A STUDY OF LEARNING-CENTERED LEADERSHIP SKILLS OF PRINCIPALS IN CAREER AND TECHNICAL EDUCATION SCHOOLS

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by
Mary E. Rodman

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The dissertation of Mary E. Rodman was reviewed and approved* by the following:

Richard A. Walter  
Associate Professor of Education  
Dissertation Advisor  
Chair of Committee  
Professor in Charge of Graduate Programs in Workforce Education and Development

Edgar P. Yoder  
Professor of Extension Education

Cynthia A. Pellock  
Associate Professor of Education

Robert E. Clark  
Associate Professor of Education

*Signatures are on file in The Graduate School.
ABSTRACT

Despite years of educational reform, secondary students have demonstrated only modest increases in achievement. Career and technical education students have not demonstrated the same level of performance as non-career and technical education students. Except for teachers, principals have the greatest influence over student achievement. What should effective principals be able to do and how should they do it? Using the Vanderbilt Assessment of Leadership in Education (VAL-ED), this quantitative research study investigated the learning-centered leadership skills of principals in 16 area career and technical education schools. The study addressed four research questions. The study determined the extent to which (a) learning-centered leadership skills were demonstrated by career and technical education principals; (b) perceptions of leadership skills differed among principals, supervisors, and teachers; (c) leadership skills of career and technical education principals differed from the national norm; and (d) an association existed between leadership skills and student achievement on the NOCTI assessment. The results suggested that career and technical education principals demonstrated leadership to a level of proficiency similar to the national norm and that there were no significant differences between the perceptions of leadership skills among the principals, supervisors, and teachers. The study showed no direct association between the leadership skills of the subject principals and student achievement measured by the NOCTI assessment, and reinforced the complex indirect relationship that exists. This study may be of value to those who deliver Pennsylvania Inspired Leaders programs, those who deliver core certification programs that prepare principals for their future roles in career and technical education, and principals who engage in focused professional education experiences for the purpose of increasing student achievement.
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Chapter 1

INTRODUCTION

Historical Perspective

In 1983, the National Commission on Excellence in Education published a now famous report on the condition of public schools, *A Nation at Risk*. This report launched a flood of school reforms that focused attention on improving the effectiveness of public schools. More recently, the No Child Left Behind Act of 2001, global competition, implementation of state academic standards, and school accountability systems have focused attention on school leadership as the means to ensure the effectiveness of schools. These efforts have made improvements in the quality of public schools. Yet reform efforts have failed to yield successful and sustained education reform that produced measureable and significant improvements in student achievement. According to the United States Department of Education, “The average reading and mathematics scores on the long-term trend National Assessment of Educational Progress were higher in 2008 than in the early 1970s for 9- and 13-year-olds; scores for 17-year-olds were not measurably different from the early 1970s” (U.S. Department of Education, 2010).

Because reform initiatives have not sustained educational improvements, student achievement remains at the forefront of state and national agendas (Bureau of Career and Technical Education, 2011; Davis, Darling-Hammond, LaPointe, & Meyerson, 2005).

Research related to student achievement began prior to 1970. However, the focus in research on effective schools began in the 1970’s in response to a report called *The Concept of Equality in Educational Opportunity*. Coleman (1967) posited that family background and socioeconomic status were the most influential factors in student
achievement, largely underplaying any influence that schools had on student achievement. Coleman’s report stated that little research existed to determine what school factors (elements), if any, were influential for student achievement. However, he theorized that schooling had a minimal effect on student achievement and that if any measurement of the effects of schooling on student achievement did exist, it was subject to “sharp disagreement” (p. 17). Coleman’s report launched a movement of research designed to prove that schools did have a direct impact on student achievement. This research transitioned to identifying the common factors that existed exclusively in effective schools. Researchers began to analyze effective schools that existed despite school size, economic makeup, or minority status of the student population (Edmonds, 1982). This body of research produced a prescriptive list of seven common traits found in effective schools that were not present in ineffective schools (Lezotte, 1991). Among the seven characteristics, the researchers noted that each of the effective schools studied had strong instructional leadership.

The continued quest to produce better schools resulted in more demands on the principal to demonstrate effective leadership. Several different leadership philosophies have been proposed to be the conceptual framework necessary to create increasingly effective schools. These philosophies aim to identify the leader’s role in creating effective schools by supporting teachers in their practice of delivering instruction (Supovitz & Buckley, 2008). The relevant leadership philosophies include those described by Bass (as cited in Leithwood and Jantzi, 2000) as transformational leadership and the philosophy described by Spillane (2005) as distributed leadership.
Transformational leadership is built on a foundation of the leader motivating others to higher levels of commitment to the goals of the organization, and as a result, achieving higher degrees of effectiveness in reaching those goals. Distributed leadership has as its foundation the emphasis on the process through which instructional leaders produce changes that result in effective schools. The research surrounding these leadership philosophies as they relate to learning-centered leadership will be examined in depth through the review of relevant literature in Chapter 2.

A second focus of research on leadership deals with the qualities of effective teachers and their direct effect on student achievement (Lezotte, 1991, 2004; Marzano, Pickering, & Pollock, 2001; Stronge, 2007; Wright, Horn, & Sanders, 1997). Through this research, the effects of instructional leadership on student achievement have been demonstrated. Waters, Marzano, and McNulty (2003) conducted a meta-analysis review of research over a 30-year period studying the relationship between instructional leadership and student achievement. This review identified a “balanced leadership framework which describes the knowledge, skills, strategies, and tools leaders need to positively impact student achievement” (p. 2). Although there has been much debate about the exact nature and extent of the impact, the educational community generally accepts the concept that instructional leadership has an indirect influence on student achievement (Hallinger, Bickman, & Davis, 1996; Hallinger & Heck, 1998; Leithwood, Harris, & Hopkins, 2008; Marzano, Waters, & McNulty, 2005; Wahlstrom, Louis-Seashore, Leithwood, & Anderson, 2010). Because of the generally accepted view that there is a link between principal leadership behaviors and student achievement, and further because of the continued pressure to improve student achievement through
effective schools, principal effectiveness has become the subject of significant recent research (LaPointe & Davis, 2006).

**The Problem**

The purpose of this research study was to investigate the learning-centered leadership skills of principals in selected area career and technical schools using the Vanderbilt Assessment of Leadership in Education (VAL-ED) principal assessment instrument. The study determined the extent to which leadership skills align with or differ from the national norm. The study determined the extent to which, if any, there were different perceptions in leadership skills among principals, supervisors, and teachers. Further, it determined the extent to which a relationship existed between specific leadership skills and student achievement. Leadership skills were analyzed within the unique context of the career and technical education school.

The 360-degree feedback instrument used in this study to assess the leadership skills of principals has been judged psychometrically valid and reliable. It is aligned to the professional standards of the Interstate School Leaders Licensure Consortium (ISLLC) 2008. The focus of this research was to assess the extent of learning-centered leadership skills of principals in selected area career and technical education schools. If gaps exist in the skills of principals in area career and technical education schools, and these gaps may be determined, then principals, principal preparation program providers, and Act 45 program providers may be better able to design focused professional education experiences to improve the leadership practices of principals and increase school effectiveness.

The role of the principal is highly complex and has changed over the years. The complexity and change in roles have required principals to demonstrate a more complex
set of leadership skills (Hallinger & Heck, 1998). Prior to reforms initiated after the publication of *The Nation at Risk*, the principal’s role was primarily limited to managing the building, reacting to student discipline, and responding to the school superintendent (Ashby & Krug, 1998, as cited in Normore, 2006). Since the new millennium, however, there are far more competing priorities for the principal’s time. Principals may be responsible for financial operations; building maintenance; hiring, firing, supervising, and evaluating professional and non-professional personnel; public relations; recommendation and implementation of school policy; and implementation of the school’s entire instructional program (Davis et al., 2005; Goodwin, Cunningham, & Childress, 2003). The primary role, however, in creating effective schools is impacting student achievement by influencing the instructional practices of teachers (Goodwin et al., 2003; O’Donnell & White, 2005; Printy, 2010).

A review of the research refers to the term *principal* interchangeably with the school’s instructional leader. As instructional leaders, it is increasingly important that principals possess the leadership skills to supervise teachers and the process skills to create effective schools. It is through these two skill sets that the principal’s work influences and improves student achievement (Davis et al., 2005; Printy, 2010).

Many facets of instructional leadership have been studied. Researchers have investigated the traits of effective leaders (Crow, Hausman, & Shribner, 2002), the behaviors of instructional leaders and what effective instructional leaders do (Blase & Kirby, 2000; Marzano, Waters, & McNulty, 2005), problems with and types of instructional leadership (Marks & Printy, 2003), and claims about successful school leadership (Leithwood, Harris, & Hopkins, 2008). This has not made instructional
leadership any more definitive or easier to demonstrate. Despite an extensive review of literature exploring the role of the principal in affecting student achievement, Hallinger and Heck (1998) made no specific conclusions about the exact manner in which principals contribute to school effectiveness. The review of research found the process that principals implement in creating effective schools “as well as the interplay with contextual forces that influence the exercise of school leadership” (p. 186) to be highly complex and beyond any one definition. The literature pointed to the need for future research on the principal’s role in creating school effectiveness through vision, mission and goals, and the interaction of “school goals, school structure and social networks, people, and organizational culture” (p. 187).

Researchers have studied principal preparation programs to determine if principals are being adequately prepared for the complex positions and the competing demands placed upon them (Blum, Butler, & Olson, 1987). The principals’ perceptions of their own preparation programs are not encouraging. In a report by Public Agenda for the Wallace Foundation, 925 members of the National Association of Secondary School Principals expressed opinions through a mail survey (Farkas, Johnson, & Duffett, 2003). As a whole, these principals expressed negative opinions about the preparation and education they received in their graduate school programs to prepare them for leadership positions. Only four percent of those surveyed felt that their graduate school programs were most valuable in preparing them for their positions. Davis et al. (2005) conducted a review of research and went as far as to state that “principal candidates and existing principals are often ill-prepared and inadequately supported to organize schools to improve learning while managing all of the other demands of the job” (p. 4).
If it is true that principal preparation programs have inadequately prepared principals for their current positions, at least two avenues exist for increasing the effectiveness of schools through the leadership of principals. One avenue is to better prepare future principals through an improvement in principal preparation programs. A second avenue is to improve the skills of the principals currently practicing in the field.

There is a wealth of research about principal leadership. Researchers have acknowledged, however, that knowing what to do and being able to do it are two different skill sets (Huff, 2009). For example, knowing that effective communication is a key skill for principals in helping teachers to improve does not mean that principals know how to communicate effectively. More so, while principals may believe they are effectively communicating, the participants in that communication may not agree.

Assuming that principals desire to perform effectively in their roles, then formative and summative feedback from those in the school environment, including supervisors and subordinates, is important for principals to assess how well their performance is meeting the expected standards of performance and the goals of the organization (Smither, London, & Reilly, 2005).

Part of the difficulty in giving feedback to principals and in principals’ evaluations, both of which are designed to improve the performance of the principal, is determining what to assess and how to assess it (Catano & Stronge, 2007; Glasman & Heck, 1992). If principals are to be accountable for student achievement through their roles as instructional leaders, and they are to improve their leadership skills, it is imperative that they know and understand the expectations, measures, and current level of their performance. Without the knowledge of the expectations and measures, as well
as the level of performance, as the foundation for professional education, efforts to improve deficiencies in performance are not likely to be productive (Huff, 2009).

As both a formative and summative process, much criticism currently exists about the effectiveness of evaluating principals’ leadership skills (Goldring, Cravens, et al., 2009; Samuels, 2011). Research findings have demonstrated that the context in which principals perform their work has a significant impact upon the effectiveness of their leadership skills. The contextual factors include the school grade levels, the socioeconomic makeup of the student population, the curricular content, and the attitudes of the staff (Glasman & Heck, 1992; Servais & Sanders, 2006; Thomas, Holdaway, & Ward, 2000).

Despite the extensive research and knowledge that exists about leadership skills, principals’ leadership characteristics, styles of leadership, traits, and behaviors, student achievement continues to fall short of expectations (U.S. Department of Education, 2010). In particular, this continues to be true regarding the academic achievement of students enrolled in career and technical education schools. Career and technical education participants at the secondary level have “less advantaged educational backgrounds than nonparticipants” (U.S. Department of Education, 2008, p. xi).

Significance of the Research

A scan of Eric, ProQuest, Google Scholar, and other databases illustrated that little research exists on the effectiveness of school principals in the context of the area career and technical education school. The educational environment of the area career and technical education school is unique for several reasons. First, the educational context is unique because of the career and technical education curricular content. Second, the
student population is unique. Based on 2009 data submitted by the Pennsylvania Department of Education, Bureau of Career and Technical Education for the U.S. Department of Education Consolidated Annual Report (CAR), more students who have individualized education plans (IEP) enroll in career and technical education schools (U.S. Department of Education, 2008). In addition, the CAR data demonstrated that students who enrolled in career and technical education schools tended to come from lower socioeconomic backgrounds than those who did not enroll in career and technical education schools (L. Burket, personal communication, October 26, 2010). Because of the unique education environment, the outcome of this research is significant in determining the skills of principals in the context of the area career and technical education schools.

Schools in the Commonwealth of Pennsylvania are far from reaching the performance standards of the No Child Left Behind Act of 2001 (U.S. Department of Education, 2010). Students in part-time area career and technical education schools perform below the norm of secondary high school students on the Pennsylvania System of School Assessment (Bureau of Career and Technical Education, Pennsylvania Department of Education, 2010). Because career and technical education students as a whole consistently perform below the proficiency level of all students in the Commonwealth of Pennsylvania, career and technical schools may be considered low-performing schools.

In a report for the U.S. Department of Education, the Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, researchers made four recommendations for turning around low-performing schools, one of which was to signal the need for dramatic change with strong leadership (U.S. Department of Education, 2008). If our schools’ instructional leaders are to make changes in their
leadership skills or if the chief school leaders are to change the individuals in instructional leadership positions, they need to know what leadership skills they are looking for, particularly in the context of the part-time area career and technical education schools.

In addition to the Pennsylvania System of School Assessment, students in approved career and technical education programs participate in an end-of-program assessment of the skills learned in the approved program developed by the National Occupational Competency Testing Institute (NOCTI). The NOCTI assessment is mandated by the Pennsylvania Department of Education, Bureau of Career and Technical Education, as a measure of program performance that meets the accountability demands of the No Child Left Behind Act (2001), and the Carl D. Perkins Career and Technical Education Improvement Act (2006).

The link between principal leadership and student achievement, although indirect, has been accepted as a viable concept. Improving the skills of those currently serving as the instructional leaders in schools is an important strategy in creating effective schools (Lezotte, 2004). Research findings have shown that principal leadership is second only to teacher quality in creating effective schools (Leithwood, Harris, & Hopkins, 2008; Marzano, Waters, & McNulty, 2005). Those who supervise principals need a reliable and valid instrument by which to assess principal effectiveness and provide feedback to principals that will enable them to improve their skills. The strategy to provide feedback to principals in this research project was the 360-degree feedback instrument.

**Research Questions**

There were four research questions for this study related to the conceptual framework of learning-centered leadership.
1. To what extent did principals in selected career and technical schools demonstrate learning-centered leadership skills as measured by the Vanderbilt Assessment of Leadership in Education?

2. To what extent, if any, did principals in selected career and technical schools demonstrate learning-centered leadership skills different from the national norm?

3. To what extent, if any, did the perceptions of leadership skills differ among principals, teachers, and supervisors?

4. To what extent, if any, did the leadership skills of selected career and technical education principals show an association with student achievement as measured by the National Occupational Competency Testing Institute (NOCTI) end-of-program assessment?

Limitations

This study investigated principals’ learning-centered leadership skills in 16 part-time area career and technical education schools in central Pennsylvania measured by the Vanderbilt Assessment of Leadership in Education (VAL-ED) assessment instrument. This study did not represent a scientific random sample of all career and technical education schools or part-time area career and technical education schools in the Commonwealth of Pennsylvania. Even though every effort was made to match the characteristics of instructional leaders (principals) in this study to the characteristics of the population of instructional leaders in all career and technical education schools in Pennsylvania, the results of this research study may not be generalized to the population of part-time or comprehensive area career and technical education schools.
Each school’s administrative director in this study was asked to select an assessment monitor whose responsibility it was to read a script prepared by the researcher describing the purpose of the study and providing instructions to completing the online survey instrument. Every attempt was made to standardize verbal instructions given to participants to ensure that all participants received the same information, but it cannot be assured that each monitor followed the script as requested.

Although there is widespread support for the professional standards of the International State School Leaders Consortium (ISSLC), it is not universally accepted that these standards are sufficient or appropriate for feedback or assessment (English, 2003). The VAL-ED instrument is based heavily on the ISSLC standards.

The process of 360-degree feedback has inherent weaknesses because it is based on perceptions. If the perceptions of the principal’s supervisor are not accurate, the feedback to the principal may not be useful. If the teachers are reacting emotionally to the behaviors and actions of the principal who is performing the responsibilities of the job, the feedback may not be accurate. The ability of the principal to self-assess his or her own skills may also be a limitation.

Finally, the cost of the VAL-ED instrument ($360.00 per principal) limited the number of part-time area career and technical schools selected for this study. It was expected, given the extent of the involvement of the principals, the principals’ teachers, and the principals’ supervisor, that the outcome of this study would produce a low rate of return unless a school’s administration made a personal commitment. For this reason, part-time area career and technical education schools whose instructional leaders met the statewide characteristics were selected (gender, years of experience as a principal, and
years of experience as a teacher). The researcher then personally contacted the administrative directors and encouraged a cross section of schools from the three regions of the state based on the teacher preparation programs served by Indiana University of Pennsylvania, Pennsylvania State University, and Temple University (western, central, and eastern parts of the state, respectively).

Definitions of Terms

*Instructional leadership* is defined by two core functions: providing direction to teachers and exercising influence over instruction (Seashore-Louis, Leithwood, Wahlstrom, & Anderson, 2010). Principals have direct supervision over teachers. For the purpose of this research, the term *principal* was used to describe the individual responsible for instructional leadership in the school. In some career and technical schools, the position of Assistant Director directly supervised teachers. In these cases, the assistant director was assessed. In other schools, the principal directly supervised teachers. In these cases, the principal was assessed.

Goldring, Porter, Murphy, Elliott, and Cravens (2009) defined two intersecting elements about which the instructional leader is assessed using the Vanderbilt Assessment of Leadership in Education. *Core components* are the characteristics of schools that support student learning and enhance the ability of teachers to teach. *Key processes* refer to how leaders create those core components.

The Pennsylvania Department of Education (2010), Bureau of Career and Technical Education defined *part-time area career and technical education school* (ACTES) in terms of what it is not and does not provide, as opposed to what it is and does provide.
The term ‘area career and technical education school’ means—a public school that provides vocational technical education to secondary school students, out-of-school youth and adults in a geographical area comprised and operated by one or more school districts and established under Sections 1840-1853 of the School Code (24 P.S. 18-1840-18-1853). (p. 4)

A part-time career and technical education school is also distinguished from a comprehensive career and technical education school that “provides both basic and career and technical education. A part-time area career and technical education school does not provide basic education” (Pennsylvania Department of Education, p. 5).

Assumptions

At the foundation of this research was the premise that teachers have direct influence over the quality of instruction and student achievement, and principals have a direct influence over teachers. The subject of study in this research was the instructional leader who had a direct supervisory role over teachers and, as a result, had an indirect impact upon student achievement. Regarding the professional preparation and licensure for the leadership position, it was assumed that the person in the position of instructional leader was properly certified in the Commonwealth of Pennsylvania by the Bureau of School Leadership and Teacher Quality for the position to which he or she was assigned.

This study assumed that the research used to determine the objectivity, reliability, and validity of the Vanderbilt Assessment of Leadership in Education (VAL-ED) instrument was accurate and that it accurately portrayed the key processes and core components of learning-centered leadership for effective schools.
It was assumed that the teachers who were absent on the day of assessment would rate their principal similarly to the teachers who were present. It was also assumed that the responses of the teachers and supervisors of their principals were reliable and without favoritism, bias or unfairness, and that the principals accurately assessed their own skills.

**Conceptual Framework**

The link between effective schools and effective leaders, although indirect, has been demonstrated by researchers over the past four decades. There is no doubt that effective schools require effective leaders. If principals are not coming to their roles with the leadership skills necessary for effective schools and if they are not receiving appropriate feedback and focused professional education to improve their leadership skills, schools will not improve (Catano & Stronge, 2007). The use of a research-based instrument to provide an assessment of the learning-centered leadership skills of principals for the purpose of formative and summative feedback is critical to improving school leadership and creating school effectiveness (Goldring, Cravens, et al., 2009). Principals may use this feedback to form the basis of their own professional education and learning or to engage in professional learning communities related to their own leadership practice.

