences, district leaders could influence student success by shifting their attention to human resource mechanisms affecting principal selection. The purpose of the study was to determine whether an interview protocol constructed to reflect research-based leadership standards defined by the Interstate School Leaders Licensure Consortium (ISSLC) could identify principal candidates who positively affect the achievement levels of students with specific learning disabilities.

Methodological Approach

This investigation was part of a larger parent study that focused on the development of a principal employment interview. Through a collaborative effort, under the leadership of two university professors, four doctoral students constructed an interview tool to be used to assist with the selection of effective principals. By working with active professionals in the field, a large pool of employment interview questions and associated rubrics were generated and subsequently narrowed to 62 viable questions. To ensure inter-rater reliability, questions were used to develop a series of video training exercises for interviewers who in turn utilized the scale to interview 52 school leaders in the school district. Principal interview ratings were compared to the percent of students with specific learning disabilities, in their respective buildings, who met standards in state assessments.

Significance of the Study

If a set of interview questions, derived to reflect standards in the field, can be created and implemented in such a way as to show a positive correlation to student outcomes for a group of students at-risk for not meeting grade-level benchmarks, then its use will be compelling for LEAs. For this reason, this study uses achievement scores from state assessments for the subgroup of students with specific learning disabilities as an outcome measurement of

comparison. It is a deliberate narrowing of attention that places emphasis on a group of students who have historically been excluded in part or in total from previous school accountability models. In addition, they have proven to be most consistently swept up in the mandates of *No Child Left Behind,* lending weight to the message that historically schools were not as accountable to some of their students as they were to others. Today, all students have significant weight in determining the degree of success in which schools are accountable to all of their learners. As such, educators are investigating and implementing strategies that can improve student learning. Selection tools pointing to principals who possess skills associated with achievement can offer LEAs a powerful tool that could influence student achievement and corresponding school success. If, however, no relationship exists between interview score and student achievement then the study informs the research community that further analysis of the standards themselves is required before basing an employment interview on these characteristics.

Chapter 2

Review of Literature

No Child Left Behind legislation has been a powerful driving force behind school initiatives. Its accountability measures have resulted in increasing pressure for schools to perform to expected outcomes and have forced educational leaders, researchers and politicians to seek answers to questions regarding factors that influence student learning. School reports documenting school failure as indicated by measures of individuals' failures and/or differences in performance rates across student subgroups have increased public awareness of disproportionate student performance levels. As a result, school leaders are under pressure to improve outcomes for all students as well as close any achievement gaps between students. The combination of increased pressure for accountability and greater availability of annual data has created a perfect opportunity for researchers to study the effects of leadership on student achievement. In this chapter, two bodies of literature provide the foundation for the current study. The first section of the literature review focuses on current knowledge concerning the relationship between leadership skills of principals and student achievement. The second portion of the chapter reviews factors attributed to reliable and valid employment selection interviews.

Leadership and Student Achievement

Over the past 30 years researchers have examined the links between leadership behaviors and student achievement. From these studies, three strands of definition are attributed to leadership. Some studies analyze the relationship between achievement and leadership as defined by its collective capacity, in varying degrees, across stakeholders (Wahlstrom, Louis, Leithwood, & Anderson, 2010). Other research narrows the definition of leadership from the summed contributions of individuals to contributions of the principal. Studies such as those led

by Andrews and Soder (1987) clump principal behaviors into domains whereas other researchers identify individual behaviors and study the corresponding relationship each behavior shares with student achievement (Waters et al., 2003). Researchers typically utilize aggregated student data to measure outcomes. While these data are objective and quantifiable, they do not examine the influence of student characteristics on this relationship. Consequently, little is known about differences in the strength of the relationship between leadership measures and corresponding student achievement for subgroups of students, such as students with specific learning disabilities. This review will highlight findings from studies across the continuum and end with a specific focus on studies highlighting special education.

Leadership as summed contributions. In a recent study supported by the Wallace Foundation, Wahlstrom, Louis, Leithwood, and Anderson (2010) analyzed school leadership's effects on factors influencing student learning. They sampled 43 school districts and 180 schools, factoring in school size, school level, and student demographics. To collect information, they conducted classroom observations, analyzed student achievement, and surveyed/interviewed a variety of sources such as: teachers, principals, other staff members, district office personnel, school board members, community leaders, and state-level leaders. Based on the belief that a variety of stakeholders influence school policy, they examined leadership through three different lenses: collective leadership, shared leadership, and distributed leadership. In summary, the strength of the relationship between leadership and student achievement was dependent on the degree to which decisions and influence are shared.

Collective leadership refers to the total influence exercised by everyone in a school setting. Findings indicated "people [who are] associated with high-performing schools have greater influence on school decisions than is the case with people in low-performing schools"

(Wahlstrom et al., 2010, p. 8). Collective leadership affects setting, motivation, and teacher capacity, which in turn contribute to student achievement. This type of leadership "has the strongest influence on student learning than any individual source of leadership" (Wahlstrom et al., 2010, p. 8). Where shared leadership is observed, the focus narrows to the degree of influence teachers have on decision-making. In this frame, teachers perceive heightened levels of influence in association with school-wide emphases on instruction and degrees of collaboration experienced in the building. "The professional community effect may reflect the creation of a supportive school climate that encourages student effort above and beyond that provided in individual classrooms" (Wahlstrom et al., 2010, p. 10). Distributed leadership is the third lens in which authors studied effect. Effect was limited by the degree to which principals actually delegate, or distribute, decision-making to others. "No single pattern of leadership distribution is consistently linked to the quality of student learning" (Wahlstrom et al, 2010, p. 12).

What appears to be significant in the study of leadership as measured by combined influence is the degree to which individuals contribute to school-wide decisions. Conclusions drawn from this body of research highlight the significance of benefit as measured by achievement specifically when school leaders encourage others to participate in and influence decision-making (Leithwood & Mascall, 2008). As such, it places the spotlight on leadership skills supporting collective influence on decision-making.

Leadership domains. A second line of research focuses on a principal's leadership within specific domains. Characteristically, research defines this as "style". In this frame, leadership measures are evaluated within a defined domain of responsibility. Rather than evaluate leadership in its aggregate form, or as a sum of an individual's ability in multiple

domains, studies in this tradition typically concentrate on one domain of responsibility. Typical

foci for research include instructional (teaching and learning), managerial and transformational

(change) leadership. Regardless of whether the relationship between leadership and achievement

is measured across multiple domains or one, the prevalent method for carrying out evaluation is

to conduct a survey eliciting teachers' perceptions of a principal's behaviors in specific domains.

Researchers then examine the association between these ratings and the measures of student

achievement. Findings in these studies confirm that student achievement is affected by

leadership, albeit indirectly. That is, the influence principals have on student achievement is

moderated by factors sharing a more direct relationship with learning such as teacher motivation

and student opportunity (Andrews & Soder, 1987; Hallinger, Bickman, & Davis, 1996;

O'Donnell & White, 2005; Valentine & Prater, 2011).

What emerges from these studies is the conclusion that student achievement is higher in

schools in which teachers perceive the principal advocates for everyone's achievement through

the endorsement of a clear mission. Hallinger, Bickman, and Davis (1996) conclude there is "a

strong relation between the degree of instructional leadership provided by the principal and the

existence of a clear school mission. A clear mission, in turn, influenced student opportunity to

learn and teachers' expectations for student achievement" (p. 543).

Localizing leadership behaviors. A third body of research conceptualizes and measures

leadership by examining specific practices or behaviors of principals. In these studies,

researchers have examined discrete behaviors. Waters et al (2003) investigated the effects of

leadership practices by conducting a meta-analysis of 70 studies emphasizing this focus. Studies

used objective measures of student achievement as the dependent variable and teachers'

perceptions of leadership as indicators for the independent variable. From this analysis, a list of

21 leadership behaviors was evidenced in high-achieving schools. Authors examined the relationship between these behaviors and measures of student performance and found correlations ranging from .15 to .33. The significance of this meta-analysis was the fact that certain behaviors could be teased out of the research and identified as characteristics of principals in high-achieving schools (Waters et al, 2003).

In addition to this finding, authors discovered two other significant findings. Waters et al (2003) found that the same leadership skills that are typically associated with high-achieving schools can also share a negative relationship with achievement as well. Investigating this result, they discovered the direction of influence is related to a principal's ability to put into practice elements associated with change theory. In brief, the relationship between leadership and student achievement is affected by a principal's ability to create first and second order change. Principal effectiveness is driven by an individual's capacity to correctly attend to issues that matter and then to accurately define the magnitude of change required for adaptation. In addition, Waters et al (2003) also found the "average effect size (expressed as a correlation) between leadership and student achievement is .25, which means that as leadership improves, so does student achievement" (Waters et al., 2003, p. 49). Stated another way, 6% of the variance in student achievement can be attributed to principals. This latter finding is significant because it shows there is educational benefit for schools when efforts to increase leadership skills across all 21 responsibilities are successful.