Learning-centered leadership is the conceptual framework that defines the leadership behaviors for creating vision for learning, instructional program, curricular program, assessment program, community of learning, resource acquisition and use, organizational culture, and social advocacy (Murphy, Elliott, Goldring, & Porter, 2006). The Learning-Centered Leadership model moves the center of emphasis of the school and principal from a focus on teaching inputs to a focus on student learning outputs. It is
upon this focus of student learning that the Vanderbilt Assessment of Leadership in Education is based.

The conceptual framework of Learning-Centered Leadership is based on two key dimensions of principals’ leadership behaviors, core components and key processes.

In our framework, core components refer to the characteristics of schools that support the learning of students and enhance the ability of teachers to teach (Marks & Printy, 2003; Sebring & Bryk, 2000). Key processes are leadership behaviors, most notably aspects of transformational leadership traditionally associated with processes of leadership that raise organizational members’ level of commitment and shape organizational culture (Burns, 1978; Conley & Goldman, 1994; Leithwood, 1994). (Goldring, Porter, et al., 2009, p. 5)

Using this definition, the framework includes both the what and the how. The core components are the specific conditions (what) that school leaders create to produce student learning. The key processes define how school leaders create those outcomes to produce student learning. The assessment of learning-centered leadership skills, then, focuses on the intersection of these two dimensions.

The conceptual model begins with the precursors to leadership behaviors. These are knowledge and skills, personal characteristics, and values and beliefs that the principals hold about students, learning, effective schools, and other attributes that form the basis of their behaviors in the performance of their professional roles. These precursors form the basis of the leader’s behavior related to the core components of high standards for student learning, rigorous curriculum, quality instruction, culture of learning and professional behavior, connections to external communities, and
performance accountability. The precursors are not assessed in the Learning-Centered Leadership conceptual model, however, because the model focuses on the intersection of core components and key processes as they relate to student learning within the context of the principals performing their jobs. The model assumes this intersection of core components and key processes is what creates student success. The model does not assume a direct relationship between principal leadership behaviors and student success. It does assume that leadership behaviors indirectly influence student success by leading to changes in school performance (Goldring, Cravens, et al., 2009). The value added to student success is measured by student achievement, student attendance, student graduation, and college enrollment.

In the Learning-Centered Leadership conceptual model, the context in which the leadership skills are assessed is considered and viewed as an integral part of the assessment. However, the context is not used as an excuse for lack of leadership skill performance. This is one of the reasons that the context of the part-time area career and technical education school is particularly important.

The six core components and six key processes are grounded in research and the professional standards of the Interstate School Leaders Licensure Consortium (ISLLC). The review of related literature in Chapter 2 of this research study describes the research base for the core component and key processes in detail.

**Chapter Summary**

Since 1970 a significant body of research has been created that demonstrated conclusively that student achievement is based on effective schools. In addition, Leithwood, Harris, and Hopkins (2008) asserted that large-scale quantitative and
qualitative data supported that the leadership efforts of principals is second only to that of teachers in creating effective schools that lead to high levels of student achievement. The research base indicating the need for particular kinds of leadership skills from effective principals has shifted from the need for management skills to instructional leadership skills in the 1980’s to learning-centered leadership skills in 2010.

In Pennsylvania, one measure of student achievement is the Pennsylvania System of School Assessment. On the PSSA, career and technical education students typically do not perform as well as noncareer and technical education students. A second measure of student achievement for career and technical education students is the National Occupational Competency Testing Institute (NOCTI) end-of-program assessment. The NOCTI assessment meets the accountability demands of No Child Left Behind of 2001 and Carl D. Perkins Career and Technical Education Act of 2006. Because the NOCTI assessment is a measure of student achievement only for career and technical education schools, a student comparison to noncareer and technical education students was not possible. However, it is clear from the results of PSSA data that career and technical education schools are in need of effective school leaders.

This study added to the body of research related to the conceptual framework of learning-centered leadership with its focus on core components and key processes, and its relationship to student achievement. The study determined the extent of learning-centered leadership skills of principals in the unique context of the part-time career and technical schools. It determined the difference, if any, in the leadership skills of principals in career and technical education from the national norm. It determined the difference, if any, among the perceptions of leadership of principals, supervisors, and
teachers, and the extent to which an association existed between specific leadership skills and student achievement measured by the NOCTI assessment.

With this additional knowledge, principals may be better able to plan focused professional education experiences that will enhance their leadership skills, and as a result, have a more significant positive impact on student learning. Further, for those who analyze principal preparation programs, this study may support the need for modifications to preparation programs to better prepare principals for their future roles in career and technical education schools.
Chapter 2

LITERATURE REVIEW

Introduction

The purpose of this research study was to investigate the learning-centered leadership skills of principals in selected career and technical education schools using the Vanderbilt Assessment of Leadership in Education (VAL-ED) principal assessment instrument. The uniqueness of this research study was that it examined leadership from the conceptual framework of the learning-centered leadership model and in the context of the part-time career and technical education school. The results of this study are not generalizable because it did not include a random sample of all career and technical education schools in Pennsylvania. However, the value in this study is that the findings may assist principals in part-time career and technical education schools in their efforts to focus professional education activities on specific aspects of their personal leadership performance where deficiencies may exist which will lead to increased student achievement. The results may also provide insight to those responsible for principal preparation programs and those developing professional education activities for principals whose careers lay in career and technical education.

The review of literature in this chapter begins with a review of effective schools research and the relationship between effective schools research and leadership. The changing roles of the principal are explored as they relate to various leadership theories. This discussion includes current thought and theory on the characteristics, behaviors, and processes required for effective leadership within the field of education.
The next section includes a review of leadership theories applicable to the conceptual framework of learning-centered leadership. These include trait theory, contingency theory, shared and distributed leadership, transactional and transformational leadership, change leadership, and instructional leadership.

Following the review of leadership theories is a discussion of the research base for the conceptual framework of learning-centered leadership. The conceptual framework of learning-centered leadership described in detail in this section is the foundation of the Vanderbilt Assessment of Leadership in Education (VAL-ED). This section includes the relationship of the conceptual framework to the professional standards of the Interstate School Leaders Licensure Consortium 2008 adopted by the Council of Chief School Officers and the National Policy Board for Educational Administration.

An analysis of the research surrounding the complexity of principal assessment is presented as evidence of the need for a valid and reliable assessment instrument, such as the VAL-ED. Finally, the context of the part-time career and technical education school is presented and discussed as the unique educational environment in which leadership skills of the instructional leaders in this study were assessed.

**Effective Schools Research**

Research studies to examine the characteristics of effective schools have been conducted since 1970. Edmonds (1982; 1983) conducted prominent studies of high-poverty, high-minority, high-performing elementary schools. He was one of several researchers of that period to respond to criticism of the public school system. In his report on programs of school improvement, he noted, “much had been made recently of
the decline of teaching and learning in public schools” (p. 3). Research as early as 1977 conducted by Brookover and Lezotte (as cited in Edmonds, 1983) was dedicated to proving the theory that although family background and socioeconomic conditions may have had an impact on student achievement, schools themselves had a greater impact on student achievement. This research was in response to James Coleman’s (1967) work for the Equal Educational Opportunity Study, which advanced that the conditions that mattered least for student achievement were facilities, curriculum, and teachers. According to Coleman, the conditions that mattered most for student achievement were the educational and economic background parents and of the fellow students.

A group of researchers in the period between the period 1970 and 1985 focused on instructional effectiveness that Edmonds (1983) defined as “when all students obtain at least minimum academic mastery as measured by standardized achievement tests” (p. 2). This was to be distinguished from academic quality where higher-order thinking skills and intellectual capacity were demonstrated. Collectively, these studies spurred a movement dedicated to creating a body of empirical research that Edmonds initially described as school effects and that would become commonly referred to as effective schools research.

Although not listed in rank order, Edmonds (1983) noted five characteristics of an effective school, the first of which was “the leadership of a principal notable for substantial attention to the quality of instruction” (p. 8). The other critical characteristics were a pervasive focus on academics, a safe and orderly learning environment, teacher behaviors that demonstrated they believed all students could achieve minimum mastery, and monitoring student progress for the purpose of program evaluation. Edmonds noted
that none of the characteristics were independent of the others and that all must exist collectively to produce effective schools. Edmonds further noted that in order to produce effective schools when leadership was deficient, a needs assessment of the principal’s leadership was necessary to create a remediation plan to correct weaknesses and deficiencies before any other changes be implemented in the school.

From 1980 to 1996, several other key researchers focused on characteristics found in effective schools. Zigarelli (1996) conducted an empirical analysis of data from the National Educational Longitudinal Study. He analyzed the research conclusions from other key researchers of the time, including Block (1983), Coyle and Witcher (1992), Downer (1991), and Purkey and Smith (1983) (as cited in Zigarelli, 1996). Each study identified some aspect of principal leadership as central to effective schools. With phrases such as “principal supports teachers, principal facilitates an academic climate, principal spends significant portion of the day on instruction-related activities” (p. 104), the emerging body of effective schools research consistently supported the dominant role principals played as instructional leaders in the creation and development of effective schools.

As of 2010, the five characteristics of effective schools originally defined by Edmonds have remained, but they have been further refined and expanded by Lezotte (2004) and other researchers. The definition of effective schools expanded to include higher-order thinking skills and intellectual capacity that were specifically omitted from the original definition of effective schools (Edmonds, 1982; 1983). Effective schools research transitioned from a study and description of the characteristics that existed in schools already found to be effective to a study on the conditions and processes that were
necessary to create effective schools. In order to make this shift from descriptive to prescriptive, effective schools researchers focused on the processes necessary to produce effective schools, now known as the *Seven Correlates of Effective Schools* (Lezotte, n.d.).

Other concepts of effective schools research including distributed leadership, organizational management, and organization culture are embedded in what has become known as the Seven Correlates of Effective Schools (Lezotte, 2004). This body of effective schools research focused on the role of principals in bringing about the conditions for effective schools. The process included communicating a clear and consistent vision for student achievement, aligning school resources and personnel to the vision, and engaging key stakeholders (teachers, parents, community members, and students) in achievement of the vision (Hallinger & Heck, 1998; O’Donnell & White, 2005). Fundamental to the correlates is the focus on student learning. The key to successful implementation of the correlates rests on the focus on student outcomes, not on the inputs. This concept of focusing on student outcomes is central to the conceptual framework of learning-centered leadership (Murphy et al., 2006).

Carter (2000) added to the research of effective schools in a study of 21 successful schools characterized by high poverty. Although 75 percent or more qualified for the federal lunch program, median national standardized test scores were above the 65th percentile. Eleven of 21 schools performed at or above the 80th percentile. The schools included charter schools, private schools, and 15 public schools. Carter found that strong principals who held students and teachers accountable for meeting high performance standards led each of these schools. Carter also found that schools in which
extreme educational deficiencies existed were most impacted by effective leadership.

Seven common traits were identified in high poverty, high performing schools:

- Principals were free to use their resources, hire, and determine the curriculum.
- Measureable goals were used to monitor achievement, and teachers were personally responsible for student performance.
- Principals created a culture of learning for teachers through use of master teachers.
- Principals focused on regular testing to monitor student and teacher performance.
- Principals created a positive climate of school discipline through student achievement.
- Principals actively engaged parents to make the home a center of learning.
- Principals demanded that their students and teachers devote more time to the task of teaching and learning.

Chenoweth (2010) found common characteristics in approximately 24 high performing, high poverty, and high minority schools. The schools she studied did not have entrance requirements for admission. She found five common characteristics that add to the body of effective schools research.

First, all adults were responsible for their own performance in the school. The principals delegated, shared, and distributed leadership, and held adults accountable for performing their responsibilities. Second, she found that principals who inspected what they expected achieved high results. Principals inspected lesson plans, evidence of student work that demonstrated higher-order thinking, and classrooms to confirm that students were highly engaged. Third, principals were “relentlessly respectful and respectfully relentless” (Chenoweth, 2010, p. 20). Principals brought urgency to the
discussion of student achievement and did not accept excuses for lack of performance. When excuses were offered, the principal brought the discussion back to the teacher being responsible for student performance. Fourth, principals used student achievement data to make decisions. If the data showed something was working, principals continued it. If the data showed the contrary, principals directed the resources to another strategy. Fifth, principals felt responsible for doing whatever it took to ensure that students learned. If that meant fundraising for textbooks or cleaning the halls, principals delegated or completed the tasks themselves.

The body of research on effective schools since the 1980s demonstrated a shift in focus from the characteristics of effective schools to the process of creating such schools. Central to successful school implementation was a leadership focus of making a positive impact on instructional practices through high expectations, high accountability, and a measurement of success based on student achievement, by creating a culture of professional learning, and by engaging parents and students. Effective leadership had a more significant effect on student achievement in low-performing schools (Lezotte, 2004.)

**Changing Role of the Principal**

Leadership in schools may be distributed, shared, or delegated to others, but the ultimate responsibility for leadership rests with the school principal (Leithwood, Harris, & Hopkins, 2008). The school principal’s role and responsibilities have changed and become far more complex over the past twenty years. However, there is little debate that effective leaders play a critical role in creating and maintaining an effective school system. From Edmonds (1982) to Leithwood et al. (2008) researchers make strong
claims that school leadership matters. It has an indirect effect on student achievement, and one is unlikely to find an effective school without an effective school leader. The model depicted in Figure 1 illustrates the indirect effect that leadership has on student learning.

The school principal’s role evolved from the manager of the building to “street level bureaucrat, instructional manager, instructional leader, and transformational leader, as well as several other images that describe changes in perceptions about the role” (Glasman & Heck, 1992, p. 8). While it is true that the role has changed, expectations of the principal continued to include elements from each of the previous roles.

Goodwin et al. (2003) conducted a two-part study of secondary school principals to identify how principals believed their roles had changed over the years. Forty-five role descriptors were identified from the National Policy Board for Educational Administration (as cited in Goodwin et al., 2003). The first part of the study involved a Delphi process. The Delphi participants were selected based on their status as Principals of the Year in 2000-2001 in the MetLife-NASSP (National Association of Secondary School Principals) recognition program. Based on the findings from the Delphi methodology, the Principal’s Role Questionnaire was developed. The questionnaire was distributed to 375 additional NASSP principals. The study validated the increasing complexity of the role of the principal, the competing priorities for the principal’s time, accountability conflict, autonomy conflicts, and responsibility conflicts. The principals noted that although their roles had changed from building managers to instructional leaders over the life of their tenure, no responsibilities had been removed from their list of duties. They identified important responsibilities in five leadership areas: instructional leadership, organizational leadership, strategic leadership, community leadership, and political leadership. They also supported the notion that leadership is distributed to and shared with the various professionals with whom they work, complicating their roles and responsibilities all the more.
The literature dating back to Edmonds (as cited by Witziers, Bosker, & Kruger, 2003) sought to define specific leadership characteristics or behaviors that lead to positive outcomes of student achievement. “According to these findings, principals should have high expectations of teachers and student achievement, supervise teachers, coordinate the curriculum, emphasize basic skills, and monitor student progress” (p. 401).

The early quantitative research studies sought to establish a direct relationship between leadership and student achievement. This approach led to mixed, limited, or null effects. The effect on student achievement was demonstrated, however, using an indirect approach of studying the outcomes brought about by a change in teaching performance, school focus, and organizational culture. Research to prove a direct relationship continued to demonstrate mixed results, however, even when school leadership was defined in varying ways (Witziers et al., 2003).

The most significant relationships have been demonstrated when leadership has been defined with elements of transformational leadership (Leithwood & Jantzi, 2000; 2005). As principals change the school culture through transformational leadership practices, Leithwood and Jantzi (2005) demonstrated the indirect effects on student achievement were statistically significant and clear. They analyzed three broad practices associated with transformational leadership: setting the direction, developing people, and redesigning the organization. The third category, redesigning the organization, took into account the mediating effects in which leadership was demonstrated. They further studied the extent to which mediating effects influenced leadership. Through this research, it was demonstrated that similar leadership characteristics implemented through similar processes did not bring about the same level of school transformation that led to
an increase in student achievement. It was suggested that context played a major role in the extent to which leadership is effective. Still, leadership was not proven to have a causal relationship with student achievement (Leithwood & Jantzi, 2005).

Research has sought to synthesize in a concise list what it is that effective principals should be able to do. Cotton (2003) defined a list of 25 categories of principal behaviors based on a narrative review of 81 research reports between 1983 and 2003. The study reported that these 25 categories of behaviors had a positive effect on student achievement as well as student attitudes, teacher behaviors, and student retention rates.

The behaviors were

- creating a safe and orderly school environment;
- identifying and communicating vision and goals focused on high levels of student learning;
- demonstrating and demanding high expectations for student learning;
- demonstrating self-confidence, responsibility, and perseverance;
- being visible and accessible to teachers and students;
- creating a positive and supportive school climate;
- providing emotional and interpersonal support;
- engaging parents and the community;
- creating school rituals;
- creating a culture of shared leadership staff empowerment;
- collaborating with others;
- pursuing personal growth and professional development;
- aiming for high levels of student learning;
• expecting and planning for continuous improvement;
• focusing the discussion on instructional issues;
• observing and providing feedback to teachers;
• supporting teacher autonomy;
• supporting risk taking;
• providing teachers with professional education opportunities;
• protecting professional time;
• monitoring student progress;
• sharing student outcomes and findings;
• using student progress data for program improvement
• recognizing student and staff achievement; and
• role modeling.

Witziers, Bosker, and Kruger (2003) and Cotton’s (2003) research complemented the findings of Marzano, Waters, and McNulty (2005). Cotton’s findings were based on narrative review of literature of the same 20-year period of leadership research, although she included more studies than Marzano et al. (81 versus 69, respectively). Weitzers et al. used many of the same studies in the analysis as Marzano et al., but Weitzers et al. were trying to demonstrate a direct effect between leadership and student achievement. Weitzers et al. found almost no relationship between principal behavior and student achievement (r = .02). Weitzers et al. suggested findings that were more impressive might be found using a more robust analysis or through a study of an indirect relationship. That turned out to be accurate, as Marzano et al. found a higher correlation (r = .25) “between the leadership behavior of the principal in the school and the average
academic achievement of students in the school” (p. 10) using a model that tested for an indirect relationship.

Marzano et al. (2005) used the term responsibilities to define leadership characteristics and practices. The 21 responsibilities were affirmation; change agent; contingent rewards; communication; culture; discipline; flexibility; focus; ideas/beliefs; teacher input; intellectual stimulation; involvement in curriculum, instruction, and assessment; knowledge of curriculum, instruction, and assessment; monitoring/evaluating; optimizer; order; outreach; relationships; resources; situational awareness; and visibility. The ten responsibilities having the greatest influence on student achievement in order of the highest to lowest correlation (r) were situational awareness (context); flexibility; monitoring and evaluating; outreach; discipline; change agent; culture; knowledge of curriculum, instruction, and assessment; teacher input; order; and resources.

The role of principals has changed dramatically over the years. Most notably, responsibilities have been added to the role of the principal, but few responsibilities have been eliminated. This serves to add to the complexity of the job, as principals seek to meet or exceed the increasing performance expectations of the position.

**Related Leadership Theories**

Numerous leadership theories are found throughout the literature that attempt to define and describe traits, characteristics, behaviors, attitudes, and performances that constitute effective leadership. The sheer number of different theories denotes the complex nature of leadership, leadership behaviors, and performance expectations. Leaders are expected to solve complex problems, build collaborative relationships, create
vision and shared values, in addition to the responsibilities necessary to maintain an orderly, efficiently run building, and to provide for appropriate student discipline (Cotton, 2003; Marzano, Waters, & McNulty, 2005; Waters, Marzano, & McNulty, 2003). The review of related research regarding leadership demonstrates complementary and opposing conclusions at times.

Leadership may be defined in a variety of ways. Seashore-Louis, Leithwood, Wahlstrom, and Anderson (2010) defined leadership by two core functions: providing direction and exercising influence. Defining leadership does not make the ability to demonstrate effective leadership any less complex. Effective leadership is influenced and challenged by the environmental context in which leadership is demonstrated and the degree to which stability or change exists within the organization (Seashore-Louis et al., 2010). Further, leadership skills must be adapted to the degree of change being sought.

Theories of leadership have evolved. Older theories were simplistic in an understanding that leaders were born, not made (Kirkpatrick & Locke, 1991). Newer theories pointed toward the complexity of leadership that required leaders to transform organizations, build relationships, collaborate with and motivate others (Sanders & Servais, 2006).

**Trait theory.**

Trait theory, sometimes referred to as the great man theory, has a long history in research. Even so, it has implications for the conceptual framework of learning-centered leadership. Trait theory was based on the assumption that leaders are born, not made, that certain traits make for more effective leaders than others. Kirkpatrick and Locke (1991) studied traits of effective leaders. Their research suggested that six traits were
consistent within each of the effective leaders they studied. They found that “leaders who have the requisite traits—drive, desire to lead, self-confidence, honesty (and integrity), cognitive ability, and industry knowledge—have a considerable advantage over those who lack these traits” (p. 58).

The findings demonstrated that some aspects of leadership may be learned and developed, such as self-confidence and industry knowledge. Some traits are innate, desire to lead, honesty, and integrity. Cognitive ability was not defined as knowledge. It was defined as “intelligent enough to formulate suitable strategies, solve problems, and make correct decisions” (p. 55). Kotter (as cited in Kirkpatrick and Locke, 1991), described it as a “keen mind and being able to multitask, think strategically, and demonstrate strong analytical ability and good judgment” (p. 55). Kirkpatrick and Locke found that experience may allow a leader to further develop these abilities, but cognitive ability was least likely to be developed through experience or by increasing one’s knowledge. The findings pointed to the necessity for personal characteristics for leadership success, but possessing these traits did not assure success in and of itself. This also supports the importance of precursors to leadership behavior identified through the learning-centered leadership framework. This study also demonstrated that it is the context in which leadership skills are practiced that influences effectiveness.

**Contingency Theory.**

In its simplest and briefest form, contingency theory states that context matters (Goldring, May, & Huff, 2010). Contingency theory suggests that an effective leader in one school may not achieve the same level of effectiveness in another school because of the different context and situations in which the leadership skills are demonstrated.
Researchers have suggested that school size, grade level configuration, curricular content, ethnic and socioeconomic makeup and diversity of the student population alter the effects of leadership within the school setting. However, Leithwood, Harris, and Hopkins (2008) proposed that it was leader’s responsiveness to the context that created and increased effectiveness, rather than the context of the educational environment mediating the effects of leadership. This is in contrast to the findings of other research.

Situational theory, a close concept to contingency theory, supports that not only is the context of the school influential, but each specific situation also affects the effectiveness of leadership. According to situational theory, a principal would use different strategies working with a first year teacher than would be appropriate and effective to use with a 30-year teacher in discussing elements of an effective lesson. Likewise, an emergency would require different leadership skills than introducing a new instructional technique (Goldring, May, et al., 2010).

Goldring, May, et al. (2010) cautioned that contingency and situational theories are so significant that success or failure of leaders depends on their understanding of this important concept. The contextual variables included in this study were economic disadvantage, as measured by students receiving free and reduced lunch prices, African-American student population, and students receiving special education services. With the exception of more African-American students, these variables mirror the student population of career and technical education schools that tend to have student populations that are more economically disadvantaged and more in need of special education services than the populations of the sending school districts from which the students originated (U.S. Department of Education, 2008). Goldring, May, et al. found that leaders who
failed to respond to these contextual variables in the learning environment were far less
effective that those who acknowledged and were responsive to the context by altering the
allocation of their time. Rather than the context defining leadership, the leader accurately
defined the context and the needs of situation.

**Transactional and Transformational Leadership.**

The discussion of the need for transactional and transformational leadership is
germane to this research because schools are increasingly in a continuous state of change.
Changes in the schools are inevitable as administrative and instructional staff members,
the standards and measures of effective schools, the student body, and other internal and
external forces mandate change. Schools are a reflection of the world in which we live
where change is constant. Change theory will be discussed in its own section.

Transformational leadership is a key theory behind the learning-centered
leadership framework. Transformational leadership itself has been studied, described,
and detailed differently through the research of various authors. Burns (as cited by Bass,
1990) described transformational leadership as leadership behaviors that motivate others
to a higher commitment to the organizational goals. Through the interaction of the leader
and followers, the commitment and motivation becomes more than the sum of the parts,
as both leaders and followers act to motivate each other to higher levels of performance.
The intrinsic behaviors of the leader place the interests of the leader behind the interests
of the organization, described in Kirkpatrick and Locke (1991) as the *desire to lead.*
Bennis and Nanus (as cited in Leithwood & Jantzi, 2005) described transformational
leadership in the context of leadership behaviors demonstrated by “developing a vision
for the organization, developing commitments and trust among workers, and facilitating
organizational learning” (p. 177). Bass (1990) defined the differences between the characteristics of transformational and transactional leaders clearly and found them to be contrasting leadership styles.

Table 1

*Characteristics of Transformational and Transactional Leaders*

<table>
<thead>
<tr>
<th>Trait</th>
<th>Transformational Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Charisma</strong></td>
<td>Provides vision and sense of mission, instills pride, gains respect and trust.</td>
</tr>
<tr>
<td><em>Inspiration</em></td>
<td>Communicates high expectations, uses symbols to focus efforts, expresses important purposes in simple ways.</td>
</tr>
<tr>
<td><em>Intellectual Stimulation</em></td>
<td>Promotes intelligence, rationality, and careful problem solving.</td>
</tr>
<tr>
<td><em>Individualized Consideration</em></td>
<td>Gives personal attention, treats each employee individually, coaches, advises</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trait</th>
<th>Transactional Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contingent Reward</strong></td>
<td>Contracts exchange of rewards for effort, promises rewards for good performance, recognizes accomplishments.</td>
</tr>
<tr>
<td><strong>Management by Exception</strong></td>
<td>Watches and searches for deviations from rules and standards, takes corrective action.</td>
</tr>
<tr>
<td>(active)</td>
<td></td>
</tr>
<tr>
<td>(passive)</td>
<td>Intervenes only if standards are not met.</td>
</tr>
<tr>
<td><em>Laissez-Faire</em></td>
<td>Abdicates responsibilities, avoids making decisions</td>
</tr>
</tbody>
</table>

Bennis (1959) described the difficulty in defining in a theoretical framework any form of leadership and the extreme complexity, in particular, of transformational leadership. The ability to integrate the needs of the organization with the needs of the individual points to the intricate skills necessary for the transformational leader, as these needs are thought to be incompatible with each other. The needs of the individual are motivated by what is best for the individual, while the needs of the organization are motivated by what is best for the organization. Bennis made the point that it is the role of the transformational leader to align the needs of the individual to that of the organization in a manner that makes them one and the same. In doing so, individuals seem to be acting in their own best interest when they act in the best interest of the organization.

The complexity of transformational leadership is further demonstrated by the descriptions and discussions of transformational leadership in the literature, depending upon the author, as being either in contrast or complementary to transactional leadership (Bass, 1990). Several authors will be referenced to illustrate this difference.

Leithwood (1994) conducted research to determine the effect of transformational leadership on student achievement, particularly as it related to the need to change schools to make them more effective. The research included seven quantitative studies of 289 schools. The research demonstrated a direct impact on producing school change associated with positive effects on student achievement. The discussion and conclusions cited in this work were that transformational and transactional leadership should be viewed as two distinct models. However, there were tenets of transactional leadership that increased the likelihood of successful change. Because of this, Leightwood proposed that transformational leadership complemented transactional leadership.
Leithwood (1994) concluded that transformational leaders worked toward three key goals that lead to their effectiveness:

1. They developed a collaborative climate within the school.
2. They contributed to the continuous professional development of teachers.
3. They expanded the problem-solving capacity of the school.

Further, the findings demonstrated that successful implementation of transformational leadership skills was based largely on the context in which the skills were demonstrated. Schools in various stages of change required more characteristics of either transactional or transformational leadership. At the beginning stages of change, transactional leadership was productive. Once moving in a positive direction toward effective schools models, the more transformational leadership skills that were necessary. Consistent with other researchers, Leithwood concluded that leaders who understood the context and the situation were better able to use transactional or transformational leadership skills as necessary to bring about the desired results.

The model of transformational leadership developed from our own research in schools including factor analytic studies, describes transformational leadership along six dimensions: building school vision and goals; providing intellectual stimulation; offering individualized support; symbolizing professional practices and values; demonstrating high performance expectations; and developing structures to foster participation in school decisions (Leithwood & Jantzi, 2000, Transformational leadership section, para. 5)

Leithwood and Jantzi’s (2005) review of transformational research in schools found four key transformational leadership behaviors that had a positive yet indirect
effect on student achievement. They were setting directions, which included Bass’s (1990) charisma component, helping people, redesigning the organization, and transactional and managerial skills. In a review of 170 research studies, Leithwood and Jantzi (2000) concluded that broadly defined to include aspects of transactional leadership, transformational leadership had a positive and significant impact on perceptions of organizational effectiveness, student outcomes, and student engagement.

**Distributed Leadership.**

Included in the research on transformational leadership and change theory is the concept of distributed leadership. In studies of organizations, no organizations were effective without an effective leader, and none of the theories on effective leadership attributed the organization’s success to the skills of the leader alone. It was through the behaviors of and processes put in place by the leader that the organization achieved its goals. Distributed leadership is defined in Spillane, Halverson, and Diamond (2001) “around four ideas: leadership tasks and functions, task enactment, social distribution of task enactment, and situation distribution of task enactment” (p. 23). The research on distributed leadership demonstrates that the context is the determining factor in when, how, and with whom leadership is distributed. Using transformational leadership as the backdrop, distributed leadership includes the process of empowering others to act or motivating others to act to meet the goals of the organization. Through distributed leadership, the leader analyzes the context and the followers in determining how the leader’s actions support others to achieve the desired results.

Distributed leadership is the practice of leadership and viewed “as a product of interactions of school leaders, followers, and the situation” (Spillane, 2005, p. 144). In
this way, distributed leadership is defined by the interactions between leaders and followers in a particular situation more so than about power being distributed to or shared with others as in shared, collaborative, or collective leadership. Important to the concept of distributed leadership is the understanding that interactions are not merely influenced by, but are dependent upon, the task and context in which leadership is demonstrated. The context defines the leadership interactions of leaders and followers.

Printy (2010) conducted a review of the literature since 2000 on principal leadership practices influencing student achievement. This review was divided based on the methodology used in each study. This work analyzed the context of leadership within the interactions of principals and teachers in a distributed leadership practice. The studies that were reviewed reinforced the central role that the principal plays in student achievement through a distributed leadership approach. The findings also demonstrated that the actions of transformational principals were critical in motivating teachers to move beyond their previous roles and comfort routines of imparting knowledge to achieve new ways of teaching, motivating, and engaging students.

Distributed leadership has a key role in the conceptual framework of learning-centered leadership. The interaction of the core components and key processes define the leadership skill or context. For example, the leader’s interactions with others while performing the key process of supporting instruction would not be the same as that demonstrated when supporting curriculum (Murphy, Elliott, Goldring, & Porter, 2006).

**Collective Leadership.**

Collective leadership “refers to the extent of influence that organizational members and stakeholders exert on decision-making in their schools” (Seashore-Louis et
al., 2010, p. 19). “In a study of 4,491 teachers in 43 districts in 157 schools, with a response rate of 67%, and 3,900 teachers in 40 districts in 134 schools, with a response rate of 55%” (p. 44), the research demonstrated that collective leadership had a stronger influence on student achievement than individual leadership. Almost all of the teachers in high-performing schools perceived that they had a greater influence than those in low-performing schools. Principals and district personnel retained the most influence on decisions, but the study found that teachers did not perceive that principals lost influence as others gained influence. The study demonstrated that a key cultural norm found in schools with high collective leadership was trust. This supported Leithwood, Harris, and Hopkins’ (2008) data that demonstrated “school leadership has a greater influence on schools and students when it is widely distributed” (p. 27).

**Instructional Leadership.**

The concept of instructional leadership dates back to the 1980’s (DuFour, 2002). Principals as instructional leaders were advised to focus their time on supervising teachers in their practice, monitoring the curriculum and lesson plans, and learning and modeling instructional strategies. In order to demonstrate effective instructional leadership, the leader demonstrated qualities of transformational leadership (Marks & Printy, 2003). Instructional leadership worked closely with the theory of distributed leadership, the interactions between the instructional leader and followers in the context of the situation. In contrast to the strict definition of distributed leadership posited by Spillane (2005), it further included shared leadership or collective leadership among the instructional leader and followers, specifically teachers.
The research conducted by Marks and Printy (2003) included 24 restructured elementary, middle and high schools. The statistical results, concluded through use of a hierarchical linear model, was that neither transformational nor instructional leadership by itself created the environment and conditions for increasing student achievement. Leadership that reflected transformational, transactional, and shared instructional leadership between the principal and the teachers was found to create the environment and conditions for increasing student achievement. The results, although not generalizable to other schools because of the qualitative method, did represent promising practices for other schools and the need for further research.

The significance of instructional leadership is the direct relationship it has on teachers and the indirect relationship it has on student achievement (Printy, 2010). Printy analyzed quantitative and qualitative research to examine the process through which instructional leadership created effective schools. Marks and Nance (as cited in Printy, 2010) suggested the benefits of mutuality in leadership as having a high influence on changes in teacher performance. Mutuality, described similarly to Spillane’s (2005) concept of distributed leadership, is the leadership that exists in the interactions between principals and teachers. It is a mutually reciprocal process. Reviews of other significant quantitative and qualitative studies in Printy’s work confirmed the “centrality of the principal and show the multiple opportunities principals have to mediate district policies at the school level. What principals say makes a difference to teachers” (Printy, 2010, p. 124). Even more than what they say, what principals do makes a difference in the effectiveness of their instructional leadership in terms of implementing changes that lead to school effectiveness (Blasé & Blasé, 2000).
Change Leadership.

“There is no ‘one best way’ to manage change, when (in reality) organization transformation may require a range of models to be used selectively” (Rothwell & Sullivan, 2005, p. 75). A literature review of any topic related to leadership and leadership theories would not be complete without a discussion of change leadership. Particularly if schools are to change a key element of school culture from a focus on the inputs of teaching to the outcomes of learning, change leadership will be critical. The call for restructuring constitutes significant change efforts that fall well beyond the scope of mere tinkering or altering a few school processes (Fullan, 2007).

Change leadership is intertwined in effective instructional and transformational leadership. Change leadership is a complex and comprehensive topic unto itself, and this research study could easily become lost in the review of literature related to this topic. For the purpose of this study, the literature review is confined to a discussion of organization change as it relates to implementation in schools.

Lewin’s (1947) early concept of implementing change at the organization level required a three-step phase of “unfreezing, moving, and freezing of group standards” (p. 34). This seemingly simple concept was highly complex as it took into consideration resistance to change, group dynamics, organization culture, and organization values. The three-stage theory was based on the individual’s and group’s need for equilibrium within the organization. Lewin used the concept of a force field to describe organization change.

Rothwell and Sullivan (2005) defined organization change as a “departure from the status quo. It implies a movement toward a goal, an idealized state, or a vision of
what should be and movement away from present conditions, beliefs, or attitudes” (p. 22). This definition encompassed the various types and definitions of change described in the research literature.

In the literature review, types of change are defined as alpha, beta, and gamma change by Golembiewski (as cited in Rothwell & Sullivan, 2005); first- and second-order change (Marzano, Waters, & McNulty, 2005); and first-, second-, and third-order change (Bartenek & Moch, 1987). First-order change involves changing a practice or a process; it is incremental; and is called single-loop change when an organization works to solve the problem with strategies that have worked well in the past (Marzano et al., 2005). Second-order change may be defined as deep change. “Deep change alters the system in fundamental ways, offering a dramatic shift in direction and requiring new ways of thinking and acting” (Marzano et al., 2005, p. 66.). Bartenik and Moch describe third-order change as the continuous change of the organization as the conditions require. This model of change assumes that conditions will not remain stagnant, and the leaders of the organization must be aware of the forces acting upon it necessitating change and respond appropriately to those forces. These types of change illustrate the expectations of schools charged with restructuring to meet the needs of learners (Kotter, 2008).

The field of organization development (OD) defines the types of change as developmental, transitional, and transformational change, noted in the order of complexity as well as the expected levels of resistance to change (Gilley, McMillan, & Gilley, 2009; Rothwell & Sullivan, 2005). In a qualitative study of organizations perceived by the employees to have successfully implemented change, Gilley et al. found leaders of successful change efforts were perceived by their employees to have
demonstrated common leadership behaviors. These behaviors were coaching, communicating, involving others, motivating, rewarding, and building teams. “The most significant behaviors in implementing successful change were found to be motivating others, communication, and building teams” (Gilley et al., 2009, p. 43). Using OD’s definition and framework, then, principals are considered to be the change agents of the school, as they are the individuals responsible for implementing change in curriculum and instructional practices, culture, mission, and focus of the school (Rothwell & Sullivan, 2005).

Organization design theory supports four models for organizational change (Rothwell & Sullivan, 2005). “They are (1) the critical research model; (2) the traditional action research model; (3) appreciative inquiry; and (4) our evolving view of the action research model” (p. 40). For the purpose of this review, appreciative inquiry and the evolving view of the action research model will be discussed.

**Appreciative inquiry.** A complement to action research and transformational leadership is the change theory of appreciative inquiry founded by David Cooperider in the mid-1980s. Appreciative inquiry is a vehicle for transformational change of the organization through the leader’s deliberate and purposeful actions of using positive experience and the power of imagination and visioning to create and sustain action that implements the desired changes. It is a form of persistent and consistent visioning on the individual and group level that motivates change. By working with individuals and groups to visualize the best of what is, the ideals of what might be, agreement of what should be, and the experience of what can be, appreciative inquiry capitalizes on the positive experiences of the organization to create the synergy to implement and sustain
transformational change (Barrett, Cooperrider, & Fry, 2005; Cooperrider & Sivivastva, 1987).

Appreciative inquiry takes as its foundation an emphasis on what individuals can do as opposed to identifying how to fix what they are unable to do. It is based on encouraging the members of the organization to visualize the changes they desire through positive experiences and working to achieve what they visualize.

The approach to transformational organization change is rooted in seeking creative and innovative strategies that more closely approach third-order change because the organization is constantly evolving based on visioning for the future. Related to the educational institution, as student achievement starts and continues to improve, appreciative inquiry would call for strategizing new ways of engaging students instead of working through a deficit model of fixing what is not working (Barrett et al., 2005). Appreciative inquiry focuses on the future versus the past, and is driven by the outcomes, not the inputs.

**Evolving view of action research.** “What is needed is a new model to guide change that does not assume a beginning, middle, and end to a change effort. Instead, change efforts are regarded as continuing” (Rothwell & Sullivan, 2005, p. 53). Figure 2 describes the Sullivan/Rothwell Change Process Model. Note the full circle that continues the process of scanning, planning, acting, and re-acting. Then the cycle repeats itself. This evolving view of action research seems to recognize that organization change is no longer an event or a project. It is a continuous cycle reflective of the demands of both the internal and external environment.
Figure 2. Sullivan and Rothwell’s change process model. Adapted from “Models for Change” in Practicing Organization Development: A Guide for Consultants, by W. J. Rothwell and R. L. Sullivan, p. 59. The actions are continuous. The model is based on work with an external change leader or consultant. The change leader becomes involved prior to the scanning phase and exits the process after the act phase when the organization leadership continues the process. Copyright 2005 by John Wiley & Sons, Inc.
Kotter’s (1995; 2008) model of bringing about organizational change rests on an eight-step approach that involves creating a sense of urgency, forming a guiding coalition of support, creating a vision, communicating the vision, empowering others to act on the vision, planning for and creating short-term wins, consolidating improvements and providing still more change, and institutionalizing new approaches. His contribution to the literature is a departure from change being a function of things or actions other people take. Kotter contends that organizations do not change; people change. His approach rests on touching the feelings of others and influencing them. Creating a vision is important in his change strategy, but it is a vision built on a personal story. His theory is that change efforts fail when people circumvent, misinterpret, or quickly work through one of the eight steps.

Gardner (as cited in Fullan 2007) “says that the most important thing to do in changing someone’s mind is to connect to the person’s reality as the point of departure for change” (p. 43). Fullan’s expertise on educational change is widespread. His theory of change leadership in education expands the view of vision-driven leadership as the one trait that affects and causes effective schools. The vision-driven leadership has four key aspects: (a) creating, (b) communicating, (c) building commitment to, and (d) aligning to the vision.