Witziers, Bosker, and Kruger (2003) provide corroborating data regarding the effect size. Findings from their research demonstrate a positive correlation exists between leadership and achievement, although they experienced a smaller effect size. As with Waters et al (2003), they were prompted to further investigate variables that impact the strength of this relationship. They

determined that other variables such as sub-dimensions of leadership and/or teacher quality could impact results. For example, "some leadership behaviors have a significant (p < .10) and positive relationship with student outcomes. More specifically, this is the case for four out of the nine behaviors under review. Positive significant relationships ranged from .02 to .19 relating to the following leadership behaviors: supervision and evaluation (Z = .02), monitoring (Z = .07), visibility (Z = .07), and defining and communicating mission (Z = .19)" (Witziers et al., 2003, p. 410).

With this line of research, evidence begins to emerge that leadership behaviors can be localized and examined for individual effect on student achievement. This evidence supports an argument for establishing licensure requirements, educational programming, and evaluation scales on a common core of standards. Leithwood et al (2004) reviewed research on leadership and stipulated that "in organizational sectors as different as schools and the military, and in national cultures as different as The Netherlands, Canada, Hong Kong and the United States, there is compelling evidence of a common core of practices that any successful leader calls on, as needed" (p. 8). Examples of practices shared in their research include: setting direction, developing people, and redesigning the organization (Leithwood et al, 2004).

This research speaks directly to the ability to identify leadership skills associated with positive organizational output. In a relatively recent policy brief, Miller (2003) further argues that by being able to address the factors that most impact learning "state and district policymakers are shifting leader preparation programs toward a dual focus on leadership skills and management training…[and] efforts to improve their recruitment, training, evaluation, and ongoing development should be considered highly cost-effective approaches to successful school improvement. These efforts will be increasingly productive as research provides us with the

more robust understandings… of how these practices seep into the fabric of the education system, improving its overall quality and substantially adding value to our students' learning" (Leithwood et al., 2004, p. 70).

Leadership and special education achievement. In short, the majority of findings from previous studies have documented a positive relationship between leadership and student achievement. While the conclusions of these studies have merit and offer direction for further study and policy development, it is important to note that these findings may in fact only offer a partial picture of the relationship between leadership practice and achievement. Varying methods are employed to measure student achievement. As such, it is difficult to discern from previous studies the degree to which the findings can be applied to all subgroups of children. Indeed, previous studies have utilized aggregated student performance data and have included outcomes for all groups with little or no attention to differences that potentially exist amongst groups of students with different characteristics.

Common themes emerging from the body of literature, however, include the study of principal effect as it relates to endorsing inclusive special education. Research focuses on principal behaviors related to creating opportunities to learn and participate, monitoring instruction and curriculum, designing collaborative environments, and providing meaningful staff development (Dipaola & Walther-Thomas, 2003; Kearns, Kleinert, Clayton, Burdge, & Williams, 1998; Parker & Day, 1997). As with research highlighting leadership styles, the item of evaluation becomes the focus of leaders' attention and its effect on the factors associated with teachers, or school climate. Further examination may show information can be extrapolated from these studies, which may assist with defining the relationship between leadership and student achievement. For example, Gersten, Keating, Yovanoff, and Harniss (2001) focused on

special education teacher retention rates. In so doing, they looked at job satisfaction predictors. Embedded in their findings were analyses connecting teacher retention with teacher perception of support from principals and colleagues as well as with job design. Retention rates are associated with the degree to which special educators experience collective support by colleagues and principals at the building level. Conversely, retention is reduced with increased stress connected to poor job design. By stabilizing job satisfaction, leadership impacts teacher retention. This, in turn, can be measured against achievement. It appears there is a potential to further study the strength of the relationship between leadership and special education performance levels in settings in which principals cultivate school cultures that are inclusive, as is evident in collective leadership cultures. Further research in this area will address the question: Does leadership have the same influence on students with specific learning disabilities as it does on their grade-level peers?

In summary, what emerges from the literature is the message that leadership doesn't have a direct effect on student achievement. Rather, leadership affects mediating factors, which in turn influence the classroom experience. The strength of the relationship between leadership and classroom experiences is associated with student achievement. Increased perception of support on the part of teachers and students is associated with increased levels of achievement. Whether efforts are focused on enhancing morale, teacher development, or student opportunity, research shows that "successful leadership can play a significant – and frequently underestimated – role in improving student learning… leadership is second only to classroom instruction among all school-related factors that contribute to what students learn at school" (Leithwood et al., 2004, p. 5). The implication of this research is that if school leaders can tease out the key behaviors

associated with creating an inclusive culture then instrumentation for hiring individuals with these skills can be developed.

ISSLC 2008 Standardizing Leadership Attributes

The National Policy Board of Education Administrators (NPBEA) facilitated the process of updating the standards of ISLLC 1996 with the goal of creating measurable, research-based standards of leadership. These standards could be used to drive policy that is connected to personnel selection as well as programmatic standards related to educational policy, licensure, and evaluation. In an effort to bring forth updated standards, however, ISLLC 2008 standards needed to address both the lack of research used previously and the narrow construction in which the 1996 standards were built. As such, a panel of experts identified and reviewed research related to educational leadership as well as consulted with a large group of experts in policy and practitioner-based fields. The team worked to address this concern by establishing core elements of direction. Their goal was to create standards that defined their intentions in a research-based and measurable manner. Three central tenets that emerged in the development of ISLLC 2008 are listed below (Murphy and Shipman, 1999, pp.216-217):

1. A single set of standards applies to all leadership positions.

2. The focus and ground of the standards should be the core of productive leadership.

3. The standards should not simply codify what is: they should help elevate the profession to a higher level.

From these three tenets, a set of seven (7) guiding principles was established to inform the development of leadership standards. The six standards agreed upon are listed in Table 1 (Council of Chief State School Officers, 2008, pp.14-15).

Table 1

Educational Leadership Policy Standards 2008 and Definition

Standard	Definition
Standard 1	An educational leader promotes the success of every student by facilitating the development, articulation, implementation, and stewardship of a vision of learning that is shared and supported by all stakeholders.
Standard 2	An educational leader promotes the success of every student by advocating, nurturing, and sustaining a school culture and instructional program conducive to student learning and staff professional growth.
Standard 3	An educational leader promotes the success of every student by ensuring management of the organization, operations, and resources for a safe, efficient, and effective learning environment.
Standard 4	An educational leader promotes the success of every student by collaborating with faculty and community members, responding to diverse community interests and needs, and mobilizing community resources.
Standard 5	An educational leader promotes the success of every student by acting with integrity, fairness, and in an ethical manner.
Standard 6	An educational leader promotes the success of every student by understanding, responding to, and influencing the political, social, economic, legal, and cultural context.

In addition to defining six standards, CCSSO established functions that were aligned to each one as well. These functions define measurable behaviors associated with each standard. In this way, standards can constitute both the creation of a vision for effective leadership and the development of criterion to define and measure required leadership behaviors. As such, the many facets of public education become joined, strengthening the relationship between input and output. Research shows this, indicating "one of the clearest lessons from this research is that the states that are using education leadership standards are on the right track" (Council of Chief State School Officers, 2008, p. 3). The Wallace Foundation (2006), however, stipulates "while many states have adopted standards, progress has lagged in bringing them to meaningful life by linking them concretely to the accreditation of university-based leadership training programs, continuing

professional development, district hiring practices, or the evaluation of the performance of principal." The goal of standardizing measurements of leadership is to promote the alignment of such factors as training, licensure, interviews, and evaluation. By standardizing measurements of leadership, school districts can utilize them to support this goal. One way to put this into practice is to implement selection tools, such as a standards-based employment interview.

The Interview Research

For the most part, the employment interview currently is one of the most important elements in the selection process (Graves & Karren, 1996; Kennedy, 1994; Macan, 2009). Consequently, it is important to focus on the interview as a critical element within the selection process that could be enhanced and used as a mechanism to improve the identification of individuals who possess skills associated with student achievement. With an emphasis on teachers, Reik's (2007) research focuses on the employment interview by analyzing the relationship between teacher interview scores and student performance. Studies such as this focus on the utilization of employment interviews and corresponding effectiveness related to student achievement. In practice, however, little attention has been given to the interviewing process and its potential for impacting student outcomes. In order to integrate interviews that point to individuals who possess desired skills, however, current practice must adapt to account for conflicts inherent in the creation and use of interviews themselves. Factors requiring scrutiny are: lack of clearly defined selection criterion, inconsistency, bias, and unstructured interview formats (Graves & Karren, 1996; Kennedy, 1994).