Restructuring schools for student achievement involves change leadership, according to Fullan (2007), that focuses on changing people’s beliefs first and their actions will change accordingly. Fullan describes his elements of effective school restructuring as

- measuring improvement in student achievement;
• attending to the three basics of education necessary for every child: literacy, numeracy, and emotional well-being;
• appealing to people’s dignity and self-respect;
• ensuring the best people are working on the problem;
• recognizing that all successful strategies are social based and action oriented;
• building internal accountability linked to external accountability;
• establishing conditions for evolution of positive pressure; and
• building public confidence.

Fullan (2007) seeks to move teachers through effective leadership that causes them to see the school and school culture as ours versus mine. Fullan’s contribution to the research is dissimilar to most of the literature reviewed in this chapter. Rather than reporting on research findings of successful strategies occurring in the past, he cites strategies and proposes that he believes will lead to effective school results in the future.

Change theory as it relates to transformational leadership and creating effective schools is integrated throughout the literature review. Marzano, Waters, and McNulty (2005) make a distinction between first- and second-order change. “First-order change is incremental. It can be thought of as the next most obvious step to take in a school or a district. Second-order change is anything but incremental. It involves dramatic departure from the expected, both in defining a given problem and in finding a solution” (p. 66). First-order change is systematic, expected, and much more likely to lead to success because it is not based on strongly held beliefs, values, or the culture of the organization. Second-order change requires a change in the foundation of the organization. It is required when the problems or expected changes in outcomes cannot be addressed by the
current thinking. Marzano et al. contends that second-order change is most likely to occur through leadership that demonstrates transformational skills. However, a litany of research and corporate results demonstrate that transformational change is rarely achieved (Gilley et al., 2009). Kotter’s (2005) rationale as to why transformation efforts fail rests on the theory that the change process is concrete and finite, and it cannot be short-changed. Skipping steps, not taking enough time, or erring in any of the eight steps may slow momentum, negate gains, or halt change entirely.

Reeves (2009) contributed to the research review by offering several important strategies to leading change in schools. The first strategy is that school leaders must decide what should be eliminated before adding to the list of responsibilities that teachers currently hold. The literature review of the changing role of principals highlighted that principals felt the same way—new responsibilities were added with each new role, but no responsibilities were eliminated. Reeves refers to this key first step in implementing change as “pulling the weeds before you plant the flowers” (p. 13).

The second important contribution of Reeves’ (2009) work is the four imperatives of cultural change. This work is consistent with Kotter (2008) and Marzano et al. (2005). The first imperative is defining what will not change. This is important for maintaining trust and the cultural values of the organization. The second imperative is that leadership actions must change as the impetus for the organizational change. Changing others when leadership is not willing to change serves to diminish trust and the spirit of collaboration that is critically important in transformational leadership. Third, use the appropriate tools, including role modeling, vision, and training. Fourth, cultural change requires that leaders personally attend to the change by doing the scut work, meaning anything that
needs to be done, no matter how small or unpleasant. The imperatives are consistent with Kotter’s (1995) eight steps in transforming the organization.

The review of the literature on leadership illustrates the vast body of research and the myriad of associated leadership theories. Some theories complement each other, such as change leadership, transformational leadership, and instructional leadership, while others seem to be in opposition to each other, such as transactional leadership and transformational leadership. There does not appear to be agreement among researchers that transactional and transformational leadership are complementary or in opposition to each other.

Whether it is transforming the organization by creating a sense of urgency, understanding the four imperatives of cultural change, using appreciative inquiry, or implementing an action research model, it is clear that elements of this body of research are critical in creating the changes necessary to bring about an effective school. In particular, the more significant the change, the more complex the leader’s role becomes.

There exists a recurring concept in the literature concerning the leadership of principals. It appears to demonstrate that there is a shift in focus from the inputs of teaching to the outcomes of learning. However, instructional leadership continues to be important in creating effective schools.

**Conceptual Framework of Learning-Centered Leadership**

The conceptual framework of learning-centered leadership is based on measuring the most important indicators of effective school leadership related to school performance and student achievement (Goldring, Cravens, et al. 2009). Learning-centered leadership is proposed as the next step of leadership after instructional leadership, or perhaps in
combination with instructional leadership. The literature shows a trend in focus shifting away from teacher activities to student activities. The concept of a learning culture does not stop with students. Teachers and principals are part of this learning-centered culture.

To illustrate the attention on teacher learning, Toll (2010) identified six steps for principals to model learning for teachers that encourage a learning culture.

- Expect that teachers are learning and support them in their learning. Ask questions about what they are learning and how their learning influences their teaching.
- Demonstrate that principals are learners by participating in group learning, such as study groups or professional learning communities.
- Support learning as a function of hospitality where all students and teachers are invited to participate.
- Provide new visions of what might be, and encourage new ways of seeing what exists.
- Ask questions that indicate to teachers what you value. Ask about their learning, and more importantly, ask what the students are learning.
- Understand that learning involves three phases of knowing, doing, and being. Unless they are supported by learning-centered principals, teachers are likely to settle back into old comfortable ways of doing things. They do not institutionalize the new learning into their being.

The new focus on student achievement as one key measure of teacher and principal performance provides the impetus for a new concept of leadership.
Constructs of Learning-Centered Leadership.

Beyond the leadership theories necessary for transformational leadership, instructional leadership, distributed leadership, and change leadership is the construct of learning-centered leadership. With instructional leadership, the focus is on the inputs: curriculum, instructional planning, and teaching. With learning-centered leadership, the focus is on the outcome of student learning. Learning-centered leadership embodies more than just student learning. It includes leader (principal) and teacher learning, as well.

The National Association of Elementary School Principals (2008) identified five constructs of today’s effective principal, one of which was that “effective principals must be the lead learners in their schools” (p. 2). The organization defined six standards for principals as members of their school learning communities, one of which was creating a culture of continuous learning for adults tied to student learning and other school goals. The addition of student learning is central to the learning-centered leadership framework.

The learning-centered leadership framework is based on the intersection of six core components and six key processes grounded in research and the professional standards of the Council of Chief State School Officers and the National Policy Board for Educational Administration, Interstate School Leaders Licensure Consortium 2008. The references to the core components and key processes of this conceptual framework appeared throughout the literature review in this chapter.

Core Components.

The first core component is high standards for student learning. This component has deep roots in research and can be traced back to the Seven Correlates of Effective Schools that evolved from the 1980’s (Edmonds, 1982; 1983). In the conceptual
framework of learning-centered leadership, there are four constructs to high standards for student learning.

The first construct is performance standards. There are four critical characteristics of performance standards. First, they are intended to be absolute rather than normative. Second, they are expected to be set at high, global levels. Third, a relatively small number of levels (e.g., advanced, proficient) are typically identified. Finally, they are expected to apply to all students rather than a selected subset, such as college-bound students seeking advanced placement (Linn, 2000). Blasé and Kirby (2000) refer to strong leadership factors that include high expectations. The Seven Correlates of Effective Schools refers to this component as high expectations for success (Lezotte, n.d.). Marzano, Waters, and McNulty (2005) refer to this focus as “establishing high, concrete goals and expectations that all students will meet them” (p. 50).

Robbins and Alvy (2004) refer to this component when they speak about “offering quality, meaningful, and engaging work to all students” (p. 93). In a discussion on curriculum and instruction, they describe this component as more than a responsibility, but as a moral imperative. In fact, they proceed further to state that the objective of success for all is more than a moral imperative; it is a basic tenet of the original body of effective schools research. Success for all, then, refers back to effective schools research. This concept of success for all students is fundamental to the No Child Left Behind Act of 2001 and the professional standards of the Interstate School Leaders Licensure Consortium, 2008.

The second core component is rigorous curriculum. The learning-centered leadership concept assumes that the rigorous curriculum is for all students and in all
content areas. This would be applicable to both the core academic subjects and the approved career and technical program areas. It is expected that the rigorous curriculum will be provided to all students, regardless of their disability (Goldring, Cravens, et al., 2009). Given the needs of students with IEP’s who enroll in approved career and technical education programs, this component is particularly relevant to the context of the career and technical education school.

The notion of curriculum, instruction, and assessment is core to the rigor and relevance framework proposed by the International Center for Leadership in Education (Daggett & McNulty, 2010). The concept is based on the four quadrants, which include the six levels of Bloom’s taxonomy and the five levels of the application model. The purpose of the rigor and relevance framework is to guide leaders and teachers to design curriculum, instruction, assessments that move the expectations for students to Quadrant D, which is presented as the most challenging and relevant to higher-order thinking. Quadrant D also represents the expectations of the business community for employees. Figure 3 describes the nature of the student’s work in each quadrant and the desired outcome in Quadrant D of a rigorous curriculum.
Quadrant C – Assimilation
Students refine and extend their acquired knowledge to be able to use that knowledge automatically and routinely to analyze and solve problems and create solutions.

Quadrant D – Adaptation
Students have the competence to think in complex ways and to apply their knowledge and skills. Even when confronted with perplexing unknowns, students are able to use extensive knowledge and skill to create solutions and take action that further develops their skills and knowledge.

Quadrant A – Acquisition
Students gather and store bits of knowledge and information. Students are primarily expected to remember and understand this knowledge.

Quadrant B – Application
Students use acquired knowledge to solve problems, design solutions and complete work. The highest level of application is to apply knowledge to new and unpredictable situations.

Knowledge Taxonomy

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Synthesis</th>
<th>Analysis</th>
<th>Application</th>
<th>Comprehension</th>
<th>Knowledge/Awareness</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

1. Knowledge in one discipline
2. Apply in one discipline
3. Apply across disciplines
4. Apply to real-world predictable situations
5. Apply to real-world unpredictable situations

Application Model

Figure 3. The rigor and relevance framework quadrants used to examine curriculum, instruction, and assessment at the International Center for Leadership in Education. The knowledge taxonomy is based on the six levels of Bloom’s taxonomy. The application model describes the five levels of putting knowledge to use. Adapted from “The Application Model” by W. Daggett & R. McNulty, 2010, retrieved from http://www.leadered.com/rrr.html. Copyright 2008 by the International Center for Leadership in Education.
The third core component is quality instruction. This component relates to the pedagogy as opposed to the content of the rigorous curriculum cited in the second core component. Quality instruction is created and defined when effective instructional practices maximize student academic and social learning (Goldring, Cravens, et al., 2009). A review of the literature further defines quality instruction as that which includes active student engagement, clear instructional goals that are effectively communicated to students, connection of previous learning to new learning, expert use of instructional materials, differentiated instruction, and frequent formative assessments (Marzano, 2007; Stronge, 2007).

The fourth core component is a culture of learning and professional behavior. There are three dimensions to this component. The first is that the professional community places student learning as its top priority. Student learning is at the heart of all decisions and is highly valued (Goldring, Cravens, et al., 2009). The second is that students learn in a safe and orderly school climate. Finally, the school community supports students both academically and socially. The research base for this core component comes from several sources including Blasé and Kirby (2000) and Lezotte’s (2004) research for effective schools.

The fifth core component is connections to the external communities. This component relates to communications with parents, parent committees, parent education programs, and the overall involvement of parents and the business community in schools. It also includes avenues for parents and the business community to have input into the school goals, culture, and decisions (Murphy, Elliott, Goldring, & Porter, 2006).
The final core component is systematic performance accountability. This refers to accountability both internal and external to the organization. There are external accountability demands placed on all schools because of state and national performance standards. For example, in addition to the Pennsylvania System of School Assessment, area career and technical education schools are subject to the accountability standards of the Carl D. Perkins Career and Technical Education Improvement Act of 2006. The systematic performance accountability refers equally to the internal systems of accountability—those systems that hold individual staff accountable for student achievement. Internal assessment systems that provide benchmark data helpful in determining progress toward meeting the state and national standards and that are tied to individual teacher and student results are part of a comprehensive system of performance accountability (Hanushek & Raymond, 2005).

**Key Processes.**

Key processes are the practices through which the core components are implemented by the principal within the organization over time. The “six key processes, [are] based upon the prevailing views of effective leadership and the research on school improvement: planning, implementing, supporting, advocating, communicating, and monitoring” (Goldring, Cravens, et al., 2009, p. 10).

We define planning as articulating shared direction and coherent policies practices, and procedures for realizing high standards of student performance. . . . After planning, leaders implement; they put into practice the activities necessary to realize high standards for student performance . . . .
Leaders create enabling conditions; they secure and use the financial, political, technological, and human resources necessary to promote academic and social learning.

Leaders promote the diverse needs of students within and beyond the school.

Leaders develop, utilize, and maintain systems of exchange among members of the school and with its external communities.

Monitoring refers to systematically collecting and analyzing data to make judgments that guide decisions and action for continuous improvement.

(Goldring, Porter, et al., 2009).

The research base for the key processes includes Blasé and Kirby (2000), Davis, Darling-Hammond, LaPointe, and Meyerson (2005), Hallinger and Heck (1998), Leithwood and Jantzi (2000; 2005), Lezotte (2004), Marks and Printy (2003), Marzano, Waters, and McNulty (2005), Seashore-Louis (2010), and Servais and Sanders (2006), all of which have been discussed in detail throughout this literature review.

The conceptual framework of learning-centered leadership assesses leadership skills at the intersection of the core components and key processes. The intersection of core components and key processes is illustrated in Table 2. Each cell in Table 2 includes the specific professional standard of the Interstate School Leaders Licensure Consortium 2008.
Table 2

**Vanderbilt Assessment of Leadership in Education: Intersection of the Core Components and Key Processes with the ISLLC Standards**

<table>
<thead>
<tr>
<th>Core Components</th>
<th>Key Processes</th>
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<tbody>
<tr>
<td></td>
<td>Planning</td>
</tr>
<tr>
<td>High Standards for Student Learning</td>
<td>2</td>
</tr>
<tr>
<td>Rigorous Curriculum (content)</td>
<td>2</td>
</tr>
<tr>
<td>Quality Instruction (pedagogy)</td>
<td>2</td>
</tr>
<tr>
<td>Culture of Learning &amp; Prof. Behavior</td>
<td>2, 3</td>
</tr>
<tr>
<td>Connections to External Communities</td>
<td>4</td>
</tr>
<tr>
<td>Systematic Performance Accountability</td>
<td></td>
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</tbody>
</table>

Interstate School Leaders Licensure Consortium.

The National Policy Board for Educational Administration (NPBEA) created the Interstate School Leaders Licensure Consortium (ISLLC) in 1994 with the goal of developing professional standards for administrators (Murphy & Shipman, 1999). At the time it was formed, the consortium consisted of 24 state members (Murphy, 2003). The model of leadership defined by the consortium was influenced by two points of view: the changing environment in which schools operated and research about appropriate models of education for the 21st century (Murphy & Shipman, 1999).

The changing environment in which schools operated included the economic forces driving the American economy and business’ dissatisfaction with education’s ability to create a workforce prepared for global competition. Social forces influenced the framing of the leadership model as the U.S. saw an increase in the number of limited English language learners, an increase in minority enrollment in the schools, and an increase in two-parent incomes. The third force affecting education was the political element bringing pressure on schools and teacher unions, working to diminish the power of these groups while increasing the power and influence of parent and governmental bodies (Murphy & Shipman, 1999).

Research on effective schools challenged the former notion that focused attention on teachers and replaced it with a notion that learning is the primary objective. Superior learning was the new priority rather than superior teaching, and learning was defined as a subjective activity, dependent on the person trying to learn and the context in which learning takes place (Murphy & Shipman, 1999).
Research on leadership, the changing role of principals as school leaders, and the widespread knowledge that leadership was essential to effective schools brought four new dynamic roles for administrators. These four new leadership roles were community servant, organizational architect, social architect, and moral educator (Murphy & Shipman, 1999). In 1998 the ISLLC standards were adopted and disseminated by the Council of Chief School Officers and the National Policy Board for Educational Administration.

The outcomes anticipated by states’ participation in the ISLLC were to increase the rigor and relevance of administrator preparation programs and better assess those administrators currently in leadership roles (Murphy, 2005). After ten years of use, the ISLLC standards were reassessed, revised, and renamed ISLLC 2008.

All 50 states have adopted the ISLLC 2008 standards; many use them as the basis for administrative licensure and professional education. The standards represent a research base of 105 studies by almost as many different research teams spanning the period from 1980 through 2006. There are 6 standards and 93 performances that are expected of principals. Administrative licensure in Pennsylvania is based on the ISLLC 2008 standards.

The ISLLC are not without critics. Anderson et al. (2002) criticized the standards’ emphasis upon business leadership models that were outside of the educational organization research as well as the influence of business itself in the field of educational leadership. Their concern was the emphasis upon national standards, testing, and curricula versus local control. They also criticized the standards as a weak tool for social justice. Anderson et al. cited concerns about the licensure exam, as well. English (2003)
cited the standards as flawed because professional consensus was used to arrive at the standards rather than empirical evidence.

Robinson (2004) conducted a survey of Michigan public school superintendents. She found no statistical difference between schools where the superintendents used the ISLLC standards to assess principals and those that did not. She also found that most of the superintendents were not even aware of the ISLLC standards. Further, most of the superintendents who did not perceive that use of the ISLLC standards had an impact on the performance of principals also did not perceive that use of the ISSC standards had an impact upon student achievement.

To summarize the conceptual framework of learning-centered leadership, six core components and six key processes are the foundation. They are grounded in theories of effective schools research, theories of leadership, and are based on the professional standards adopted by the Council of Chief State School Officers, ISLLC 2008, and the National Policy Board for Educational Administration. Originally adopted in 1998, the standards were updated in 2008 to reflect the changing role and new expectations for educational leadership and effective schools. Although not without controversy, the ISLLC 2008 standards have been adopted by all 50 states and the District of Columbia, and are used for both licensure and professional development purposes.

**Measuring and Assessing School Leadership**

The continued focus on increasing student achievement has brought with it an increased demand for accountability on schools and school principals (Catano & Stronge, 2007). However, this is not a new phenomenon. There has been a long-term need to determine the effectiveness of principals (Condon & Clifford, 2009; Glasman & Heck,
1992; Heck & Marcoulides, 1996). Principal effectiveness is an on-going problem for which a solution has yet to be determined or systematically put in place (Reeves, 2009).

The goal of measuring school leadership skills has not changed over the years. The goal is to improve performance, and the methodology tends to be formative (Ginsberg & Berry, 1990; Josephsen, 2007; Valentine, 1986). What has changed, however, is the pressure to link principal evaluations directly to student performance (“Linking performance,” 2009). In applications for approximately $4.35 billion in competitive funding from the U.S. Department of Education in 2009, states were required to implement a system of performance evaluation system for teachers and principals that linked the evaluations of these professionals to student achievement.

Glasman and Heck (1992) found the study of principal assessment had not been guided by theoretical considerations nor had it been adequately addressed by research. Catano and Stronge (2007) argue that not much has changed since 1992. In addition to scant research and lack of theoretical foundation for the evaluation of principals is the problem of the changing roles of principals. The role of principal has not been a stagnant one and any valid and reliable instrument developed ten or even five years ago would hardly be sufficient today (Catano and Stronge, 2007). Further issues compounding the problems with assessment are the numerous leadership theories and less-than clearly defined performance standards upon which the evaluation of principals should be based (Amsterdam, Johnson, Monrad, & Tonnsen, 2005; Catano and Stronge, 2007; Goldring, Cravens, et al., 2009).

Measuring the skills of school leaders is a difficult prospect for many reasons. Determining what to measure and how to measure it are but a few of the significant
challenges that face those who supervise principals with the goal of providing accurate quality feedback for improving performance (Goldring, Cravens, et al., 2009; Marcoulides, Larsen, & Heck, 1995).

**What to assess.**

The research points to inconsistencies in the domains or criteria upon which principals should be assessed. Marcoulides, Larsen, and Heck (1995) conducted research involving 140 elementary and secondary principals to establish a valid and reliable generalizable performance model of principal leadership upon which assessment should be based. They sought to establish the domains of adaptation, maintenance, integration, and attainment of student achievement goals. Adaptation was an understanding of the external demands on the school. Maintenance was monitoring the value structure of the school. Integration was organizing and coordinating the instructional process. The study concluded that although this model, focused on instructional leadership, was a promising start, a comprehensive system of principal evaluation should include the context of the school environment. They proposed that for principal assessment to be useful, it must be valid, reliable, and aligned to the theoretical constructs of the position.

Rallis and Goldring (1993) reported on a principal survey conducted by the National Center for Education Statistics at the U.S. Department of Education. (This researcher could not locate the original report.) Seventy-two percent of the principals (n = 402) responded to a national study that originally included approximately 60,000 students in about 1,000 secondary schools. The principal survey was randomly distributed to about half the original study participants. These principals reported that four categories of their performance were assessed in their own instruments. These
categories were (a) efficient administration, (b) good disciplinary environment, (c) parent or community reaction, and (d) student performance on standardized tests or college admission. Their findings suggested that principals largely believed the most important aspects of their performance were maintaining an efficient building and good student discipline. Student performance had very little impact on their performance evaluations.