Findings from Rammer's (2007) study highlight the lack of clearly defined selection criteria as a factor in candidate selection. In an effort to determine whether superintendents integrated defined criterion into their interview procedures, Rammer asked Wisconsin

superintendents to consider the skills and responsibilities identified in the literature for effective principals and to describe how they assess these skills in candidates whom they hire. Superintendents typically agreed, 81.4% to 99.3%, that the twenty-one leadership characteristics identified by Waters et al (2003) are desired leadership attributes that contribute positively to student achievement (Rammer, 2007). "A major finding from the narrative-response analysis was that 56.2% (893) of responding superintendents indicated that they did not have specific means of identifying the capability of candidates whom they were considering to hire as principals to perform these responsibilities" (Rammer, 2007, p. 73). A significant contribution stemming from this study is the message that while superintendents can identify characteristics of a successful school leader, district leaders have not begun to integrate this research into their employment interviews.

Rammer's (2007) finding demonstrates the continued disconnect between research-based findings and practices in the field of education. By not incorporating measurable standards associated with positive student achievement into hiring practices, school systems run a real risk of endorsing poor student achievement through poor candidate selection. In this environment, efforts to address student learning are directed at classroom factors. "Policy makers [are] immediately drawn to making changes in the instructional program to improve teaching: curriculum, timing, scheduling, pedagogical techniques, and so forth" (Heneman & Milanowski, 2004, p. 109). By not aligning components included in personnel practices, argument can be made that not only are additional resources required to improve outcomes but also the resources required don't directly attend to the problem. Simply stated, extraordinary effort is misdirected and wasted on curriculum and instructional issues rather than focused on personnel selection, evaluation, and remediation.

School districts could get a head start on enhancing student performance levels by aligning their hiring practices to desired outcomes, or measures used to assess success, but it is also important to assure reliability and validity of the process. Campion, Palmer, & Campion (1997) recommend interview protocols such as interview rating reliability as measured in terms of: test-retest reliability, inter-rater reliability, candidate consistency, interviewer-candidate interactions, internal consistency, and inter-rater agreement be evaluated and reviewed. Interview reliability improves when the processes used are standardized. That is, studies show the more standardized the method implemented to both conduct and measure interviews, the more reliable the results (Graves & Karren, 1996; Macan, 2009). In attempting to determine the variables influencing reliability and validity, Campion et al (1997) noted fifteen components of the interview structure that impact results, citing "any interview could be easily enhanced by using at least some of these components. All had either empirical or rational links to enhanced reliability and validity. With so many ideas and such a large body of supportive literature, there is no good rationale for using completely unstructured interviews" (Campion et al., 1997, p. 690). Campion et al's study informs interviewers that there are a variety of variables impacting the results of an interview, but the interview content and the corresponding use of job analysis, consistent questions, and better questions appear more important than other components" (Campion et al., 1997, p. 691).

In attempting to also give insight on how validity is impacted by selection tools, Ryan and Tippins (2004) compared seven measures: cognitive ability tests, structured interviews, unstructured interviews, work samples, job knowledge tests, conscientiousness, and biographical information. Ryan and Tippins reported the validity of the relationship "between test scores and a criterion – in this case, job performance" (p. 306) ranged from .35 to .51. In addition they

defined "structured interviews measure a variety of skills and abilities, particularly non-cognitive skills (e.g. interpersonal skills, leadership style, etc.) by using a standard set of questions and behavioral response anchors to evaluate the candidate" (Ryan & Tippins, 2004, p. 307). The structured interview's validity was reported to be .51. Graves and Karen's action steps highlight recommendations as well (1996, p. 172):

1. Develop selection criteria. Determine the knowledge, skills, and abilities required to perform the job, as well as any characteristics needed to function in the broader organizational environment. Determine which of these criteria are most important.

2. Determine how criteria will be assessed. Determine which of the criteria can be assessed in the interview and which should be measured using other techniques.

3. Develop interview guide. Develop semistructured interview guide to assess any criteria identified in Step 1 and determined to be suitable for assessment in the interview in Step 2.

4. Train interviewers. Train interviews to use the interview guide and teach them how to have positive interactions with applicants.

5. Monitor the effectiveness of interviews. Collect data on the job performance, job satisfaction, and retention of new employees. Evaluate and reward managers based on their selection decisions.

Conclusion

In summary, the emerging body of research on leadership shows deliberate effort by researchers to identify leadership behaviors associated with student achievement and to give convincing argument that the construction of human resource mechanisms aligned to these measures can have a positive effect on student achievement. Studies such as the one commissioned by The Wallace Foundation showed that superintendents are in vast agreement (99%) that great schools are run by great principals and that the only way to turn around a troubled school is to find a strong and talented leader (The Wallace Foundation, 2006).

Combining this research with additional studies associated with defining the relationship between leadership and achievement (Leithwood et al., 2004; Waters et al., 2003; Witziers et al., 2003), educational leaders have the potential to align and utilize measures of leadership in a manner that positively contributes to student achievement through the utilization of human resource mechanisms related to training, hiring, and evaluation of school leaders. In a day in which school leaders are required to perform to elevated levels of accountability, a convincing argument can be made that candidate selection should be based on the measures that are positively associated with student achievement.

A clear definition of the relationship between leadership behaviors and achievement levels of defined subgroups of students, however, does not specifically emerge from the body of research. By incorporating leadership standards in an employment interview, the hypothesis regarding a positive correlation between leadership behaviors and student achievement in both aggregated and disaggregated measures can be tested. The significance of a positive relationship is the possibility it provides for an argument that district leaders could construct and implement an employment interview pointing to principals who possess skills associated with positive student achievement. Overall school success, as measured by student performance, would be enhanced through better candidate selection. If, however, no relationship exists between interview score and student achievement, the study informs the research community that further analysis of the standards themselves is required before basing an employment interview on these characteristics.

Chapter 3

Methods

Research Question

The review of the literature indicates leadership is associated with student achievement. It also highlights that even though the employment interview is a preferred hiring mechanism, issues remain concerning its construction and use. The research question posed in this study is whether an employment interview for principal selection, created to reflect standards in the field and structured in a way that heightens reliability and validity can point to candidates that can foster higher levels of student achievement for students with specific learning disabilities.

Overview & Purpose of the Study

Measurements of leadership behaviors were collected through interviews conducted as part of a parent-study, which created and implemented an employment interview instrument for principal selection, ICIS-Principal. The performance levels of students with specific learning disabilities, a subset of the total student population, was selected as the measurement of achievement because of the impact NCLB has had on districts to support school reform for students identified for special education.

Interview questions for the ICIS-Principal were constructed to measure five (5) ISSLC leadership standards: vision, management, instruction, collaboration, and integrity. Graduate students, who were also active practitioners in the field, utilized the ICIS-Principal to interview 52 principals representing schools at the elementary, middle, and high school levels in a large school district. Individual scores from the ICIS-Principal employment interview were then compared to performance levels of students with specific learning disabilities as measured by

state assessments. A determination of whether a relationship exists was measured by correlating interview scores and student achievement through bivariate and regression procedures.

Study Sample

The study was conducted in a large district in a southeastern state. The district serves over 71,000 students, employs over 10,000 part-time and full-time personnel, and maintains 121 schools in urban, suburban, and rural areas. They include elementary (67), middle (22), and high schools (26). In addition to standard school structures, alternative programs and alternate grade-level organizations also exist (i.e. PreK-5, special education, and alternative school assignments). The district represents a diverse learning community, which includes 150 languages/dialects. The ethnic composition consists of American Indian, Asian, African American, Hispanic, Caucasian and Multi-racial. Approximately half the population consists of students on free/reduced lunch.

From this district, 100 principals were randomly selected to participate in this study. Of this pool, researchers were able to conduct interviews with 52 individuals. Measures of achievement as determined by state assessment results were available for 50 of the matching schools; therefore data were used from 50 subjects. Principal and student data represented 29 elementary schools, 10 middle schools, and 11 high schools. This sample included 25 individuals (50%) who identified their race as African American and 25 (50%) who identified their race as White. Gender identification favored a higher number of women (62%) over men (38%). In 62% of the schools, more than half of the school population was identified as students on free/reduced lunch.