Fourteen years later, Josephsen (2007) studied the performance evaluations of 109 elementary, middle, and secondary school principals. Her research found that the criteria used most often in principal evaluations were monitoring curriculum; instruction and assessment; being knowledgeable about curriculum, instruction, and assessment; and advocating and sustaining a culture of learning. Her study demonstrated that the evaluation methods used most often included scale, self-evaluation, and narrative essay.

Goldring, Cravens, et al. (2009) asserted from their analysis of 65 instruments at both the district and state levels that principal evaluations did not focus on student achievement, curriculum, or quality instruction. Their review of local and state instruments suggested four approaches being used to determine the aspects of the principal’s performance that should be assessed (a) responsibilities, (b) knowledge and skills, (c) processes, and (d) organizational outcomes.

A thorough literature review supported that using a list of principal responsibilities in determining what to assess was the predominant view until 1990 when high stakes testing and school accountability made this basis of evaluation inadequate (Catano & Stronge, 2007; Goldring, Cravens, et al., 2009; Thomas, Holdaway, & Ward, 2000). The focus on knowledge, skills, and processes alone also provide insufficient data when the expected outcome for effective principals includes student achievement. The
principal’s knowledge and skills may not produce the desired student achievement; yet, a focus on student achievement alone assumes a direct relationship between principal leadership and student achievement that has not been proven to exist (Goldring, Cravens, et al., 2009; Hallinger & Heck, 1998; Seashore-Louis et al., 2010).

Several research studies since 2000 have demonstrated the wisdom of assessing principals against standards that have been proven to affect student performance in a positive manner, albeit indirectly (Catano & Strong, 2007; Condon & Clifford, 2009; Reeves, 2009; Thomas, Holdaway, & Ward, 2000). The Educational Leadership Policy Standards, Interstate School Leaders Licensure Consortium (ISLLC) 2008 were developed to reflect the performance standards of principals based on current school leadership research (Condon & Clifford, 2009; Goldring, Cravens, et al., 2009). “The ultimate goal of these standards, as with any set of education standards, is to raise student achievement” (Council of Chief State School Officers, 2008, p. 5).

**How to assess.**

The Goldring, Cravens, et al. (2009) study involved a systematic approach for assessing leadership assessment practices. Their sample included 74 districts in 43 states and the District of Columbia. Based on their analysis, “the practices of leadership assessment do not align with the Personnel Evaluation Standards in terms of assessment utility and accuracy. Most concerning is the lack of clear documentation that aligns with these important personnel evaluation quality measures” (p. 28).

Other literature discussing the methods through which principals are assessed included questionnaires, checklists, interviews, observations, scales, and critical incidents. However, these procedures measured the frequency of specific behaviors
rather than the quality or outcomes produced as a result of the principals’ behaviors or characteristics (Catano & Stronge, 2007; Thomas, Holdaway, & Ward, 2000), or the instruments contained unclear standards and were ambiguous regarding the expected performance levels (Ginsberg & Berry, 1990; Reeves, 2009).

Josephsen’s (2007) study found that principals preferred a 360-degree process in the assessment of their leadership skills. Marcoux, Brown, Irby, and Lara-Alecio (2003) found that self-assessment as a reflective practice contributed to principals’ learning and improvement. They found that leaders who conducted an accurate self-assessment were more likely to improve and to seek ways to continue to improve. They conducted a case study based on portfolio development. It was not generalizable, but it did contribute to the body of research on principal evaluation in several ways. They proposed that one of the purposes of evaluation was to encourage the principal to reflect on performance as a means to improve. They also recommended that the process be valid and reliable in order for the process to support improvements in student achievement.

The conceptual framework of learning centered leadership supports the use of the Vanderbilt Assessment of Leadership in Education as a performance measure. This instrument is unique from other measures of leadership in several respects. First, it does not measure the frequency of leadership behaviors. It measures the perceived effectiveness of leadership behaviors as they relate to intersection of core components and key processes based on the observations of the individuals completing the assessment. These perceptions are based on the principal’s self-assessment, the principal’s supervisor, and the teachers supervised by the principal (Murphy et al. 2006). The inclusion of the 360-degree feedback instrument is consistent with recommendations
from Josephsen (2007). This type of assessment provides a triangulation of data for the benefit of the individual being assessed. Second, the conceptual framework is based on assessing the principal’s leadership skills in the context of their performance on the job and not in a global or theoretical sense. Third, it is based on a comprehensive range of both behaviors and processes. It is based on what they do and how they do it. Because of this, it is not a one-dimensional assessment that includes only traits, only behaviors, or only outcomes (Reeves, 2009). Finally, it focuses on the objective data of student learning outcomes as opposed to the inputs of teachers’ instructional practices (Goldring, Cravens, et al., 2009).

**Validity and Reliability.**

In addition to determining what to assess and the method by which to assess leadership skills, both the validity and reliability of the assessment instruments are significant considerations (Amsterdam, Johnson, Monrad, & Tonnsen, 2005; Condon & Clifford, 2009; Goldring, Cravens, et al., 2009). Reeves (2009) asserted that leadership evaluation must be robust in order to achieve the intended result of improving performance. That is, it must be proactive, reciprocal, empowering, standards based, truthful, and objective. Reeves’ acronym for assessment was *presto*.

Yet in most schools, local assessments are used to provide feedback to principals about their skills for which there is little, if any, determination of the validity or reliability of the instrument (Reeves, 2009). While accountability and demands for principal performance have increased considerably over the past two decades, the quality of measurement instruments used to evaluate principal performance has not improved (Condon & Clifford, 2009; Glasman & Heck, 1992; Thomas et al., 2000).
Measuring and assessing leadership is a daunting task. Determining what to assess is more than reviewing a job description. Determining how to assess is equally challenging. The research findings suggest that both functions (what and how) should be grounded in research, and based on a valid and reliable instrument. Further, for assessment to be effective, the individual being assessed should be included in the assessment activity and required to reflect upon the strengths and weaknesses of their own performance (Josephsen, 2007).

Finally, an impetus for moving to a learning-centered leadership assessment model has been generated by the federal government. It is anticipated that the reauthorization of the No Child Left Behind Act of 2001 will include a mandate that student achievement be tied to teacher and principal performances. Evidence of this is indicated by the Race to the Top Application for Initial Funding (U.S. Department of Education, 2009), and from personal communications with Thomas Gluck, Secretary of Education for the Pennsylvania Department of Education (Gluck, September 8, 2010). In his personal communication at the Capital Area Intermediate Unit, Gluck encouraged districts to work through internal processes to implement a system of assessment tied to student achievement or wait until the federal government mandated the federal system of assessment through requirements for the acceptance of federal funds.

**Context of Career and Technical Education**

The context of the learning environment is important in many considerations of leadership theories, leadership performance, and student achievement (Coleman, 1967; Edmonds, 1983; Goldring, May, & Huff, 2010; Hallinger, Bickman, & Davis, 1996). However, research on effective leadership in career and technical education schools is
almost non-existent. Only one study on leadership in a career and technical school setting was found using multiple search engines and library resources. A descriptive study was conducted in Mississippi on the perceptions of teachers and principals about the leadership functions of the principal. In a study of teachers (n = 564), Long (2008) found that framing school goals was the most important leadership skill demonstrated by career and technical principals as perceived by both teachers and administrators.

Goldring et al. (2010) studied 65 principals in 45 schools in an effort to determine the extent that context influenced leadership practices. They found that principals in larger schools tended to spread their time evenly over a wide array of responsibilities with no one emphasis on any one activity. They also found that principals tended to spend much larger periods on activities related to instructional leadership activities in schools with larger percentages of minority, economically disadvantaged, or special education students.

Contingency theory of leadership researchers cited previously have tried to determine the specific characteristics and behaviors necessary for principals to create effective schools and high levels of student achievement. As such, it is necessary to examine the unique educational context in which principals in career and technical education schools demonstrate leadership. Contingency and shared leadership theories have been demonstrated to improve the effectiveness of leadership skills (Blasé & Kirby, 2000; Spillane, Halverson, & Diamond, 2001; Waters, Marzano, & McNulty, 2003).

Table 3 illustrates the composition of career and technical education students across the country. Overall across the United States, career and technical education served more male students, more disabled students, fewer students with limited English
proficiency, more students taking lower-level math courses in Grade 9, and more students from the smaller high schools (U.S. Department of Education, 2008).

Table 4 shows the national comparison of occupational concentrators to nonconcentrators of the grade 12 graduates in 2005. More male than female students and more disabled than nondisabled students completed a program of study that qualified as an occupational concentration. In addition to the data in Table 4, special education data indicate that 78 percent of the students with mental retardation were enrolled in at least one vocational course and 62 percent enrolled in an occupationally specific program. Seventy-one percent of low-functioning students and 68 percent of moderately-functioning students with mental retardation were enrolled in a prevocational course, which is significantly higher than the 43 percent of high-functioning students with mental retardation who enrolled in prevocational courses (U.S. Department of Education, 2009).

Table 4 illustrates that fewer limited English proficient students completed an occupational concentration. Of the students who graduated in 2005, fewer students took geometry or higher levels of math in grade 9 and more took pre-algebra, algebra, low-level, or no mathematics. Most of the students who completed an occupational concentration came from schools that enrolled less than 1,500 students. Using the grade 9 mathematics course as an indicator of college preparedness or career success, students who completed an occupational concentration tended to be less prepared for college or career success than nonconcentrators.
Table 3

Percentage of Public High School Graduates Who Completed an Occupational Concentration in 2005 by Selected Characteristics

<table>
<thead>
<tr>
<th>Student characteristic</th>
<th>Percentage who completed an occupational concentration&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>All graduates</td>
<td>20.8</td>
</tr>
<tr>
<td>Race/ethnicity&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>21.8</td>
</tr>
<tr>
<td>Black</td>
<td>21.2</td>
</tr>
<tr>
<td>American Indian</td>
<td>19.2</td>
</tr>
<tr>
<td>Hispanic</td>
<td>18.2</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>12.6</td>
</tr>
<tr>
<td>Other&lt;sup&gt;c&lt;/sup&gt;</td>
<td>15.2</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>25.3</td>
</tr>
<tr>
<td>Female</td>
<td>16.5</td>
</tr>
<tr>
<td>Disability status in grade 12</td>
<td></td>
</tr>
<tr>
<td>Disabled</td>
<td>25.6</td>
</tr>
<tr>
<td>No reported disability</td>
<td>20.5</td>
</tr>
<tr>
<td>Limited English Proficiency in grade 12</td>
<td></td>
</tr>
<tr>
<td>Limited English proficient</td>
<td>11.8</td>
</tr>
<tr>
<td>No reported Limited English proficient</td>
<td>21.3</td>
</tr>
<tr>
<td>Grade 9 mathematics</td>
<td></td>
</tr>
<tr>
<td>Geometry or higher</td>
<td>16.2</td>
</tr>
<tr>
<td>Prealgebra or algebra</td>
<td>21.7</td>
</tr>
<tr>
<td>Low-level or no mathematics</td>
<td>25.0</td>
</tr>
<tr>
<td>Size of 12&lt;sup&gt;th&lt;/sup&gt;-grade school</td>
<td></td>
</tr>
<tr>
<td>1-499 students</td>
<td>28.4</td>
</tr>
<tr>
<td>500-999 students</td>
<td>23.8</td>
</tr>
<tr>
<td>1,000-1,499 students</td>
<td>21.6</td>
</tr>
<tr>
<td>1,500-1,999 students</td>
<td>19.3</td>
</tr>
<tr>
<td>2,000 or more students</td>
<td>16.2</td>
</tr>
</tbody>
</table>


<sup>a</sup>Completing an occupational concentration is defined as earning 3.0 credits or more in any one occupational program. <sup>b</sup>Black includes African American, Hispanic includes Latino, Pacific Islander includes native Hawaiian, and American Indian includes Alaska Native. <sup>c</sup>Other includes multiple races.
Table 4

*Percentage of Public High School Graduates in 2005 Who Were Occupational Concentrators and Nonconcentrators by Selected Characteristics*

<table>
<thead>
<tr>
<th>Student characteristic</th>
<th>Occupational Concentrators&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Nonconcentrators</th>
</tr>
</thead>
<tbody>
<tr>
<td>All graduates</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Race/ethnicity&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>71.3</td>
<td>67.2</td>
</tr>
<tr>
<td>Black</td>
<td>13.9</td>
<td>13.6</td>
</tr>
<tr>
<td>Hispanic</td>
<td>10.8</td>
<td>12.7</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>2.7</td>
<td>5.0</td>
</tr>
<tr>
<td>American Indian</td>
<td>0.8</td>
<td>0.9</td>
</tr>
<tr>
<td>Other&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Disability status in grade 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disabled</td>
<td>10.6</td>
<td>8.1</td>
</tr>
<tr>
<td>No reported disability</td>
<td>89.4</td>
<td>91.9</td>
</tr>
<tr>
<td>Limited English Proficiency in grade 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited English proficient</td>
<td>1.9</td>
<td>3.7</td>
</tr>
<tr>
<td>No reported Limited English proficient</td>
<td>98.1</td>
<td>96.3</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>59.2</td>
<td>45.9</td>
</tr>
<tr>
<td>Female</td>
<td>40.8</td>
<td>54.1</td>
</tr>
<tr>
<td>Grade 9 mathematics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geometry or higher</td>
<td>18.9</td>
<td>25.6</td>
</tr>
<tr>
<td>Prealgebra or algebra</td>
<td>66.6</td>
<td>63.0</td>
</tr>
<tr>
<td>Low-level or no mathematics</td>
<td>14.5</td>
<td>11.4</td>
</tr>
<tr>
<td>Size of 12&lt;sup&gt;th&lt;/sup&gt;-grade school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-499 students</td>
<td>15.9</td>
<td>10.6</td>
</tr>
<tr>
<td>500-999 students</td>
<td>19.4</td>
<td>16.5</td>
</tr>
<tr>
<td>1,000-1,499 students</td>
<td>26.2</td>
<td>25.2</td>
</tr>
<tr>
<td>1,500-1,999 students</td>
<td>19.5</td>
<td>21.7</td>
</tr>
<tr>
<td>2,000 or more students</td>
<td>19.0</td>
<td>26.1</td>
</tr>
</tbody>
</table>


<sup>a</sup>Completing an occupational concentration is defined as earning 3.0 credits or more in any one occupational program.  
<sup>b</sup>Black includes African American, Hispanic includes Latino, Pacific Islander includes native Hawaiian, and American Indian includes Alaska Native.  
<sup>c</sup>Other includes multiple races.
In Pennsylvania, students who enrolled in career and technical education tended to be less well prepared for college and careers, based on the results of the 2008-2009 grade 11 performance on the Pennsylvania System of School Assessment. There were 85 area career and technical education schools in Pennsylvania in 2002. The State Director of the Bureau of Career and Technical Education, Dr. Lee Burket, supplied the data in Table 5 in a personal email communication (Burket, October 26, 2010). The data were taken from a much larger overall report to the U.S. Department of Education, 2009 Consolidated Annual Report, and constituted data on students enrolled in career and technical education during the 2008-2009 school year. Of those enrolled in career and technical education programs in Pennsylvania in 2008-2009, approximately 34 percent were economically disadvantaged based on participation in the federal school lunch program, 27 percent were educationally disabled (as defined by having an IEP), while 0.7 percent were gifted.

Table 6 shows the performance data for all students in Pennsylvania who participated in the Pennsylvania System of School Assessment during 2008-2009. Compared to all students in Pennsylvania on the statewide assessment in reading and math, career and technical students performed less well in math (35 percent versus 56 percent) and in reading (43 percent versus 64 percent).
Table 5

*Consolidated Annual Report Submitted to the U.S. Office of Education by the Pennsylvania Department of Education, Bureau of Career and Technical Education*

<table>
<thead>
<tr>
<th>2008 PSSA Results for Concentrators</th>
<th>Percentage proficient and above</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reading</td>
</tr>
<tr>
<td>All Career and Technical Students</td>
<td>43.4</td>
</tr>
<tr>
<td>Female</td>
<td>46.6</td>
</tr>
<tr>
<td>Male</td>
<td>41.2</td>
</tr>
<tr>
<td>American Indian</td>
<td>46.6</td>
</tr>
<tr>
<td>Asian</td>
<td>57.0</td>
</tr>
<tr>
<td>Black</td>
<td>30.7</td>
</tr>
<tr>
<td>Hispanic</td>
<td>31.2</td>
</tr>
<tr>
<td>Multi-Racial</td>
<td>47.5</td>
</tr>
<tr>
<td>White</td>
<td>45.4</td>
</tr>
<tr>
<td>Individuals With Disabilities</td>
<td>42.4</td>
</tr>
<tr>
<td>Disability Status (IEP)</td>
<td>14.8</td>
</tr>
<tr>
<td>Economically Disadvantaged</td>
<td>35.6</td>
</tr>
<tr>
<td>LEP</td>
<td>7.90</td>
</tr>
<tr>
<td>Gifted</td>
<td>82.6</td>
</tr>
<tr>
<td>Tech Prep</td>
<td>50.2</td>
</tr>
</tbody>
</table>

Table 6

*Comparison of Percentage of 2008-2009 Grade 11 Career and Technical Students to All Students Who Scored Proficient and Advanced Proficient on the PSSA*

<table>
<thead>
<tr>
<th>Group</th>
<th>Math</th>
<th></th>
<th>Reading</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number Tested</td>
<td>Percentage Proficient and Above</td>
<td>Number Tested</td>
<td>Percentage Proficient and Above</td>
</tr>
<tr>
<td>All Students</td>
<td>135,137</td>
<td>55.9</td>
<td>135,015</td>
<td>63.7</td>
</tr>
<tr>
<td>Career and Technical Students</td>
<td>15,375</td>
<td>43.4</td>
<td>15,396</td>
<td>35.0</td>
</tr>
</tbody>
</table>

*Note.* Adapted from “Pennsylvania Department of Education, School Assessments,” retrieved September 8, 2010, from [http://www.portal.state.pa.us/portal/server.pt/community/school_assessments/7442/2007-2008_pssa_and_ayp_results/507514](http://www.portal.state.pa.us/portal/server.pt/community/school_assessments/7442/2007-2008_pssa_and_ayp_results/507514) and from personal communication with L. Burket, October 26, 2010. The all students’ data were retrieved from the Pennsylvania Department of Education portal. The career and technical students’ data were reported in personal communication from Dr. L. Burket and based on the Consolidated Annual Report submitted to the U.S. Department of Education by the Pennsylvania Department of Education, Bureau of Career and Technical Education, which has not yet been made a public document by the U.S. Department of Education.

Career and technical education schools represent a unique educational environment. The grade level of students includes grades 9 or 10 through grade 12. Most part-time career and technical education schools in Pennsylvania include grades 10-12 (Association for Career and Technical Education, 2009). Nationally, career and technical education students tend to be less well prepared than their non-career and technical education counterparts based on the level of grade 9 math that they completed and on standardized state-wide assessments. They tend to be from lower socioeconomic backgrounds than their non-career and technical education peers. The data suggest that
career and technical education schools would be more favorably impacted by effective leadership skills demonstrated through the learning-centered leadership model than higher performing schools (Brady, 2003).

**National Occupational Competency Testing Institute (NOCTI) assessment.**

In addition to the assessments required as part of the Pennsylvania System of School Assessment (PSSA), students enrolled in career and technical education programs in Pennsylvania participate in occupational testing developed by NOCTI, an end-of-program assessment of their technical skills (“Secondary Performance Measures and Standards,” 2008). Public Law 109-270, also known as the *Carl D Perkins Career and Technical Education Improvement Act* (2006), requires Pennsylvania to assess core indicators of academic and technical performance. The PSSA meets the requirements for an assessment of academic performance. NOCTI meets the Pennsylvania Department of Education, Bureau of Career and Technical Education, requirements for student occupational skill performance (Kister, n.d.; “Secondary Performance Measures and Standards, 2008).

- It includes measures of both technical knowledge and skills (based on industry-validated standards) and technical literacy aligned with state and national standards.
- It measures progress against clear technical skill standards benchmarked at the national level.
- It meets the standards of quality assessments identified by the American Psychological Association in that it is reliable, valid, fair and non-biased, and secure.

NOCTI is used in Pennsylvania to meet the measure of technical skill attainment.
“All students who complete a career and technical education program will attain the knowledge and skills that meet program defined and industry validated career and technical skill standards” (“Secondary Performance Measures and Standards,” 2008, p. 2). The 2010 state performance goal was 56 percent of the students who participate in the NOCTI would achieve scores at or above the competency level (Bureau of Career and Technical Education, 2010).

As NOCTI is required for all students who complete career and technical education programs, it serves as a uniform measure of student technical skill achievement across all schools in Pennsylvania. Unlike the PSSA which is administered to all students in grade 11, NOCTI is only administered to students in career and technical education at the end of the technical program in grade 12. NOCTI will serve as the measure of student performance for the purpose of this research study.

Chapter Summary

This chapter focused on a review of literature relevant to the conceptual framework of learning-centered leadership. Relevant literature included effective schools research, the changing role of the principal, theories of leadership, the conceptual framework of learning-centered leadership, measuring and assessing schools leadership, and finally, the unique context of the career and technical education school.

The impetus for effective schools research was an effort to prove that schools made a difference in student achievement more so than socioeconomic background. Research of high-poverty, high-achieving schools demonstrated that the tenets of effective schools had a direct effect on student achievement to a much greater degree than the socioeconomic background of students.
Social, political, and internal demands have changed the role of the principal over the past 40 years. The roles included building and people manager, instructional leader, change leader, and transformational leader. The literature demonstrated that with each new role, principals were not been relieved of past responsibilities. The increasing complexity and high demands of the position only added to the evolution of leadership theories that lead to effective schools. Descriptions in the literature suggested that principals are expected to assume a new role, that of learning-centered leader.

The focus on learning in learning-centered leader applies to students, teachers, and principals. The concept of learning-centered leadership brings with it an understanding of the core components and key processes that have been demonstrated to have a positive, although indirect, effect on student achievement. The core components and key processes are the outcome of a thorough body of research that together aligns to the standards adopted by the Council of Chief State School Officers and the National Policy Board for Educational Administration, the Interstate School Leaders Licensure Consortium (ISLLC) 2008.

The research demonstrates that knowing what to do and how to do it is not the same body of knowledge. Further, for principals to know exactly what to do and how to do it, they must understand the context in which they are performing. Principals must be aware of the school and staff attributes in which they work, and alter their leadership behaviors accordingly. A learning-centered leadership style shows promise for having a greater impact in low performing schools.

The body of research surrounding measurement and assessment of leadership skills is scant. Measures of principal performance at the local level are most times based
on job descriptions that may not be aligned to the current demands of the principal’s position. Further, few local instruments have been constructed to pass standards for validity or reliability. The research suggests the need for a valid and reliable instrument. The Vanderbilt Assessment of Leadership in Education (VAL-ED) shows promising results in that it meets these criteria.

The review of literature has consistently pointed to the context of leadership skills as an important element in school effectiveness. Career and technical schools represent a unique context and school population. The curriculum of each class or program in a career and technical school is dramatically unique, and the principal is unlikely to hold expertise in more than one class or program. The student population is generally less well prepared than students who do not enroll in career and technical education. The students demonstrate less proficiency on statewide assessments, and, as a whole, more students with individualized education plans enroll in career and technical education than not.

The National Occupational Competency Testing Institute (NOCTI) student occupational assessment is mandated by the Pennsylvania Department of Education, Bureau of Career and Technical Education, as a measure of career and technical education students’ technical skills. This assessment is unique to students enrolled in career and technical education. It will provide consistent data that may be used for comparison purposes across career and technical education schools in Pennsylvania.

The student attributes of those enrolled in career and technical education point to a student population most in need of effective principal leadership. The research on career and technical education schools and leadership in career and technical education
schools is meager at best. This study adds to the body of knowledge about effective leadership practices in the context of the career and technical education school.
Chapter 3

METHODOLOGY

Chapter 3 provides an overview of the research problem related to this study. It includes the research questions, measurement, description and explanation of the dependent and independent variables, data collection, and data analysis. A more thorough discussion of the commercial instrument used in this study, the Vanderbilt Assessment of Leadership in Education (VAL-ED), is provided, as well as a description of the reliability and validity assessment for this commercially available instrument.

The Problem

Numerous studies have linked effective leadership with positive student achievement (Edmonds, 1982; Farkas, Johnson, & Duffet, 2003; Glasman & Heck, 1992; Hallinger & Heck, 1998; LaPointe & Davis, 2006). Principals find themselves accountable and under increasing pressure to create the conditions in schools under which students demonstrate high achievement (Hallinger, 2005). Schools that demonstrate high student achievement are more likely to have instructional leaders who exhibit strong organizational management skills (Hornig & Loeb, 2010). In general, career and technical education students are not academically prepared as well and do not perform as well as their noncareer and technical education counterparts on state assessments of academic achievement (Personal communication, Dr. Lee Burket, October 27, 2010; U.S. Department of Education, 2008). Career and technical education schools are in need of effective leaders.

The purpose of this study was to investigate the leadership skills of principals in selected part-time area career and technical schools using the Vanderbilt Assessment of
Leadership in Education (VAL-ED) principal instrument. This study determined the extent to which the leadership skills differed from the national norm. It also identified differences in the perceptions of leadership among principals, supervisors, and teachers. Further, it determined the extent to which a relationship existed between specific leadership skills and student achievement. The measure of student achievement was the Pennsylvania end-of-program occupational assessment developed by the National Occupational Competency Testing Institute (NOCTI).

**Research Questions**

Four research questions analyzed the leadership skills of principals from the conceptual framework of learning-centered leadership. The research questions follow.

1. To what extent did principals in selected career and technical schools demonstrate learning-centered leadership skills measured by the Vanderbilt Assessment of Leadership in Education?
2. To what extent, if any, did principals in selected career and technical schools demonstrate learning-centered leadership skills different from the national norm?
3. To what extent, if any, did the perceptions of leadership skills differ among principals, teachers, and supervisors?
4. To what extent, if any, did the leadership skills of selected career and technical education principals show an association with student achievement measured by the National Occupational Competency Testing Institute (NOCTI) end-of-program assessment?
Population and Sample

Population.

The population for this study was instructional leaders in part-time career and technical education schools in the Commonwealth of Pennsylvania. The term principal was used to identify the instructional leader in each school system regardless of the actual position held by the instructional leader. Area career and technical education schools may also be referred to as regional career and technical education centers.

Career and technical education in Pennsylvania is delivered through 85 regional career and technical education centers and approximately 300 comprehensive high schools (Association for Career and Technical Education, 2009). According to the most recent publicly available data (2006-2007), 12 schools provide comprehensive education programs and the remaining schools provide career and technical education programs. Approximately 113,000 students were enrolled in a career and technical education program. Most of the students enrolled in career and technical education programs were enrolled in grades 10-12 (Association for Career and Technical Education, 2009).

This study focused on part-time area career and technical education schools that represented a consortium of school districts in a stand-alone educational setting under school leadership separate from a school district. The individuals in an area or regional school are more likely to report to a single administrative or executive director who then reports directly to a joint area committee or school board. In some smaller area career and technical education schools, the instructional leader may be the director who reports directly to the joint operating committee. In any case, an area career and technical education principal is more likely to be working in an autonomous situation than a
principal who is one of several principals working in a comprehensive school district under the supervision of or in collaboration with other administrators under the direct supervision of a full-time superintendent who, in turn, reports directly to the Board of Education.

It is particularly important to study career and technical education principals because very little literature exists on the leadership skills of principals in this school setting. The research that does exist on principal leadership illustrates that the context in which leadership skills are demonstrated has an important influence upon the effectiveness of those skills (Blasé & Kirby, 2000; Hallinger, Bickman, & Davis, 1996). As shown in Table 6, this population of principals is significant because students in career and technical education schools consistently perform below the state standard on academic achievement measured by the Pennsylvania System of School Assessment (PSSA), and they perform lower than non-career and technical education students perform. In addition, the student population is unique. Career and technical schools typically enroll a higher percentage of students with IEPs (educationally disadvantaged or handicapped) and a higher percentage of students who are less well prepared for college and career success defined by the level of mathematics in grade 9 (Bureau of Career and Technical Education, 2011; U.S. Department of Education, 2008).
Table 7

Comparison of the Percentage of 2008-2009 Grade 11 Career and Technical Students to All Students Who Scored Proficient and Advanced Proficient on the PSSA

<table>
<thead>
<tr>
<th>Group</th>
<th>Math</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percentage</td>
</tr>
<tr>
<td></td>
<td>Tested</td>
<td>Proficient</td>
</tr>
<tr>
<td>All Students</td>
<td>135,137</td>
<td>55.9</td>
</tr>
<tr>
<td>Career and Technical Students</td>
<td>15,375</td>
<td>35.0</td>
</tr>
</tbody>
</table>

Note. Adapted from “Pennsylvania Department of Education, School Assessments,” retrieved September 8, 2010, from http://www.portal.state.pa.us/portal/server.pt/community/school_assessments/7442/2007-2008_pssa_and_ayp_results/507514 and from personal communication with L. Burket, October 26, 2010. The all students’ data were retrieved from the Pennsylvania Department of Education portal. The career and technical students’ data were reported in personal communication from Dr. L. Burket and based on the Consolidated Annual Report submitted to the U.S. Department of Education by the Pennsylvania Department of Education, Bureau of Career and Technical Education, which has not yet been made a public document by the U.S. Department of Education.

Sample.

This study began with a purposeful sample of 18 career and technical education schools. Schools were invited to participate at the Pennsylvania Association of Career and Technical Administrator’s conference and received an invitation packet at that time (Appendix A). One school was identified for use as the pilot site and ultimately declined to participate. Another school was then selected as the pilot site. One school’s supervisor failed to complete the survey instrument after numerous requests and follow ups, even though the supervisor indicated a willingness to participate. Rather than not use this school, the data from the school’s teachers and the principal were used without
the supervisor’s responses. Because of this, there are only 15 supervisor’s responses but 16 schools included in the data analysis.

The original schools were selected based on their geographic location within the Commonwealth and the biographical characteristics of the instructional leader. The focus of this research was the instructional leader who had at least the same number of years of experience as there were in the school’s delivery system. By selecting leadership participants in this way, it allowed the researcher to make a reasonable assertion that the instructional leader’s skills had an indirect influence on the student achievement of the students within the school because the leader had been in the leadership role for the duration of the students’ enrollment period in that particular school.

Although not generalizable to all career and technical education schools in Pennsylvania, valuable information was learned from this study. This researcher used a criterion-based sample that provided a representative sample that reflected similar proportions as the population of career and technical education school principals in terms of years of experience in the principal’s position and years of prior teaching experience (Huck, 2008; Leedy, 2009; Patton, 2002; Sirkin, 1999). For different sampling techniques, a population may comprise four characteristics: (a) a homogenous group of individuals; (b) groups roughly equal in size; (c) proportions within the population; and (d) discrete clusters heterogeneous to the total population (Leedy, 2009). The purposeful sample for this study contained similar proportions in terms of years of experience in teaching and years of experience in administration as those that exist within the larger target population of Pennsylvania career and technical education instructional leaders.
Lee and Baskerville (2003) found there are methods of using proportions within the population of a smaller sample that are as valid as a random sample of the population. Because of this, value exists in studies that include less than a random sample.

In a statistical study, the researcher may appropriately test a theory with the help of measurements of population characteristics through sample points that are generalizable to sample estimates. . . however, it would be inappropriate to criticize a theory for a lack of generalizability to other settings; the reason is that, as a consequence of Hume’s truism, a theory may never be generalized to a setting where it has not yet been empirically tested and confirmed. (Lee & Baskerville, 2003, p. 241)

They further stated that “there is only one scientifically acceptable way to establish a theory’s generalizability to a new setting: It is for the theory to survive an empirical test in that setting” (p. 241). These researchers concluded that there is value in a study that includes less than a random sample if the sample studied mirrors the characteristics of the population as a whole.

Strata may exist in career and technical education instructional leaders. As stated in Krueger (2001), “. . . estimates of sample size have been intended for populations that were absent of strata that may affect the variable being measured” (p. 252). Research findings suggests that the number of years of previous teaching experience and the years of experience in the role of a principal are personal characteristics and antecedent variables that have an effect on leadership skills (Erwin, Winn, Gentry, & Cauble, 2010; Hallinger, Bickman, & Davis, 1996; Lindahl, 2007; St. Germain & Quinn, 2005).
Erwin et al. (2010) conducted a quantitative analysis of principals from 784 elementary, middle, and high schools in Texas. The schools included 248 urban, 277 suburban, and 259 rural schools. Their findings indicated differences in the leadership styles of principals at the urban, suburban, and rural schools and the need for additional study of principals by personal attributes, including gender, years of experience as a teacher, and years of experience in the role of principal. Hallinger, Bickman, and Davis (1996) also found a relationship between principal leadership skills and gender. St. Germain and Quinn (2005) found a relationship between leadership effectiveness and years of experience. Clark, Martorell, and Rockoff (2009) found a positive association between the number of years of experience in the principal’s position and school performance measures, particularly math achievement and student absences. Rice (2010) further reported that effective and experienced school principals are less likely to be working in low-achieving schools. The study proposed by this researcher adds to the body of research by providing knowledge of these personal attributes as they relate to learning-centered leadership skills of career and technical education principals. Despite the conclusions of Erwin et al., as well as Krueger (2001), and Lee and Baskerville (2003), it is cautioned that generalizability may not be appropriate from this study, given that it does not include a scientific random sample of part-time career and technical education schools in the Commonwealth of Pennsylvania and the respective instructional leaders in those schools.

The sample was drawn based on specific profile data supplied by two subject matter experts in the field of career and technical education in Pennsylvania, as well as data collected through an email survey of career and technical education directors.
conducted through the Pennsylvania Association of Career and Technical Education Administrators (PACTA) in November 2011. The subject matter experts were the State Director of the Bureau of Career and Technical Education, Dr. Lee Burket, and the Executive Director of the Pennsylvania Association of Career and Technical Administrators (PACTA), Ms. Jackie Cullen. Since 1981, Dr. Burket has served in the field of career and technical education. In 2006 she was named to the position of State Director of Career and Technical Education within the Pennsylvania Department of Education. Previous to her appointment as the Executive Director of PACTA in 1989, Ms. Jackie Cullen served as the State Director of the Bureau of Career and Technical Education for two years.

The school’s profile data included its geographic location and the principal’s years of experience as a teacher and as a principal. Based on the proportions of these three demographic descriptors, 18 schools were elected within Pennsylvania.

Following a modified design for a sample defined by Krueger (2001) and Leedy (2009), this research study estimated the sample size for the entire population. Given that there are 85 school systems, 12 of which are comprehensive career and technical education schools and excluded from the population, the sample size based on a 95 percent confidence level and a three percent margin of error would be 60 career and technical education principals (Krueger, 2001). The sample of 18 instructional leaders was purposefully selected in the same proportion found within the total population by years of experience as a teacher and years of experience in the role of the principal as representative of the population of career and technical education school principals, as
determined by the subject matter experts. Schools were selected across the three geographic regions of the state: western, central, and eastern.

Table 8 illustrates the personal characteristics of typical instructional leaders as collected through an informal email survey conducted November 2010 and verified by the subject matter experts as being reflective of statewide principals or those serving as instructional leaders. According to the subject matter experts and the email survey to career and technical directors of which 50.7 percent of 85 part-time career and technical education schools responded, the specific positions responsible for instructional leadership in career and technical education schools includes approximately 56.8 percent directors, 21.6 percent principals, 13.5 percent supervisors, and 8.1 percent other positions. The gender proportion of instructional leaders is approximately 51.4 percent female and 48.6 percent male.
Table 8

Comparison of Personal Attribute Data of Statewide and Research Sample Career and Technical Education Instructional Leaders

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Statewide</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Number of Years in Teaching Prior to Becoming an Administrator</td>
<td>11.2</td>
<td>12.6</td>
</tr>
<tr>
<td>Average Number of Years in Current Position</td>
<td>4.7</td>
<td>4.6</td>
</tr>
<tr>
<td>Average Total Number of Years in an Instructional Leadership Position</td>
<td>7.2</td>
<td>6.8</td>
</tr>
</tbody>
</table>

Note. Data adapted from an informal email survey conducted through the Pennsylvania Association of Career and Technical Administrators, November 2010, and verified as typical of career and technical education school leaders by subject matter experts. Response rate of part-time career and technical education schools was 50.7 percent.

Demographic Data

School demographic data included location of the school and percentage of students enrolled with IEPs and percentage of students participating in the federal free and reduced lunch program. Of the 16 schools providing data, 12 (75 percent) were classified as urban and 4 (25 percent) were classified as rural, as defined by the U.S. Department of Health and Human Services Office of Rural Health Policy based on the Metropolitan Statistical Area (MSA) designation. Related to serving students with IEPs, 5 schools identified between 21 and 30 percent and 11 schools identified between 31 and 50 percent. Related to students participating in the federal free and reduced lunch program as an indicator of economic background, nine schools reported between 21 and 30 percent participation, four schools reported between 31 and 50 percent participation, and three schools reported more than 51 percent participation.
Personal attributes of the schools’ principals were compared to the proportion that existed in the population related to years of experience as a teacher and years of experience as a principal. The demographic data were useful in describing the characteristics of the principals assessed in this study. Demographic data of the school and school population collected in this study included the type of school (urban or rural), the percentage of special education students enrolled during the same school year in which the National Occupational Competency Testing Institute (NOCTI) end of program assessment data were collected, and the percentage of students participating in the federal school lunch program. The year of NOCTI testing was the 2010-2011 school year.

**Recruitment and survey process.**

After the initial presentation to schools at the Pennsylvania Association of Career and Technical Administrator’s (PACTA) conference, directors received the recruitment information (Appendix A), email recruitment information outlining the purpose of the survey and the process to be followed (Appendix B), and the consent to participate form (Appendix C). Instructional leaders and supervisors were emailed a copy of the Informed Consent forms approved by the Institutional Review Board (IRB) (Appendices D and E). Once the school director approved and the informed consent forms were returned, the teachers were sent a notice of participation (Appendix F) and Implied Consent forms (Appendix G).

**Variables**

Nominal, ordinal, and interval or ratio data were analyzed in this study. Leadership skills were assessed using the five-point Likert scale illustrated in Table 9. *Interval and ratio data* are data that “contain information about both relative value and
distance” (Urdan, 2005, p. 4). Responses to individual Likert items represent relative value at best. However, summated Likert subscale values developed from subscales where the summated subscale score is based on an acceptable level of score reliability have commonly been treated as approaching interval data. The developers of the VAL-ED instrument suggest the summated subscales may be treated as interval data (Porter, Murphy et al., 2008, p. 20).

Table 9

*Leadership Skill Descriptors on the Five-Point Likert Scale*

<table>
<thead>
<tr>
<th>Descriptor (Anchor)</th>
<th>Scale Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ineffective</td>
<td>1</td>
</tr>
<tr>
<td>Minimally effective</td>
<td>2</td>
</tr>
<tr>
<td>Satisfactorily effective</td>
<td>3</td>
</tr>
<tr>
<td>Highly effective</td>
<td>4</td>
</tr>
<tr>
<td>Outstandingly effective</td>
<td>5</td>
</tr>
</tbody>
</table>


**Independent variables.**

Personal attributes of the principals were used as independent variables to determine any association with the years of experience as a teacher and years of experience as a principal with leadership skill values measured on the VAL-ED (research question one).
**Dependent variables.**

Two primary outcomes represent dependent variables, depending upon the research question being analyzed. The first primary dependent variable was the leadership skills defined by the criteria that represent the intersection of the six core components and six process leadership skills assessed by the VAL-ED instrument. Each intersection of core components with key processes was defined by one cell. Leadership skills were also considered an independent variable when analyzed for an association with NOCTI proficiency (research question four). Leadership skills were treated as nominal data for the purpose of conducting a log-linear analysis with NOCTI scores.