As reported on the state website, of the 50 schools studied, 30 (60%) schools made Adequate Yearly Progress (AYP) while the remaining 20 (40%) did not make AYP. Of the 20

schools that did not make AYP, two (10%) schools had sufficient data to show that the

performance of students identified to be students with specific learning disabilities met the

annual target. For these schools, failure to meet AYP was not a result of this group's

performance. In nine (45%) of the failing schools in this study, the data were sufficient to show

that the performance level of students with specific learning disabilities did not meet the annual

target requirements, thereby contributing to the school's overall failing status. The remaining

nine (45%) schools did not have enough students designated with specific learning disabilities to

measure AYP benchmarks.

Table 2

Level of School and Adequate Yearly Progress

Level	Made AYP	Did Not Make AYP
Elementary	18	11
Middle	7	3
High School	5	6
Total	30 (60%)	20 (40%)

Measure & Instrument Development

Independent variables. The employment interview used for this study, ICIS-Principal,

assessed individuals' knowledge and skills in five (5) domains thought to be associated with

effective leadership among school principals. Data obtained through the interview were used to

create measures of each domain, as well as a global score that included all of the items in the five

domains. The resulting measures were included as predictor variables for this study. These

measures were constructed to reflect nationally recognized leadership standards as defined by the

Council of Chief State Officers: Educational Leadership Policy Standards: ISLLC 2008. The

sixth standard was considered too difficult to measure in an employment interview and better

evaluated through site observations; therefore, five of the six standards served as a foundation for

the development of the questions used in the employment interview, the ICIS-Principal, for principal selection.

To ensure construct validity, questions and corresponding rubrics were developed. Questions focused on desirable leadership skills as defined by the standards. The scoring rubric was constructed on a 3-point scale, aligning point values to the quality of the interviewee's answer set. Four graduate students who were active professionals in the field and two professors in educational administration at the University of Kansas created an original inventory of 149 questions and corresponding scoring rubrics. These questions were reviewed by professionals in the field to rate the face validity of each question (Tulipana, 2010). Questions ranking in the lower half of this review were omitted. The remaining questions were evaluated for relevancy by 500 principals from the state of Missouri. Questions evaluated as excellent or very good by at least 80% of the respondents were retained in the instrument. This list was narrowed to 62 questions. Table 3 shows the distribution of questions per standard. Table 4 displays sample questions and scoring rubrics for the leadership standards measured in the employment interview.

Table 3

Distribution of Interview Questions

Standard	Description of Standard	Number of Questions
1	Developing a School Vision and Culture	11
2	Developing and Maintaining the Instructional Program	16
3	Managing the Organization	15
4	Collaboration with Families and Community Members	10
5	Acting with Integrity, Fairness, and in an Ethical Manner	10
6	Understanding, Responding to, and Influencing the Political, Social, Legal, and Cultural Context	0

Table 4

Sample Questions and Scoring Rubric for Each Standard

Example Question	Score & Criterion
How would you go about facilitating the development of a school-wide vision?	*Level 3* *Candidate conceptually understands characteristics of sustainable visions (clarity, viable, trustworthy leadership, locally warranted, supportable) and basic processes to build commonality (bottom-up, incremental steps, early success, external encouragement, development of feedback systems)* *Level 2* *Candidate suggests common practices found in most school districts (committee formation, involvement of stakeholders, extensive meetings, etc.) but lacks guiding theory.* *Level 1* *Candidate suggests overly top-down development. Believes principal can independently develop ideas and the main task is to "sell" the program. Emphasis is on externally developed plan with little thought given to idea sharing and building internal support.*
How do you ensure that multiple opportunities to learn are available to all students?	*Level 3* *Candidate believes teachers must view their job as maximizing learning opportunities for kids not simply lecturing or teaching by telling. If this view of teaching prevails then there will be a constant search for alternative methods of instruction. Principals can encourage this thinking by constantly demonstrating different models of teaching and systematically pointing out new methods of instruction as they become evidenced in the classroom.* *Level 2* *Candidate focuses on providing different educational tracks, curriculums, or remedial staff for different kinds of kids. The assumption made is that different classes offer different learning opportunities* *Level 1* *Candidate views learning in terms of increasing repetition rather than differentiated instruction.*
What organizational systems should a principal regularly monitor?	*Level 3* *Candidate groups systems into organizations (instruction, support, community, curricular, etc.) and then describes how they would systematically monitor activities within each (process activities and activities that generate a product such as test scores). The rationale behind this monitoring is often mentioned. Candidate communicates an understanding of systems integration.* *Level 2* *Candidate mentions specific sub-parts of the school organizational system but lacks a more comprehensive view of how the various parts works in concert. No apparent priorities are established for monitoring.* *Level 1* *Candidate seems baffled by the question. Does not view the school as an integrated set of various parts working together. Has no idea where to begin or what to monitor.*

How should the schools and the community collaborate?	*Level 3* *Candidate states the purpose and is able to identify key components of collaboration, such as: shared vision, shared goals, interdependence, and standardized process – a routine mechanism by which goals are achieved.* *Level 2* *Candidate offers specific suggestions for interaction with the community focusing on reactive response and use of collaboration rather than routine.* *Level 1* *Candidate states that collaboration is important but cannot explain why and has only sketchy ideas of how to engage in this process.*
How do you decide the ethically right thing to do?	*Level 3* *Candidate indicates decisions should be made with regard to larger ethical principles such as justice, equality, equity, liberty and can give examples.* *Level 2* *Candidate indicates decisions should be dictated by the circumstances of the situation and be governed by rules, regulations, and policy.* *Level 1* *Candidate indicates decisions will be made on the basis of expedience.*

The questions and scoring rubrics were subsequently categorized and entered into an adaptive computer program called ICIS-Principal. The interview itself was computer-driven and utilized software developed with Authorware from Macromedia. It randomly identified questions for the interviewer to ask and score. Its strength is its adaptive feature, continuously prompting the interviewer with questions addressing leadership behaviors within each leadership standard until the interviewee's responses stabilize. As the interview unfolds, the software compiles statistical analyses of the interviewee's answer sets. In essence, it determines a stopping point when the interviewee's answers are statistically stable. That is, answers generating consistent ratings across questions within the same leadership standard (e.g. interviewee answers are rated as 3 for multiple questions in a row) negate the need for further questioning within that subgroup, thereby moving the interview to the next category of investigation. If, however, an interviewee's answers are inconsistent, or varied, the software will

continue to generate questions within that category until either statistical stability is reached or it runs out of questions to address. The software generates the number of questions to be addressed in relation to the strength (as measured by consistency, not rating level) of the interviewee's answers. At the end of the interview, the software compiles a statistical report summarizing interviewee performance (total score, subset score, etc.). Reliability for the measure was established by Kobler (2010). Using Cronbach's alpha statistic, it was shown that the instrument indicated a Cronbach internal index of greater than 0.90.

Dependent variables. Student performance scores as measured on the state's *End of Grade* or *End of Course* achievement assessments were used as the dependent variable. Student performance data were collected from state's reporting website. The data include measures of performance levels derived from scores from students in grades three through eight who are tested in the areas of mathematics and reading each year. High school students are tested in mathematics, reading, science, and government at the end of their required course consumption. The state maintains information on performance levels of all students. Data are reported in both aggregate as well as disaggregated forms. Subgroups are race, English language learners, socio-economic status, and disability.

In this study, data were collected on the performance levels of students classified as specific learning disabled (SLD) as well as for their non-disabled peers. Reading and mathematics achievement data, from End of Grade assessments, were available for students in grades three through eight as well as high school data for students who met standard in all of their *End of Course* assessments. At all grade levels, the dependent variable was the percent of students with specific learning disabilities who met standard (Level III) or higher in required testing areas.

Covariates. Covariates in this study include the race and gender of the school principal as well as the percent of a school's population who receive free or reduced lunch.

Data Collection

A total of 52 school leaders in the district were interviewed with the ICIS-Principal employment interview. Approval to interview principals was granted from both the school district and the university human subjects committee; this approval allowed for oral consent. The interview was approximately 30-45 minutes in length and occurred over the phone. Interviews were conducted during an eight-week period at the beginning of the school year, in August and September of 2009. Three (3) trained practitioners conducted interviews. To ensure inter-rater reliability, questions from the selected bank were used to develop a series of video training exercises for interviewers. The training video consisted of varying answer sets to each question. Researchers began conducting interviews after they earned a 90% accuracy rating in the instrument's use. Interviewers were given a list of practicing administrators in the district with whom to make contact and conduct interviews.