A second dependent variable (research question four) was the percentage of students achieving proficiency on the end-of-program assessment developed by the National Occupational Competency Testing Institute (NOCTI) assessment. These tests are considered job ready assessments because they measure the skills of an entry-level worker or an individual who has completed course work in a secondary career and technical program. Student performance was divided into four categories: *advanced, competent, basic,* and *below basic.* For analysis in this study, the four categories were collapsed into two categories: *competent and advanced,* and *basic and below basic.*

Table 10 illustrates the leadership skills to be assessed at the intersection of the six core components with the six key processes. Table 11 identifies the educational leadership policy standards, the Interstate School Leaders Licensure Consortium (ISLLC) 2008 to which the numbers within each cell of Table 10 refer. Table 12 identifies each dependent and independent variable and the measurement of scale.
Table 10

**Vanderbilt Assessment of Leadership in Education: Intersection of the Core Components and Key Processes with the ISLLC Standards**

<table>
<thead>
<tr>
<th>Core Components</th>
<th>Key Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Planning</td>
</tr>
<tr>
<td>High Standards for Student Learning</td>
<td></td>
</tr>
<tr>
<td>Rigorous Curriculum (content)</td>
<td>2</td>
</tr>
<tr>
<td>Quality Instruction (pedagogy)</td>
<td>2</td>
</tr>
<tr>
<td>Culture of Learning &amp; Prof. Behavior</td>
<td>2, 3</td>
</tr>
<tr>
<td>Connections to External Communities</td>
<td>4</td>
</tr>
<tr>
<td>Systematic Performance Accountability</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard 1</td>
<td>An education 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.</td>
</tr>
<tr>
<td>Standard 2</td>
<td>An education 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.</td>
</tr>
<tr>
<td>Standard 3</td>
<td>An education leader promotes the success of every student by ensuring management of the organization, operation, and resources for a safe, efficient, and effective learning environment.</td>
</tr>
<tr>
<td>Standard 4</td>
<td>An education 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.</td>
</tr>
<tr>
<td>Standard 5</td>
<td>An education leader promotes the success of every student by acting with integrity, fairness, and in an ethical manner.</td>
</tr>
<tr>
<td>Standard 6</td>
<td>An education leader promotes the success of every student by understanding, responding to, and influencing the political, social, economic, legal, and cultural context.</td>
</tr>
</tbody>
</table>

Table 12

Variable Types and Scale of Measurement

<table>
<thead>
<tr>
<th>Variable</th>
<th>Type</th>
<th>Scale of Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership skills</td>
<td>Dependent Independent (RQ-4)</td>
<td>Ordinal—collapsed to Nominal</td>
</tr>
<tr>
<td>NOCTI results</td>
<td>Dependent</td>
<td>Interval/ratio—collapsed to Nominal</td>
</tr>
<tr>
<td>Years of teaching experience</td>
<td>Independent</td>
<td>Ordinal</td>
</tr>
<tr>
<td>Years in current position</td>
<td>Independent</td>
<td>Ordinal</td>
</tr>
<tr>
<td>Years of principal experience</td>
<td>Independent</td>
<td>Ordinal</td>
</tr>
</tbody>
</table>

Note. RQ-4 represents research question number 4.

Instrumentation

This study represented quantitative, descriptive correlational research. A survey through use of an on-line questionnaire, called the Vanderbilt Assessment of Leadership in Education (VAL-ED), was used to collect data about the perceptions of the learning-centered leadership skills of the principal. The questionnaire was completed by the principal, the principal’s supervisor, and the teachers supervised by the principal. VAL-ED represents a multi-source assessment instrument. Smither, London, and Reilly (2005) conducted a meta-analysis of 24 longitudinal studies of multi-source feedback instruments. They found that it was “unrealistic for practitioners to expect large, across-the-board performance improvements after people receive multi-source feedback. Instead, it appears that some feedback recipients will be more likely to improve than others” (p. 60). Their findings suggested that improvements were likely to occur when
recipients perceive that change is necessary, change is feasible, and recipients have a positive orientation to feedback. In addition, if recipients are able to set appropriate goals and take appropriate actions, improvements in performance are likely to occur.

The VAL-ED was nationally field tested in 2009 in 300 schools (100 elementary, 100 middle, and 100 high schools) in 27 states. It is based upon the Interstate School Leaders Licensure Consortium (ISLLC) standards developed by the Council of Chief State School Offices (CCSSO) in 1998 and revised in 2008. The National Policy Board for Educational Administration (NPBEA) adopted the ISLLC standards in December 2007. The NPBEA is an organization that provides a forum for collaborative actions by organizations interested in the advancement of school and school-system leadership (National Policy Board for Educational Administration, 2010). The standards were developed through four phases including input from educational and administrative experts in the field, a multi-person analysis of 83 empirical research studies, and testing in the field. The empirical research studies include quantitative, qualitative, and mixed methods that spanned the period from 1986 to 2007.

Although there is much interest in principal leadership skills, there are few valid and reliable instruments available to measure these skills in use at the local level (Condon & Clifford, 2009; Goldring, Cravens, et al., 2009; Heck and Marcoulides, 1996). Condon and Clifford (2009) found only twenty principal assessment instruments using Google Scholar that were commercially available. Eight instruments were selected for analysis because they met three criteria for the study. The criteria were that the assessments were (a) intended for use as a performance assessment instrument, (b) psychometrically tested for reliability and validity, and (c) publicly available for purchase. Table 13 identifies the
assessments evaluated, the developer of the assessment, and the year in which the assessment was developed. Given the changing role of the principal between 1990 and 2010, older instruments may assess leadership skills that are no longer priorities or relevant in order for principals to be effective.

Table 13

*Assessment Instruments Analyzed by Condon and Clifford, and the Year of Development*

<table>
<thead>
<tr>
<th>Assessment Name</th>
<th>Developer</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership Practices Inventory</td>
<td>Kouzes and Posner</td>
<td>2002</td>
</tr>
<tr>
<td>Performance Review Analysis and Improvement System for Education</td>
<td>Knoop and Commons</td>
<td>1985</td>
</tr>
<tr>
<td>Principals Instructional Management-Rating Scale</td>
<td>Hallinger and Murphy</td>
<td>1985</td>
</tr>
<tr>
<td>Principal Profile (revised)</td>
<td>Leithwood</td>
<td>1987</td>
</tr>
<tr>
<td>Change Facilitator Style Questionnaire</td>
<td>Vandenberghge</td>
<td>1988</td>
</tr>
<tr>
<td>Diagnostic Assessment of School and Principal Effectiveness</td>
<td>Ebmeier</td>
<td>1992</td>
</tr>
<tr>
<td>Leadership Activity Questionnaire</td>
<td>Larsen</td>
<td>1987</td>
</tr>
<tr>
<td>Vanderbilt Assessment of Leadership in Education</td>
<td>Porter et al.</td>
<td>2006</td>
</tr>
</tbody>
</table>

Principals, supervisors, and teachers in this study assessed leadership skills using the on-line VAL-ED questionnaire. VAL-ED provides both a norm-referenced, criterion-referenced assessment of the Learning Centered Leadership of the principal, using the Interstate School Leadership Licensure Consortium (ISLLC) 2008 standards developed by the Council of Chief State School Offices (CCSSO). Criterion-referenced profiles were created by VAL-ED to determine the rating of distinguished, proficient, basic, and below basic described in Table 14.

VAL-ED was developed through a multi-stage development process to ensure reliability and validity, including cognitive labs, pilot tests, and field tests. The process was guided by the American Educational Research Association’s 1999 Standards for Educational and Psychological Testing (Porter et al., 2008).

Validity.

Content validity was first based on an examination of the research literature related to the learning-centered leadership framework. A sorting study was then designed to empirically test the validity of each of the 36 cells created by the intersection of the core components with the key processes. A panel of nine principals served as subject matter experts for this phase. Principals were randomly divided into three subgroups and each given 98 of the 294 items that represented the 36 cells. The results of the sorting study indicated that the core components and key processes demonstrated content validity based on the principals’ sorting of the items into the correct cell for the conceptual framework. The items were then revised in several says to further improve the content validity of the VAL-ED.
Two rounds of cognitive labs were conducted to address “the complexity of the question items, the possibility of socially desirable responses, and the likelihood of unintentionally misleading responses (Biemer, Groves, Lybert, Mathiowetz, & Sudman, 1991; Desimone & LeFloh, 2004)” (as cited in Porter et al., 2008, p. 26). The cognitive labs included participation of one school each from three urban districts: elementary, middle, and high school. A second round of cognitive labs included “three respondents each in three districts, two urban and one suburban” (p. 27) that included elementary, middle and high school principals. Based on the recommendations of the participants in the two cognitive labs, questions were removed that created redundancy, key words and phrases were revised, and additional modifications were made to reach a high degree of agreement that the instrument was measuring the leadership behaviors that were most important to effective school leadership.

The VAL-ED instrument was subjected to a bias review committee of nine individuals (six female and three male; four Caucasians, two Hispanics, two African Americans, and one Asian-American) to ensure it was bias-free and reflective of measuring the leadership skills it was intended to measure. These individuals were from several urban districts and were trained and tested on the Educational Testing Service International Principles of Fairness Review of Assessments Guidelines before they reviewed the VAL-ED.

VAL-ED underwent two rounds of pilot tests and one field test. The first pilot test included nine schools, which included urban, suburban, and rural schools. The second pilot test included 11 schools, also including urban, suburban, and rural schools (Porter, Murphy, et al, 2008). It was field tested in 2008 with approximately 300 schools:
100 elementary, 100 middle, and 100 high schools. Based on the field test, descriptors and mean cut scores for each proficiency level were established. The descriptors and mean cut score for each proficiency level are illustrated in Table 14.

The overall content and construct validity of VAL-ED was verified through a sorting study, two series of cognitive interviews, a bias review, a nine-school pilot test, and an 11-school pilot test (Porter, Murphy, et al., 2008). After each phase, modifications were made to the instrument to increase the content and construct validity. At the conclusion of the validity tests, it was then subjected to the 300 school national field test in 2008.

**Reliability.**

There are four general types of reliability. Inter-observer reliability is used to assess the degree to which different observers give the same rating to the same observation or characteristic. Test reliability assesses the consistency of a measure from one time to another. Parallel-forms reliability assesses the consistency of the results of two assessment forms used to assess the same content domain. Internal consistency reliability assesses the consistency of results across items within a test.

Only internal-consistency reliability could be conducted in the pilot study of nine schools for the teacher raters. Cronbach’s Alpha reliabilities for individual teacher scores ranged from .92 to .97. Total score reliabilities were greater than .98. Reliabilities for core components tended to be higher than for key processes (Porter et al., 2008). Table 15 identifies the estimates of internal consistency reliability for Form C, the VAL-ED form used in this study.
### Table 14

**Descriptors and Mean Cut Scores Associated with VAL-ED Proficiency Levels**

<table>
<thead>
<tr>
<th>Level</th>
<th>Descriptor</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below Basic</td>
<td>A leader at the below basic level of proficiency exhibits leadership behaviors of core components and key processes at levels of effectiveness that over time are unlikely to influence teachers to bring the school to a point that results in acceptable value-added to student achievement and social learning for students.</td>
<td>1.00 – 3.28</td>
</tr>
<tr>
<td>Basic</td>
<td>A leader at the basic level of proficiency exhibits leadership behaviors of core components and key processes at levels of effectiveness that over time are likely to influence teachers to bring the school to a point that results in acceptable value-added to student achievement and social learning for some sub-groups of students, but not all.</td>
<td>3.29 -3.59</td>
</tr>
<tr>
<td>Proficient</td>
<td>A proficient leader exhibits leadership behaviors of core components and key processes at levels of effectiveness that over time are likely to influence teachers to bring the school to a point that results in acceptable value-added to student achievement and social learning for all students.</td>
<td>3.60 – 3.99</td>
</tr>
<tr>
<td>Distinguished</td>
<td>A distinguished leader exhibits leadership behaviors of core components and key processes at levels of effectiveness that over time are virtually certain to influence teachers to bring the school to a point that results in strong value-added to student achievement and social learning for all students.</td>
<td>4.00 – 5.00</td>
</tr>
</tbody>
</table>

*Note.* In the study of 300 principals in the spring of 2008 to determine the cut score range, 17% scored below basic, 33% scored basic, 36% scored proficient, and 14% scored distinguished (Porter et al., 2008).
Table 15

Estimates of Internal Consistency Reliability for VAL-ED Form C

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Cronbach’s α</th>
</tr>
</thead>
<tbody>
<tr>
<td>High standards for student learning</td>
<td>0.97</td>
</tr>
<tr>
<td>Quality instruction</td>
<td>0.95</td>
</tr>
<tr>
<td>Rigorous curriculum</td>
<td>0.97</td>
</tr>
<tr>
<td>Culture of learning and professional behavior</td>
<td>0.96</td>
</tr>
<tr>
<td>Connections to external community</td>
<td>0.97</td>
</tr>
<tr>
<td>Performance accountability</td>
<td>0.97</td>
</tr>
<tr>
<td>Planning</td>
<td>0.95</td>
</tr>
<tr>
<td>Implementing</td>
<td>0.95</td>
</tr>
<tr>
<td>Supporting</td>
<td>0.96</td>
</tr>
<tr>
<td>Advocating</td>
<td>0.96</td>
</tr>
<tr>
<td>Communicating</td>
<td>0.97</td>
</tr>
<tr>
<td>Monitoring</td>
<td>0.96</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0.99</strong></td>
</tr>
</tbody>
</table>

Pilot Study

This researcher conducted a pilot study for administration of the VAL-ED after approval of the study by the Institutional Review Board (IRB) and the researcher’s doctoral committee in April 2011. The original site selected to participate as the pilot site ultimately declined to participate. A second school from one of the remaining 17 schools was then selected as the pilot site. The principal, principal’s supervisor, and teachers were invited to participate in the pilot study through initial contact at the Spring 2011 conference of the Pennsylvania Association of Career and Technical Education Administrators.

Lessons learned from the pilot study data collection process, the approximate time required for the principal, supervisor, and teachers to complete the assessment instrument, and other knowledge gained from the pilot study was used to schedule the parameters for assessment administration in late spring 2011. The pilot study served to provide the researcher with one commercially prepared principal’s report from which knowledge about the contents of the VAL-ED commercial report was gained, such as the report details and alignment with the core components and key processes. As a result of the pilot study, however, there were no major changes or modifications made to the scripts, forms, or procedures implemented at the remaining 16 research sites.

Data Collection

In March 2011, the researcher presented at the Pennsylvania Association of Career and Technical Administrators (PACTA) Winter Symposium soliciting participants interested in learning about the purpose of the study. After approval by the IRB, the researcher acquired the appropriate consent forms and explained the time line and
assessment process. The researcher scheduled dates for the assessment monitor to administer the VAL-ED on line. The principal, principal’s supervisor, and teachers completed the VAL-ED prior to June 15, 2011.

Each participant in the survey received an individual User ID and Survey Code aligned to the specific school’s principal. Because the survey was online, if a teacher was absent on the day of the data collection, the responses of that teacher could be included in the data collection at a later date. The participants had the option to complete the survey at the time of the introduction by the school monitor or at an off-site location at another convenient time. As each participant received a unique User ID and Survey Code, it ensured that each participant could respond only once.

**Human subject protection.**

The researcher complied with all requirements of the Institutional Review Board (IRB) regarding the protection of human subjects. The human subjects protected in this study were the principal, the supervisor, and the teachers supervised by the principal. Data was collected and detailed by school principal. Each school participating in this research study document was coded to ensure anonymity of principals, principals’ supervisors, and teachers supervised by the principals. Each principal and supervisor was given a description of the study and a copy of the informed consent statement. Principals and supervisors signed the informed consent statement prior to participation. Teachers received an implied consent form and notice of participation prior to participating in the study. Principals were emailed a link to a website that provided their individual assessment results. Assessment results were not provided to the schools’ teachers or the principals’ supervisors.
Data storage.

Discovery Education owns the rights to the VAL-ED assessment. Hardin Daniel, Vice President of Discovery Education, provided a written statement of data security and protection. This statement included the security measures taken to protect the data, the identification of the length of time the data will be retained on their servers, and the process followed to destroy the data. The statement from Discovery Education is included as Appendix K.

Data Analysis

The VAL-ED developers provided raw data in an Microsoft® Excel format for analysis by the researcher. The data were imported into SPSS to conduct the statistical analysis necessary to complete this study.

To answer research question 1, descriptive statistics (means, median, frequency, and standard deviation) were calculated and analyzed using the statistical software program, SPSS, to determine the extent of principal leadership skills. A subpart of this analysis involved using correlations to assess the relationship of demographic characteristics with the leadership skills.

To answer research question 2, descriptive statistics (means, frequency, and standard deviation) were used to calculate a percentage rank against the national norm. A national norm does not exist for career and technical education principals. A national norm exists for secondary school principals. The national norm was created based on 100 high school principals. A one-sample $t$ test was used to determine if the principal’s leadership skills were significantly higher or lower than the national norm value for secondary school principals from the VAL-ED pilot study.
To answer research question 3, inferential statistics were used to perform an Analysis of Variance (ANOVA) to determine the extent to which there were differences in the perceptions among the three multi-rater groups completing the assessment: principal, principal’s supervisor, and teachers supervised by the principal.

To answer research question 4, SPSS was used to perform a chi-square with Kendal’s Tau-b to determine if a relationship existed between leadership skills and student achievement measured by the NOCTI end-of-program assessment. These nominal variables were compared in a 2 x 2 chi-square table. This analysis was used to determine if the principal leadership skills identified by VAL-ED had a particular association with student achievement measured by NOCTI proficiency.

Table 16 summarizes the data analysis strategies that were compiled through this study. Additional data were collected to conduct the analysis of the instructional leader’s demographic data in association with leadership skills.
Table 16

Data Analysis Strategies for Research Questions

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Key Variable(s)</th>
<th>Data Analysis Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>To what extent do principals in selected career and technical schools demonstrate learning-centered leadership skills as measured by the Vanderbilt Assessment of Leadership in Education?</td>
<td>Summated Subscales of VAL-ED Core Components Subscales: Student Learning, Rigorous Curriculum, Quality Instruction, Culture of Learning &amp; Prof. Beh., Connection to External Com., Performance Accountability Key Process Subscales: Planning, Implementing, Supporting, Advocating, Communicating, Monitoring</td>
<td>Descriptive: Mean Frequency (n) Standard deviation Inferential: Normality of the subscale scores using skew and kurtosis values was checked.</td>
</tr>
<tr>
<td>A subpart of this question was to assess the influence of demographic characteristics (gender and educational experience variables) with leadership skills.</td>
<td>The variables for research question two are identical to the variables listed for research question one.</td>
<td>A one-sample t test in SPSS was used to determine if the PA subscale values differ significantly from the national norm values.</td>
</tr>
<tr>
<td>To what extent, if any, do principals in selected career and technical schools demonstrate learning-centered leadership skills different from the national norm?</td>
<td>The purpose here was to determine the extent the Pennsylvania subscale values differed from the national norms.</td>
<td>Descriptive: Mean Frequency (n) Standard deviation Inferential: Analysis of Variance</td>
</tr>
<tr>
<td>To what extent do the perceptions of leadership skills differ among principals, teachers, and supervisors?</td>
<td>The dependent variables for research question three are identical to the subscales listed above for research question one.</td>
<td>Descriptive: Mean Frequency (n) Standard deviation Inferential: Analysis of Variance</td>
</tr>
<tr>
<td>Research Question</td>
<td>Key Variable(s)</td>
<td>Data Analysis Strategies</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>To what extent do the leadership skills of selected career and technical education principal s show an association with student achievement as measured by the National Occupational Competency Testing Institute (NOCTI) end-of-program assessment?</td>
<td>Principals Performance Standard (<em>Below Basic, Basic, Proficient, Distinguished</em>). This variable represents a nominal variable or one could argue it represents ordered categories. The subscale scores from the VAL-ED instrument were scored using the VAL-ED Technical Manual information so that each principal was classified into a <em>Principal Performance Standard</em>. Student achievement (NOCTI end of program assessment) represents the other key variable for question four. This variable indicates percent of students proficient or not proficient on the NOCTI. It was reduced to two nominal categories.</td>
<td>Descriptive: Crosstabs table showing frequency (n) and relative percent Inferential: Chi-square with Kendall’s Tau-b was used.</td>
</tr>
</tbody>
</table>
Chapter Summary

Leadership has been found to be second only to teaching in terms of the influence leadership has in creating effective schools. Because effective leadership has a positive, indirect effect on student achievement, it is important to assess the extent to which leadership skill exist, to compare the leadership skills to a national norm, determine differences in perceptions of leadership skills among principals, teachers, and principals’ supervisors, and determine an association between specific leadership skills and student achievement measured by the NOCTI.

This research study included a quantitative, correlational design using an on-line multi-source assessment of leadership skills called the Vanderbilt Assessment of Leadership in Education (VAL-ED). The leadership skills assessed included the six core components and the six key processes of the learning-centered leadership conceptual framework.