Data Analysis

Bi-variate correlation and regression procedures were used to assess the relationship between independent and dependent variables. To determine whether various aspects of leadership correlated with student achievement differently, each interview section (vision, instruction, management, collaboration, integrity) was analyzed separately in addition to the combined score. Differences in these relationships would indicate whether some aspects of leadership share more or less association with student achievement. In addition, school and principal characteristics were controlled for in this analysis. These variables included the socio-economic status of the student population as well as the principal's race and gender.

Chapter 4

Findings

To determine the strength and direction of an association between principal leadership and student achievement, two statistical approaches were applied. In the first half of this chapter a review of the relationship in terms of the Pearson product-moment correlation is presented. In addition to assessing the strength of the relationship between independent and dependent variables, additional correlations were performed between other school factors in an effort to determine whether there were other influencing factors on the relationship. The second half of the chapter reviews findings associated with the application of regression analyses. These procedures control for additional variables. In these analyses, the leadership measures were identified as the independent variables and the achievement scores, as measured by the percent of students meeting standard (Level III or higher) in annual testing, were used as the dependent variable.

Two datasets were constructed and analyzed to test the relationship between independent and dependent variables. A primary dataset included 50 schools—elementary, middle, and high school while the secondary dataset limited scores to 39 elementary and middle schools. Two datasets were constructed because high school data in the primary dataset included student performance information in more content areas than the elementary and middle level data. That is, in addition to reading and mathematics data the primary dataset included proficiency levels related to science and social studies. In an effort to determine whether leadership measures carried a different degree of association when compared across distinct groupings of curricula, a subset of data was used. The secondary dataset was limited to elementary and middle school

whereby testing requirements focused only on reading and mathematics. Table 5 provides

summary information on the two datasets.

Table 5

Building-level Summaries for the Percent of Students Meeting Standard (Level III or above) on Assessments, Principal Scores on Leadership Measures, and School Factors

Variable	Primary Dataset			Secondary Dataset		
	n	Mean	sd	n	mean	sd
% Met Standard						
Students without Disabilities	50	63.40%	17.51	39	60.57%	17.66
Students with SLD	50	34.41%	21.12	39	28.65%	18.23
Leadership Measures						
Collaboration	50	2.54	0.49	39	2.51	0.53
Instruction	50	2.60	0.36	39	2.61	0.37
Integrity	50	2.71	0.40	39	2.71	0.43
Management	50	2.56	0.36	39	2.57	0.37
Vision	50	2.46	0.46	39	2.47	0.43
Total Average	50	2.57	0.32	39	2.57	0.33
School Factors						
Principal:Women	50	62% (n=31)	0.49	39	69% (n=27)	0.47
Principal:African American	50	50% (n=25)	0.51	39	54% (n=22)	0.51
Poverty:SES	50	57.40%	23.70%	39	61.32%	23.41%

*% Met Standard summaries were calculated from building-level percentages (i.e. the % of students who met standard (Level III) on state assessments per building). Poverty:SES summaries were based on the percent of students enrolled in free and reduced lunch programs per building.

Pearson Product-Moment Correlations

Correlations between leadership measures and student achievement. Pearson-product moment correlations were calculated to determine the strength and direction of the associations between independent and dependent variables (see Tables 6 and 7). As indicated by the values listed, there was a lack of association between each of the leadership measures and the achievement levels of students with specific learning disabilities for both sets of data. A similar finding emerged when the leadership measurements were aggregated and averaged across all five measures with correlations resulting in $r(48)=0.033$ for K-12 and $r(39)=0.038$ for K-8. In addition, the absolute value of the correlation was less than the critical value of .2805 (df=48)

and .3165 (df=37) for p<.05, promoting the support of the null hypothesis. A statistically

significant relationship does not exist between the leadership measures and the achievement

scores for students with specific learning disabilities.

In order to determine whether the lack of relationship between leadership and

achievement was unique to students with specific learning disabilities, correlations were also

performed between leadership measures and the achievement scores of students without

disabilities (see Tables 6 and 7). The information presented shows a lack of relationship between

independent and dependent variables was not unique to students with specific learning

disabilities for four of the five leadership measures: collaboration, instruction, integrity, or

vision. The association between the leadership measure of management and achievement for

students without specific learning disabilities, however, did show significance in both datasets.

As shown in Tables 10 and 11, the relationship was positive with moderate strength: $r(48)= .318$

at p<.05 for K-12 and $r(37)=.426$ at p<.01 for K-8. In conclusion, the leadership measure of

management accounted for 10.1% and 18.1% of the respective variance found in achievement

scores for students without disabilities.

Table 6

Correlations between Leadership Measures and End of Year Assessments for Elementary, Middle, and High School Level Students (Primary Dataset)

Variables	Collaboration	Instruction	Integrity	Management	Vision	Total Average
Achievement						
SLD	0.087	0.023	-0.061	0.096	-0.018	0.033
Non-SLD	0.107	0.109	0.020	0.318*	0.080	0.154
Leadership Measures						
Instruction	0.444**					
Integrity	0.606**	0.467**				
Management	0.628**	0.657**	0.633**			
Vision	0.350*	0.484**	0.467**	0.520**		
Total Average	0.790**	0.753**	0.805**	0.860**	0.726**	

*Signif. codes: '**' 0.01 '*' 0.05*

Table 7

Correlations between Leadership Measures and Reading and Mathematics Assessments for Elementary and Middle Level Students (Secondary Dataset)

Leadership Measures	Collaboration	Instruction	Integrity	Management	Vision	Total Average
Achievement						
SLD	0.052	0.104	-0.066	0.181	-0.091	0.038
Non-SLD	0.107	0.225	0.063	0.426**	0.088	0.217
Leadership Measures						
Instruction	0.446**					
Integrity	0.596**	0.423**				
Management	0.642**	0.638**	0.643**			
Vision	0.371**	0.403**	0.471**	0.458**		
Total Average	0.814**	0.719**	0.809**	0.855**	0.693**	

*Signif. codes: '**' 0.01 '*' 0.05*

Correlations between other school factors and student achievement. The correlation coefficients previously discussed reflect a very limited association between the five leadership measures and achievement. The calculations reinforce the conclusion that very little variance in student achievement for students with specific learning disabilities was accounted for by the measured leadership factors. In an effort to determine whether other factors were confounding these results, correlations were also performed using the school-level control variables of principal's race, principal's gender, and the school's socio-economic status (SES) composition.

Two discoveries were noted in these analyses reported in Table 8. First, the school's SES composition, represented by the percent of students on free or reduced lunch programs, showed a strong, negative relationship with student achievement: $r(48) = -0.638$ with $p < .01$ for K-12 and $r(39) = -0.678$ with $p < .01$ for K-8. Second, the principal's race, when identified as African American, shared a significant negative association with achievement for students without specific learning disabilities in the primary dataset alone, with $r(48) = -.359$ with $p < .05$. This

latter association did not occur for students with SLD in either dataset. Principal gender did not

prove to hold a significant relationship with achievement in either dataset.

Table 8

Correlation and Coefficient Determination for Measures of Leadership, Achievement, and School Factors for Students with Specific Learning Disabilities and for Students without Disabilities (Primary and Secondary Datasets)

Variable	Primary Dataset (K-12)				Secondary Dataset (K-8)			
	Students with SLD		Students without SLD		Students with SLD		Students without SLD	
	r	r2	r	r2	r	r2	r	r2
Leadership Measures								
Collaboration	0.087	0.8%	0.107	1.1%	0.052	0.27%	0.107	1.14%
Instruction	0.023	0.1%	0.109	1.2%	0.104	1.07%	0.225	5.04%
Integrity	-0.061	0.4%	0.020	0.0%	-0.066	0.44%	0.063	0.40%
Management	0.096	0.9%	0.318*	10.1%	0.181	3.26%	0.426**	18.15%
Vision	-0.018	0.6%	0.080	0.6%	-0.091	0.82%	0.088	0.77%
Total Average	0.033	0.1%	0.154	2.4%	0.038	0.15%	0.217	4.70%
School Factors								
Principal:Women	-0.182	3.3%	-0.213	4.5%	0.054	0.29%	0.057	0.32%
Principal:African American	-0.100	1.0%	-0.359*	12.9%	0.056	0.31%	-0.275	7.58%
Poverty:SES	-0.638**	40.70%	-0.853**	72.76%	-0.678**	45.95%	-0.916**	83.98%

*Signif. codes: '**' 0.01 '*' 0.05*

The findings noted in Table 8 reinforce the known negative relationship between poverty

and student achievement. Further analysis, however, also offered perspective as to whether

poverty shared an association with any of the leadership measures. Correlations proved to be

significant in both datasets for one leadership measure, management (see Table 9).

Table 9
Correlations for Socio-Economic Status and Measures of Leadership

Socio-economic Status	Collaboration	Instruction	Integrity	Management	Vision	Total Average
Primary Dataset	-0.140	-0.162	-0.061	-0.354*	-0.051	-0.186
Secondary Dataset	-0.057	-0.118	-0.023	-0.358*	0.037	-0.119

*Signif. codes: '**' 0.01 '*' 0.05*

Summary of correlations. To this point, the application of the Pearson product-moment correlation provided insight into the magnitude of an association shared between independent and dependent variables. Findings did not support the rejection of the null hypothesis, at least at the designated level. That is, a significant relationship between leadership measures and achievement levels of students with specific learning disabilities does not exist but may have emerged with lower, less-restrictive levels. In an effort to determine whether the results of applying Pearson's r were unique to this study's focus group and/or whether other school factors were also associated with the study's variables, additional correlations were performed.

In these follow-up analyses, the correlations found between leadership measures and achievement scores of students without disabilities were generally consistent with the study's focus group. The lack of relationship between leadership measures and student achievement was not unique to students with specific learning disabilities for four of the five leadership measures. The correlation between management and achievement for students without disabilities, however, was significant (see Tables 10). Correlations incorporating socio-economic status (SES) showed this school factor shares a significant relationship with achievement and the leadership measure of management (see Tables 10 and 11).

These findings support the consideration of whether other school factors influence the relationship between the leadership measures and achievement scores. Therefore, to fully examine the relationship between leadership measures and achievement of students with specific learning disabilities, scatterplots were examined. The data were plotted to determine whether the correlations above were influenced by other school factors as indicated in the SES analyses. As such, SES, gender, and race were regressed on the dependent variable and residuals were

calculated. Residuals were plotted against each independent variable for both datasets. The

resulting effect indicated a random/linear relationship existed for the data

Multiple Linear Regression

In an attempt to fully investigate the acceptance of the null hypothesis, regression

analyses were applied to the data to determine whether one set of leadership measures proves

more useful in predicting achievement levels for students with specific learning disabilities. The

analyses were only applied to the student grouping identified as students with specific learning

disabilities due to the limited degree of difference found in correlations shared previously. Table

10 shows the results of a linear regression run with all five leadership measures as predictors. In

this model, the individual significance tests showed that none of the leadership measures

explained the variation in student achievement of students with specific learning disabilities

beyond the variation explained by any of them.

Table 10

Regression Results for Multiple Predictors and Achievement for Students with Specific Learning Disabilities

Variable	Primary Dataset (K-12)				Secondary Dataset (K-8)			
	Estimate	Std Error	t-value	Pr(>|t|)	Estimate	Std Error	t-value	Pr(>|t|)
(Intercept)	33.037	26.12	1.265	0.213	20.380	25.297	0.806	0.426
Collaboration	5.484	8.631	0.635	0.528	-0.229	7.739	-0.030	0.977
Instruction	-2.648	11.748	-0.225	0.823	0.830	10.886	0.076	0.940
Integrity	-12.242	10.912	-1.122	0.268	-11.032	9.846	-1.120	0.271
Management	12.756	14.297	0.892	0.377	20.814	13.495	1.542	0.133
Vision	-2.069	8.319	-0.249	0.805	-6.850	8.157	-0.840	0.407
	Residual standard error: 21.77 on 44 degrees of freedom. Multiple R-squared: 0.04575, Adjusted R-squared: -0.06269. F-statistic: 0.4219 on 5 and 44 DF, p-value: 0.8309				Residual standard error: 18.47 on 33 degrees of freedom. Multiple R-squared: 0.1088, Adjusted R-squared: -0.02627. F-statistic: 0.8055 on 5 and 33 DF, p-value: 0.554			

In an attempt to control for possible redundancy, Table 11 includes regression results in

which one predictor was added at each step. Variables were controlled for in order of the

strength of their relationships. If significance emerged for a leadership measure then the next measure would be added. In Model 1, poverty was controlled for initially. As shown in Table 11 the results of the regression conform to the correlation results reported earlier. School SES composition has a strong, negative effect on the achievement of students with specific learning disabilities.

In the next step, separate regressions were run with SES and each leadership measure: SES and Collaboration; SES and Instruction; SES and Integrity; SES and Management; SES and Vision. Each regression resulted in SES remaining significant; however, no significant relations were found for any of the leadership factors. Table 11 summarizes the regression for SES and management. This combination was chosen to highlight because it had the most potential to show significance. That is, while none of the correlations for leadership measures showed a significant relationship with the achievement of students with specific learning disabilities, the measure of management did show significance for students without disabilities. It also shared the largest correlation with the other leadership measures. Evidence that a significant relationship existed, however, did not emerge.

Lastly, in an effort to be exhaustive, a third model was created controlling for SES, principal's race, and one leadership measure. The principal's race was added to the regression procedures because of the significance found in correlation procedures between it and the achievement of students without disabilities. By controlling for these school-level factors, the relationship between leadership measures and achievement might materialize. Findings, however, conformed to the results of the correlations reported earlier. Table 11 shows that a significant relationship between the leadership factor of management and achievement of students with specific learning disabilities did not emerge.

Table 11

Step-wise Regression

Model	Variable	Primary Dataset (K-12)				Secondary Dataset (K-8)			
		Estimate	Std Error	t-value	p-value	Estimate	Std Error	t-value	p-value
1	(Intercept)	67.059	6.139	10.924	1.30e-14***	61.034	6.17	9.893	6.15e-12***
	SES	-0.569	0.099	-5.746	6.12e-07***	-0.528	0.094	-5.609	2.13e-06***

Residual standard error: 16.43 on 48 degrees of freedom. Multiple R-squared: 0.4075, Adjusted R-squared: 0.3952. F-statistic: 33.01 on 1 and 48 DF, p-value: 6.119e-07.

Residual standard error: 13.59 on 37 degrees of freedom. Multiple R-squared: 0.4595, Adjusted R-squared: 0.4449. F-statistic: 31.46 on 1 and 37 DF, p-value: 2.126e-06

Model	Variable	Primary Dataset (K-12)				Secondary Dataset (K-8)			
		Estimate	Std Error	t-value	p-value	Estimate	Std Error	t-value	p-value
2	(Intercept)	92.24	20.887	4.416	5.87e-05 ***	71.363	20.001	3.567	0.001**
	SES	-0.616	0.105	-5.852	4.50e-07 ***	-0.548	0.102	-5.382	4.66e-06***
	Management	-8.8	6.981	-1.261	0.214	-3.545	6.525	-0.543	0.590

Residual standard error: 16.33 on 47 degrees of freedom. Multiple R-squared: 0.4269, Adjusted R-squared: 0.4025. F-statistic: 17.5 on 2 and 47 DF, p-value: 2.084e-06

Residual standard error: 13.72 on 36 degrees of freedom. Multiple R-squared: 0.4639, Adjusted R-squared: 0.4342. F-statistic: 15.58 on 2 and 36 DF, p-value: 1.336e-05

Model	Variable	Primary Dataset (K-12)				Secondary Dataset (K-8)			
		Estimate	Std Error	t-value	p-value	Estimate	Std Error	t-value	p-value
3	(Intercept)	86.830	21.352	4.067	0.000***	58.706	19.568	3.00	.005**
	SES	-0.653	0.110	-5.945	3.51e-07***	-0.598	0.098	-6.098	5.75e-07***
	Principal Race	5.829	5.104	1.142	0.259	10.730	4.515	2.377	0.023*
	Management	-6.982	7.138	-0.978	0.333	0.333	6.354	0.052	0.959

Residual standard error: 16.27 on 46 degrees of freedom. Multiple R-squared: 0.4427, Adjusted R-squared: 0.4063. F-statistic: 12.18 on 3 and 46 DF, p-value: 5.43e-06

Residual standard error: 12.91 on 35 degrees of freedom. Multiple R-squared: 0.5384, Adjusted R-squared: 0.4989. F-statistic: 13.61 on 3 and 35 DF, p-value: 4.814e-06

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

In conclusion, the application of correlations and regressions resulted in the acceptance of the null hypothesis. A significant relationship between leadership measures and achievement of students with specific learning disabilities was not found.

Chapter 5

Conclusions

The enactment of No Child Left Behind was a message of accountability from the American public to its nation's school systems. In an effort to address school failure and academic disparity between student groupings, NCLB's mandates became powerful motivators for schools to evaluate and address issues related to educational programming and/or personnel assignments. After a decade of aligning resources in the classroom, schools, however, continue to experience failure in meeting accountability standards for either all students or for individual student groupings (i.e. disability, race, English language proficiency, and/or free/reduced lunch). Continued school failure to meet standards and to close the achievement gap between groups of students has encouraged researchers to broaden the scope of their studies to investigate whether other school factors affect learning. For example, what influence does school leadership have on student achievement? Researchers are able to determine which leadership measures are associated with student achievement by evaluating the strength of the relationship between these two variables (Leithwood et al, 2004: Wahlstrom et al, 2010; Waters et al, 2003; Witziers et al, 2003). By doing so, researchers offer powerful information to district leaders. In the instances in which leadership measures are identified as ones associated with student achievement then human resource models can be adjusted to incorporate this information. One possible effect could be the development and integration of selection tools that point to individuals who possess desired characteristics.

In this sense, the current study mirrors previous research in its attempt to measure the relationship between leadership traits and student achievement. In an effort to ascertain principal effectiveness, ratings from an employment interview were used to define a subject's capacity in

specific leadership measures; subsequently, these ratings were correlated with achievement scores of students with specific learning disabilities. While findings did not show a significant relationship between variables, the analysis did indicate that the strength of the relationship varied across datasets as well as between groups of students. This information encourages researchers to evaluate whether identified leadership skills influence learning in differing degrees of strength when factors such as test content and student grouping are varied. Furthermore, it creates interest in evaluating methodological and conceptual issues that may have influenced results.

Methodological Issues

Methodological issues were evaluated to determine what types of factors either influenced either the lack of relationship or the fluctuations found amongst variables when test content and student groupings were manipulated. Considerations related to the interview instrument as well as score classification, outliers, and the magnitude of range were explored.

Employment interview, reliability, validity, restriction of range. As part of the parent study, other researchers analyzed the employment instrument utilized in this study. The interview measured candidate capacity in the areas of leadership measures matched with ISLLC 2008 leadership standards: collaboration, instruction, integrity, management and vision. Kobler (2010) demonstrated the instrument's inter-rater reliability while Tulipana (2010) demonstrated its face validity. The questions and the corresponding use of the employment interview don't appear to be factors that created influence in generating variance in results.

In looking at the restriction of range for this study, however, both the rating scale and the size of the population studied were limited in magnitude. For example, the range of values for interview scores was restricted to the range of 1 to 3. The resulting ratings showed a range in

principal performance to be from 1.76 to 2.96. Five individuals scored an aggregate rating below 2.0 while nine principals scored between 2.0 and 2.49. The remaining thirty-six principals scored more threes (the top of the scale) with a resulting range of 2.51 to 2.96. This shows that while there were variances in interview results, the differences were small with 78% of the principals scoring at the highest level. Two conclusions can be made from this data. The first consideration is that the lack of variance in results would be expected from a population of veteran and successful principals. Indeed the scores on the instrument should have been high, as they were. A second consideration is the fact that the scoring rubric was restricted. If a wider range of abilities were interviewed, a greater degree of variance amongst subjects may have emerged supporting stronger correlations. This in turn might better illuminate whether these leadership measures share a significant relationship with achievement.

A second area in which the magnitude of range deserves attention is the study's population size. The primary dataset included 50 principals and the secondary dataset held 39. While the larger group met the recommended size requirements for regressions, it was small. An emerging challenge relates to the integrity of the analysis itself as well as the application of the findings when utilizing population sizes of this magnitude. While future research might attempt to increase external validity and the corresponding application of the study's findings by incorporating larger population sizes and enhanced rating scales, the challenge of identifying school districts with large numbers of principals exists.

Data classification. In compiling an interview of this type, questions were generated and answers were matched to a scoring rubric. Corresponding analyses assumed an equal degree of difference, or measurement, between one answer choice and the next. This supported data classification as interval as well as the corresponding use of Pearson's r. Would results have

remained consistent, however, if data were defined as categorical rather than interval? Further

analyses proved it would not. In an effort to test this hypothesis, the application of Spearman's

was substituted to calculate correlations. The results of these calculations are shown in Table 12.

As with Pearson's, the correlations showed a lack of association between leadership measures

and achievement of students with specific learning disabilities. These results strengthen the

findings that a lack of relationship exists between the variables in this study.

Table 12

Spearman Correlations for Achievement and Leadership Measures for the Primary Dataset

Leadership Measure	Students with Specific Learning Disabilities
Collaboration	0.030
Instruction	0.024
Integrity	-0.127
Management	0.086
Vision	-0.023

*Signif. codes: '**' 0.01 '*' 0.05*

Outliers and corresponding relationships. Thus far, the collection and evaluation of

the data were explored. Continued analysis looked at the data itself through the evaluation of

scatterplots. Did outliers exist and was this data used in calculations, potentially influencing the

overall relationship shared between variables? To address this concern, the primary dataset was

used for initial exercises that explored whether outliers existed. In an effort to verify that a non-

linear relationship did not exist, the previous scatterplots as well as those created by plotting

residual data were examined. These analyses did not offer any argument for further removal of

school data, nor did it show a change in the assumed relationship. They, in fact, reinforced the

calculations of both correlations and regression.

Summary of methodological issues. The evaluation of methodological measures

confirmed that factors such as data definition, the type of relationship shared between variables,

and interview reliability/validity held to statistical requirements. In addressing issues such as the magnitude of range in both the interview scale as well as the population size, external validity might be influenced as such demographics of the group are considered. In brief, the review of methodological issues related to this study highlight that the current population was both small and without much variance in their scores. As noted, further studies with enhanced instruments and larger populations would create support for whether these leadership measures share a significant relationship with the achievement of students with specific learning disabilities.

Conceptual Issues

In addition to methodological issues there are conceptual factors to be considered when making conclusions. Issues related to how leadership is defined, what outcomes are measured and how the student population is described are all factors carrying weight in the discussion.

Leadership measures. One of the distinctions noted in the review of literature is the difference in how leadership is defined. While this study used ISSLC 2008 leadership standards to define its five domains (i.e. vision, instruction, management, collaboration, and integrity), Waters et al (2003) found its top five leadership characteristics to be: situational awareness, intellectual stimulation, change agent, input and culture. In a similar study, Witzier et al (2003) identified supervision/evaluation, monitoring, visibility, and defining/communicating mission as their top four leadership characteristics. Although overlap in definitions occurred amongst studies, it was not exact. This indicates there may be enough differentiation in what was measured to lead one to consider that findings point to the conclusion that the identified leadership measures do not create enough influence to be significant when measuring their effectiveness with achievement. This would promote further inquiry into the relationship these

skills share with other school factors. It may be that the dimensions selected address leadership in general and not those skills that specifically point toward achievement.

While this too would inform the educational community of their value, caution should be taken in drawing conclusions that disassociate these skills with achievement. For example, while the findings did not show significance in their relationship with achievement for students with specific learning disabilities, with correlations ranging from .018 to .096 (primary dataset) and from .066 to .181 (secondary dataset), they did mirror the smaller effect sizes found in Witzier et al's (2003) study: .02 to .19. When comparing leadership measures with the non-identified group of students, the measure of management maintained a higher correlation, .318 (primary dataset) and .426 (secondary dataset), mirroring the higher associations found in Waters et al's (2003) study, .29 to .33. It may be that these leadership measures do not share a significant causal link to achievement for students with specific learning disabilities; however, the combination of the proximity these results share with other studies and the fluctuation shown in correlations when switching student groups gives argument that further consideration should be made when drawing conclusions.

Student group. This study employed a deliberate focus on a defined grouping of students (i.e. students with specific learning disabilities) in an effort to determine whether an employment interview could be used to identify individuals whose leadership skills are associated with the achievement of an at-risk group of students. If a significant relationship emerged between leadership and achievement for the identified group of students the study's findings would have significant bearing in educational practice. While this study falls short of that goal, it demonstrated that the degree of association between leadership and achievement might be dependent on the demographics of the student group.

Findings in this study indicated that the leadership measurement of management correlated with the identified group at .096 yet the same leadership measure correlated with the non-SLD group at .318 (primary dataset). The secondary data set showed a similar pattern with the correlations being .181 and .426, respectively. The significance of this finding relates to the question of whether there are inherent differences in student groupings that influence the relationship between leadership and achievement. Studies focusing on specific demographics of students might prove relevant in defining the patterns of association found between leadership and achievement. That is, if research could demonstrate that a differentiated skillset of leadership capacities is required for varying student demographics then emphasis could be placed on the development of these skills to meet student need.

Outcomes. A third area of consideration relates to expected student outcomes and how corresponding definitions influence the relationship between leadership and achievement. For example, what is unknown in this study is to what extent this state assessment compares to outcomes used in other studies and to what degree did it influence the relationship that leadership shares with learning. In brief, does the strength of the association between variables depend upon the outcome and is the outcome measured in the same way? When comparing studies, issues such as similarity in subject matter (reading, mathematics, etc.) and the corresponding measurement thereof (i.e. reading comprehension, fluency, etc.) should be considered.

On a small scale, this study attempted to mitigate differences in content by creating a secondary dataset, in which the content was controlled. Assessments in this group reflected reading and mathematics. The resulting analysis found a slight increase in the association between variables: .018 to .096 (primary dataset) and .066 to .181 (secondary dataset). As with the findings noted when changing student groupings, these results suggest the strength of the

association found between leadership and achievement may be influenced by student outcomes. This, too, could encourage researchers to investigate whether there are different leadership skillsets related to varying outcomes.

Summary of conceptual issues. By defining the leadership skills, the demographics of the student population, and outcomes measured, researchers have the ability to create focus. With these variables highlighted, research can more clearly define which leadership skills are more associated with effectiveness. Leadership skills aligned to one curriculum versus another, or with one group of students versus another, may have varying priority in school evaluation. As such, this information would give school leaders a powerful tool in attempting to identify building leadership that matches student need.

Summary of Conclusions

In response to public outcry, national legislation sought to bring America's focus to results. In so doing, it set the definition of an effective school as one in which all students perform grade-level learning goals. Similarly, effective leaders are those individuals who best influence the direction of student progress in this manner. In order to be successful, research can assist the educational community by better defining the leadership skills aligned to student need. A significant component of this study is the utilization of the ISSLC standards for the measurement of leadership skillsets. States across the country utilize the standards to define licensure program requirements and/or licensure exams. As such, individuals who earn degrees from programs and/or pass licensing requirements are believed to possess the skillsets associated with the characteristics of an effective school leader. As research, however, focuses on specific outcomes the relationship that leadership skills have with achievement emerges.

Studies such as this one show caution may be needed before assuming these skills are desirable principal characteristics when attempting to address student learning for students with disabilities. That is, by attempting to define the degree of association between leadership measures and student achievement for this group of students, a question emerges as to whether the possession of skills associated with ISLLC 2008 standards constitutes effective leadership characteristics. Yet, prior to making conclusive statements further investigation is needed. Already discussed was the possible influence that both methodological and conceptual factors may have had on the findings of this study. In addition, it is also noteworthy to consider whether this line of research can actually capture a consistent significant relationship between the variables being studied.

Is principal behavior so removed from student learning that results can't be portrayed in this manner? If so, could future studies focus on measuring the relationship between leadership measures and agents known to share a closer relationship with student achievement? It may be that by taking a more indirect route, the relationships between influencing agents may be better defined. That is, future studies could assess how the relationship between principal behaviors and teacher characteristics influences student outcome. Does the relationship differ for varying student factors such as outcome and student group? As with this study, the potential for the emergence of employment interviews still exists. It would simply focus on leadership measures aligned with moderating factors such as teacher motivation rather than student achievement.

References

Andrews, R. L., & Soder, R. (1987). Principal leadership and student achievement. *Educational Leadership, 44*(6), 9-11.

Campion, M. A., Palmer, D. K., & Campion, J. E. (1997). A review of structure in the selection interview. *Personnel Psychology, 50*(3), 655-702.

Council of Chief State School Officers. (2008). Educational leadership policy standards. Washington DC: Author.

Dipaola, M. F., & Walther-Thomas, C. (2003). *Principals and special education: the critical role of school leaders.* Gainesville, FL: Center on Personnel Studies in Special Education: University of Florida.

Federal Register. (2007). *34 CFR Parts 200 and 300: Title I, Improving the academic achievement of the disadvantaged; Individuals with Disabilities Education Act (IDEA), Assistance to states for the education of children with disabilities*. Retrieved from http://ed.gov/legislation/FedRegister/finrule/2007-2/040907a.pdf.

Gersten, R., Keating, T., Yovanoff, P., & Harniss, M. K. (2001). Working in special education: factors that enhance special educators' intent to stay. *Exceptional Children, 67*(4), 549-567.

Graves, L. M., & Karren, R. J. (1996). The employee selection interview: A fresh look at an old problem. *Human Resource Management, 35*(2), 163-180.

Hallinger, P., Bickman, L., & Davis, K. (1996). School context, principal leadership, and student reading achievement. *The Elementary School Journal, 96*(5), 527-549.

Heneman, H. G., III, & Milanowski, A. T. (2004). Alignment of human resource practices and teacher performance competency. *Peabody Journal of Education, 79*(4), 108-125.

Hess, F. M., & Petrilli, M. J. (2004). The politics of No Child Left Behind: will the coalition hold? *Journal of Education, 185*(3), 13-25.

Kearns, J. F., Kleinert, H. L., Clayton, J., Burdge, M., & Williams, R. (1998). Principal supports for inclusive assessment: a Kentucky story. *Teaching Exceptional Children, 31*(2), 16-23.

Kennedy, R. B. (1994). The employment interview. *Journal of Employment Counseling, 31*(September), 110-114.

Kobler, A. (2010). *The development and field test of an employment interview system to identify successful elementary school principals.* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (AAT 3398950)

Leithwood, K., Louis, K. S., Anderson, S., & Wahlstrom, K. (2004). Review of research: how leadership influences student learning: The Wallace Foundation.

Leithwood, K., & Mascall, B. (2008). Collective leadership effects on student achievement. *Educational Administration Quarterly, 44*(4), 529-561.

Macan, T. (2009). The employment interview: a review of current studies and directions for future research. *Human Resource Management Review, 19*(3), 203-218. doi: 10.1016/j.hrmr.2009.03.006

Miller, K. (2003). School, teacher, and leadership impacts on student achievement. Aurora, CO: Mid-continet Research for Education and Learning.

Murphy, J., & Shipman, N. (1999). The Interstate School Leaders Licensure Consortioum: a standards-based approach to strengthening educational leadership. *Journal of Personnel Evaluation in Education, 13*(3), 205-224.

O'Donnell, R. J., & White, G. P. (2005). Within the accountability era: principals' instructional leadership behaviors and student achievement. *NASSP Bulletin, 89*(645), 56-71.

Parker, S. A., & Day, V. P. (1997). Promoting inclusion through instructional leadership: the

    roles of the secondary school principal. *National Association of Secondary School*

    Principals. NASSP Bulletin, 81(587), 83-89.

Rammer, R. A. (2007). Call to action for superintendents: change the way you hire principals.

    The Journal of Educational Research, 101(2), 67-76.

Reik, M. J. (2007). *An examination of concurrent validity of the Interactive Computer Interview*

    System (ICIS) using communication arts and math achievement on the Missouri

    Assessment Program (MAP) as the outcome measure (Doctoral dissertation). Available

    from ProQuest Dissertations and Theses database. (AAT 3283935)

Ryan, A. M., & Tippins, N. T. (2004). Attracting and selecting: what pschological research tells

    us. *Human Resource Management, 43*(4), 305-318.

The Wallace Foundation. (2006). Leadership for learning: making the connections among state,

    district and school policies and practices: The Wallace Foundation.

Tulipana, T. M. (2010). *The relationship between leadership level and preference for*

    administrative interview questions (Doctoral dissertation). Available from ProQuest

    Dissertations and Theses database. (AAT 3481365)

U.S. Department of Education, Office of Elementary and Secondary Education,. (2011). Report

    to Congress on the Elementary and Secondary Education Act, State-reported data for

    school years 2003-04 to 2007-08. Washington, D.C.

Valentine, J. W., & Prater, M. (2011). Instructional, transformational, and managerial leadership

    and student achievement: high school principals make a difference. *NASSP Bulletin,*

    95(1), 5-30. doi: 10.1177/0192636511404062

Wahlstrom, K. L., Louis, K. S., Leithwood, K., & Anderson, S. E. (2010). Investigating the links to improved student learning, executive summary of research findings: Wallace Foundation.

Waters, T., Marzano, R. J., & McNulty, B. (2003). Balanced leadership: what 30 years of research tells us about the effect of leadership on student achievement. Aurora, CO: Mid-continet Research for Education and Learning.

Witziers, B., Bosker, R. J., & Kruger, M. L. (2003). Educational leadership and student achievement. *Educational Administration Quarterly, 39*(3), 398-425.