Data were collected from a purposeful sample of 17 area career and technical education schools. Data from one school were used for the pilot study. Of the 16 remaining schools, 15 school supervisors’, 16 principals’ and 315 teachers’ data were used. Data were analyzed using the IBM SPSS19.0 statistical software. Descriptive and inferential statistics were computed.
Chapter 4

FINDINGS

Chapter 4 begins with a description of the sample selected for this study from the career and technical education schools in the Commonwealth of Pennsylvania. A discussion about the treatment of missing data follows. Finally, this chapter includes descriptive data about the data collected and the analysis of this data relative to the four research questions in this study.

The four research questions in this study analyzed the leadership skills of instructional leaders from the conceptual framework of learning-centered leadership. The instructional leader was defined as the person who had primary responsibility for teacher supervision and evaluation. The term principal was used to identify the instructional leader in each school system, regardless of the actual name of the position held. The four research questions follow.

1. To what extent did principals in selected career and technical schools demonstrate learning-centered leadership skills as measured by the Vanderbilt Assessment of Leadership in Education (VAL-ED)?

2. To what extent, if any, did principals in selected career and technical schools demonstrate learning-centered leadership skills different from the national norm?

3. To what extent, if any, did the perceptions of leadership skills differ among principals, teachers, and supervisors?

4. To what extent, if any, did the leadership skills of selected career and technical education principals show an association with student achievement measured by the
National Occupational Competency Testing Institute (NOCTI) end-of-program assessment?

**Sample Description**

Seventeen schools participated in this research study in the spring of 2011 to identify and analyze the leadership skills of instructional leaders in career and technical education schools. One of these 17 schools was designated as the pilot study, and the data from this school were not included in the data analysis. The remaining 16 schools were located throughout Pennsylvania where five schools were in the western, six schools were in the central, and five schools were in the eastern regions. Classification by region was determined by the Pennsylvania Department of Education in the designation of each school to a teacher preparation program. Schools designated for attendance at Indiana University of Pennsylvania, Pennsylvania State University, and Temple University were identified as western, central, and eastern regions, respectively.

Of the instructional leaders participating in the study, 67.0 percent (ten) were male and 33.0 percent (six) were female. The schools were 75 percent urban and 25 percent rural as defined by the U.S. Department of Health and Human Services Office of Rural Health Policy. Student participation in the federal free and reduced lunch program ranged from a low of 22 percent to a high of 75 percent. Schools serving students with IEPs ranged from a low of 23 percent to a high of 43 percent.

Table 17 illustrates additional personal attributes for the instructional leaders who participated in this study compared to the statewide characteristics of all instructional leaders in career and technical education schools. Table 18 illustrates that none of the differences between the mean values of the research sample were statistically different
(p < .05) from the mean values of the statewide population of career and technical education instructional leaders. All of the sample means were well within the 95 percent confidence interval of the difference between the means.

Of the 16 schools that participated in the research study, 100 percent of the principals (16/16), 93.0 percent of the supervisors (15/16), and 79.7 percent of the teachers (315/395) completed the survey instrument. This compared favorably to the nine-school pilot test conducted by Vanderbilt University in 2008 where 88.9 percent of the principals (8/9), 100 percent of the supervisors (9/9), and 72.5 percent of the teachers (319/440) participated in the survey.

Table 17

<table>
<thead>
<tr>
<th>Personal Attributes of Statewide Career and Technical Education Instructional Leaders Compared to Personal Attributes of Research Study Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristic</td>
</tr>
<tr>
<td>Average Number of Years in Teaching Prior to Becoming an Administrator</td>
</tr>
<tr>
<td>Average Number of Years in Current Position</td>
</tr>
<tr>
<td>Average Number of Years in All Instructional Leadership Positions</td>
</tr>
</tbody>
</table>

Note. Statewide sample data adapted from an informal email survey conducted through the Pennsylvania Association of Career and Technical Administrators, November 2010, and verified as typical of career and technical education school leaders by subject matter experts. Response rate from half-day career and technical education schools was 50.7 percent.
Table 18

*Analysis of Differences Between Statewide Sample of Instructional Leaders in Career and Technical Education Schools and Research Sample*

<table>
<thead>
<tr>
<th>Personal Attributes</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years as a teacher</td>
<td>.972</td>
<td>15</td>
<td>.347</td>
<td>1.363</td>
<td>-1.63</td>
<td>4.35</td>
</tr>
<tr>
<td>Years in current position</td>
<td>-.111</td>
<td>15</td>
<td>.913</td>
<td>-.075</td>
<td>-1.52</td>
<td>1.37</td>
</tr>
<tr>
<td>Years in a principal’s position</td>
<td>-.333</td>
<td>15</td>
<td>.744</td>
<td>0.388</td>
<td>-2.87</td>
<td>2.09</td>
</tr>
</tbody>
</table>

*Note.* CI = Confidence Interval.

**Data Analysis and Outliers**

The raw data extracted from the survey respondents were provided by Discovery Education™, owner of the Vanderbilt Assessment of Leadership in Education (VAL-ED), in Microsoft® Excel 2010 format. The data were imported into IBM SPSS 19.0 statistical software. To maintain confidentiality and anonymity of the data, VAL-ED survey codes were used to identify responses for the variables associated with each school and school leader.

Principals and supervisors answered 72 questions about the principal, 2 for each of the 36 variables representing the 6 core components and 6 key processes. For teachers, one of these two questions for each core component and key process was
randomly generated by computer. This created one response for each of the 36 variables. Each variable was then reviewed using the SPSS19 *Explore* function to determine that all responses were within the expected range of 1 to 6 on the Likert response scale (a response of 6 indicated *Don’t know*). All of the values fell within the expected range. Prior to the data analysis for each of the research questions, the supervisor and principal responses were recoded and calculated to produce responses to the 36 variables to be consistent with the teacher data.

Once the principal and supervisor data were recalculated into variables similar to the teachers, univariate data analysis was conducted to explore each variable in the data set. The range of values and the central tendency were reviewed. A frequency table was generated for each of the 36 variables to review the pattern of responses to each variable to determine if any were outside the range of valid responses. None of the variables was outside of the expected range of valid responses.

Upon more in-depth review of the data, however, three cases were problematic. Case 154 responded to all 36 variables with a response of *Don’t know*. Case 134 left all responses blank. Case 168 answered with one incidence of *Don’t know* and the remaining responses were left blank. Since none of these cases added any value or produced any useful information, all three cases were excluded from the data analysis. A total of 346 cases were ultimately analyzed: 16 principal responses, 15 supervisor responses, and 315 teacher responses.

Using SPSS 19.0’s *Explore* function to detect anomalies, four additional cases were identified. The SPSS anomaly detection procedure searched for unusual cases based on deviations from the norms of their cluster groups. These four cases represented
teacher responses from three different schools. The mean scores from two cases were substantially (approximately three standard deviations) lower than all other teacher response scores from their schools, and the scores in the other two cases were a perfect 5.0. Case 147 from school five demonstrated a mean of 1.61 in a range of means between 3.44 and 5.0, excluding Case 147. Case 305 from school 14 demonstrated a mean of 1.39 in a range of means between 3.14 and 4.36, excluding Case 305. Cases 74 and 87 both from the same school demonstrated an overall score of 5.0 in a range of means between 2.14 and 4.28, excluding Cases 74 and 87.

The decision was made to include the four cases in the aggregate analysis. If it was assumed that the four extreme evaluations were based fairly on the objective observation, documents, or reports from others evaluating the principal, then they should be included in the data analysis. If they were not biased, then perhaps they were based on different aspects of the principal’s responsibilities of which other teachers were unaware. Teachers may observe different aspects of a principal simply by chance. A teacher may have missed a meeting where the principal discussed connections to the external community, and as a result, the teachers may not have been aware of all the activities related to that core component. On the other hand, the teachers may have given the principal the benefit of the doubt because he or she was highly effective in some other aspect of their performance. Finally, if it was assumed that the four cases were biased either for or against the principal for reasons outside of the principal’s performance, then it is quite possible that other scores for those same principals were the result of bias for or against the principal but within the expected range. Since the reasons for the anomalies
were indistinguishable from other internally consistent responses, the decision was made to include these cases in the data analysis.

A review of the descriptive statistics and graphical boxplots was conducted for each variable and by school. The graphical boxplot representations produced four outlier cases. Case 331 produced significantly lower responses for the variables Planning, Implementing, Advocating, Supporting, Monitoring, High Standards for Student Learning, Rigorous Curriculum, and Culture of Learning and Professional Behavior. Case 304 produced significantly lower responses for the variables Planning, Implementing, High Standards for Student Learning, Rigorous Curriculum, and Culture of Learning and Professional Behavior. Cases 22 and 264 produced significantly lower responses for the variables Advocating and High Standards for Student Learning. All of the outlier responses were more than three standard deviations below the mean. There were no outlier responses three standard deviations above the mean. These cases were all included in this data analysis.

**Missing Data**

Possible responses ranged from 1 to 5 on a Likert response scale (and 6, which indicated *Don’t know*) as indicated in Table 19. In addition, there were two ways that respondents might choose not to complete a survey item. They could select 6 to respond *Don’t know*, or they could leave an item blank. Principals did not have the option to select *Don’t know* about their own performance.
Table 19

*Leadership Skill Descriptors on the Five-Point Likert Scale*

<table>
<thead>
<tr>
<th>Descriptor (Anchor)</th>
<th>Scale Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ineffective</td>
<td>1</td>
</tr>
<tr>
<td>Minimally effective</td>
<td>2</td>
</tr>
<tr>
<td>Satisfactorily effective</td>
<td>3</td>
</tr>
<tr>
<td>Highly effective</td>
<td>4</td>
</tr>
<tr>
<td>Outstandingly effective</td>
<td>5</td>
</tr>
</tbody>
</table>


Missing data were analyzed using SPSS 19.0 Missing Values Analysis (MVA). Responses of *Don’t know* ranged from a low of 12 responses (3.5%) for *Supporting a Rigorous Curriculum* and *Communicating Quality Instruction* to a high of 138 responses (39.9%) for *Monitoring Connections to the External Community*. Missing (blank) responses ranged from a low of one for *Planning High Standards for Student Achievement* to a high of six for *Monitoring Performance Accountability*.

Of the 346 responses, 31.5 percent (109) were complete cases; 68.5 percent (237) had missing data for one or more variables. Table 20 summarizes the variables where the percentage of missing data exceeded ten percent.
Table 20

Summary of Missing and Valid Data for Leadership Survey Variables

<table>
<thead>
<tr>
<th>Leadership Variable</th>
<th>Missing</th>
<th></th>
<th>Valid</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Percent</td>
<td>n</td>
<td>Percent</td>
</tr>
<tr>
<td>Monitoring Connections to External Communities</td>
<td>138</td>
<td>39.9</td>
<td>208</td>
<td>60.1</td>
</tr>
<tr>
<td>Advocating Connections to External Communities</td>
<td>136</td>
<td>39.3</td>
<td>210</td>
<td>60.7</td>
</tr>
<tr>
<td>Communicating Connections to External Communities</td>
<td>130</td>
<td>37.6</td>
<td>216</td>
<td>62.4</td>
</tr>
<tr>
<td>Communicating Performance Accountability</td>
<td>112</td>
<td>32.4</td>
<td>234</td>
<td>67.6</td>
</tr>
<tr>
<td>Advocating for Performance Accountability</td>
<td>108</td>
<td>31.2</td>
<td>238</td>
<td>68.8</td>
</tr>
<tr>
<td>Advocating for Quality Instruction</td>
<td>103</td>
<td>29.8</td>
<td>243</td>
<td>70.2</td>
</tr>
<tr>
<td>Implementing Connections to External Communities</td>
<td>96</td>
<td>27.7</td>
<td>250</td>
<td>72.3</td>
</tr>
<tr>
<td>Monitoring Performance Accountability</td>
<td>95</td>
<td>27.5</td>
<td>251</td>
<td>72.5</td>
</tr>
<tr>
<td>Planning Connections to External Communities</td>
<td>90</td>
<td>26.0</td>
<td>256</td>
<td>74.0</td>
</tr>
<tr>
<td>Planning Quality Instruction</td>
<td>82</td>
<td>23.7</td>
<td>264</td>
<td>76.3</td>
</tr>
<tr>
<td>Planning Rigorous Curriculum</td>
<td>75</td>
<td>21.7</td>
<td>271</td>
<td>78.3</td>
</tr>
<tr>
<td>Advocating Culture of Learning &amp; Prof. Behavior</td>
<td>72</td>
<td>20.8</td>
<td>274</td>
<td>79.2</td>
</tr>
<tr>
<td>Implementing Rigorous Curriculum</td>
<td>72</td>
<td>20.8</td>
<td>274</td>
<td>79.2</td>
</tr>
<tr>
<td>Monitoring Culture of Learning &amp; Prof. Behavior</td>
<td>69</td>
<td>19.9</td>
<td>277</td>
<td>80.1</td>
</tr>
<tr>
<td>Communicating Culture of Learning &amp; Prof. Behavior</td>
<td>65</td>
<td>18.8</td>
<td>281</td>
<td>81.2</td>
</tr>
<tr>
<td>Planning Culture of Learning &amp; Prof. Behavior</td>
<td>60</td>
<td>17.3</td>
<td>286</td>
<td>82.7</td>
</tr>
<tr>
<td>Monitoring Rigorous Curriculum</td>
<td>60</td>
<td>17.3</td>
<td>286</td>
<td>82.7</td>
</tr>
<tr>
<td>Implementing Performance Accountability</td>
<td>58</td>
<td>16.8</td>
<td>288</td>
<td>83.2</td>
</tr>
<tr>
<td>Monitoring High Standards for Student Learning</td>
<td>56</td>
<td>16.2</td>
<td>290</td>
<td>83.8</td>
</tr>
<tr>
<td>Supporting Connections to External Communities</td>
<td>55</td>
<td>15.9</td>
<td>291</td>
<td>84.1</td>
</tr>
<tr>
<td>Implementing Quality Instruction</td>
<td>55</td>
<td>15.9</td>
<td>291</td>
<td>84.1</td>
</tr>
<tr>
<td>Planning Performance Accountability</td>
<td>51</td>
<td>14.7</td>
<td>295</td>
<td>85.3</td>
</tr>
<tr>
<td>Monitoring Quality Instruction</td>
<td>50</td>
<td>14.5</td>
<td>296</td>
<td>85.5</td>
</tr>
<tr>
<td>Advocating Rigorous Curriculum</td>
<td>47</td>
<td>13.6</td>
<td>299</td>
<td>86.4</td>
</tr>
<tr>
<td>Supporting Performance Accountability</td>
<td>47</td>
<td>13.6</td>
<td>299</td>
<td>86.4</td>
</tr>
<tr>
<td>Advocating High Standards for Student Learning</td>
<td>46</td>
<td>13.3</td>
<td>300</td>
<td>86.7</td>
</tr>
<tr>
<td>Implementing High Standards for Student Learning</td>
<td>40</td>
<td>11.6</td>
<td>306</td>
<td>88.4</td>
</tr>
<tr>
<td>Supporting Quality Instruction</td>
<td>40</td>
<td>11.6</td>
<td>306</td>
<td>88.4</td>
</tr>
<tr>
<td>Planning High Standards for Student Learning</td>
<td>35</td>
<td>10.1</td>
<td>311</td>
<td>89.9</td>
</tr>
</tbody>
</table>

Note. Data in Table 20 are listed for variables with more than ten percent missing responses.

The VAL-ED Technical Manual v. 1.0 (Porter et al., 2008) indicated a low of 2.6 percent missing to a high of 18.5 percent missing data per variable for the pilot study. A comparison of missing data by core component and key process for the VAL-ED study and this research study is shown in Table 21. In the VAL-ED pilot study, incentives for
complete surveys were provided to the participants’ schools. In this research study, no incentives were provided to the participants or to the schools for complete surveys. The readers of this research are encouraged to draw their own conclusions about the power of this study’s internal validity based on the extent of missing data.

Table 21

*Comparison of VAL-Ed Study and Research Study Missing Data by Core Component and Key Process*

<table>
<thead>
<tr>
<th>Core Component or Key Process</th>
<th>VAL-ED Study</th>
<th>Research Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>High standards</td>
<td>2.6%</td>
<td>9.7%</td>
</tr>
<tr>
<td>Culture of learning and professional behavior</td>
<td>4.3%</td>
<td>14.5%</td>
</tr>
<tr>
<td>Rigorous curriculum</td>
<td>5.0%</td>
<td>13.5%</td>
</tr>
<tr>
<td>Supporting</td>
<td>5.2%</td>
<td>8.8%</td>
</tr>
<tr>
<td>Communicating</td>
<td>5.7%</td>
<td>16.9%</td>
</tr>
<tr>
<td>Quality instruction</td>
<td>5.8%</td>
<td>16.1%</td>
</tr>
<tr>
<td>Planning</td>
<td>6.0%</td>
<td>18.6%</td>
</tr>
<tr>
<td>Implementing</td>
<td>6.1%</td>
<td>16.2%</td>
</tr>
<tr>
<td>Advocating</td>
<td>7.6%</td>
<td>23.9%</td>
</tr>
<tr>
<td>Performance accountability</td>
<td>9.6%</td>
<td>22.3%</td>
</tr>
<tr>
<td>Monitoring</td>
<td>10.0%</td>
<td>22.2%</td>
</tr>
<tr>
<td>Connections to external communities</td>
<td>13.4%</td>
<td>30.7%</td>
</tr>
</tbody>
</table>

*Note.* Data from VAL-ED study adapted from “VAL-ED Technical Manual, v. 1.0” by A. C. Porter et al. (2008).
Research Question 1

To what extent, if any, did principals in selected career and technical schools demonstrate learning-centered leadership skills measured by the Vanderbilt Assessment of Leadership in Education?

There were 36 variables formed by the intersection of six core components and six key processes. The core components were (a) high standards for student learning, (b) rigorous curriculum, (c) quality instruction, (d) culture of learning and professional behavior, (e) connections to external communities, and (f) performance accountability. The key processes were (a) planning, (b) implementing, (c) supporting, (d) advocating, (e) communicating, and (f) monitoring. Effectiveness ratings were examined from the intersection of the core components and key processes, the composite core component scales, and the composite key process scales. Mean values were computed and totaled to determine the highest effectiveness ratings for career and technical education principals in specific key processes and core components.

Tables 22 illustrates the mean, standard deviation, skewness, and kurtosis for each of the 36 variables formed by the intersection of the six core components and six key processes. The means in Table 22 were calculated based on all of the variables and equal treatment weight of each principal, supervisor, and teacher responses calculated separately as separate groups, rather than individually by each of the 16 schools. Each response from one teacher, one principal, and one supervisor was treated with the same weight within the group. This was consistent with the process used in the VAL-ED Technical Manual (Porter et al., 2008). Table 22 illustrates the mean for each variable based upon the collective responses of the 346 respondents.
The aggregate responses to all of the variables were slightly skewed negatively, most of the distribution of responses was to the right indicating that most of the responses were around the mean or higher. A mean response between 3.60 and 3.99 indicated a *Proficient* performance rating for the principal. Ratings for 27 of the 36 variables resulted in ratings of *Proficient*. Ratings for 9 of the 36 variables resulted in ratings of *Basic* (3.29 – 3.59).

Variables had one or more blank or *Don’t know* responses. Blank responses accounted for between one (.29%) and six (1.73%) of the responses for any one variable. *Don’t know* responses accounted for between 12 (3.5%) and 138 (39.9%) of the responses for any one variable. Of the 346 cases, 109 were complete cases with no missing responses. All 16 schools’ data were analyzed in the aggregate. The highest aggregate mean rating (3.82) was given for *Planning Quality instruction*. The lowest aggregate mean rating (3.39) was given for *Planning Rigorous curriculum*. The least number of *Don’t know* responses (12) was given for *Supporting Rigorous curriculum* and *Communicating Quality instruction*. The most number of *Don’t know* responses (138) was given for *Monitoring Connections to external communities*. On the surface at least, this appears to make practical sense to an educator, as teachers are less likely to be aware of the principal’s efforts in working with or monitoring the external communities, such as community-based and post-secondary partnerships. On the other hand, principals are very likely to be communicating to teachers directly about the need for quality instruction and significant efforts to support a rigorous curriculum.
Table 22

Mean Values from Collective Respondents for Core Component and Key Process Variables

<table>
<thead>
<tr>
<th>Components and Processes</th>
<th>Mean (n)</th>
<th>Std. Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>QI – Planning</td>
<td>3.82 (264)</td>
<td>0.993</td>
<td>-0.661</td>
<td>0.221</td>
<td>P</td>
</tr>
<tr>
<td>CL – Advocating</td>
<td>3.82 (274)</td>
<td>0.931</td>
<td>-0.423</td>
<td>-0.055</td>
<td>P</td>
</tr>
<tr>
<td>CL – Implementing</td>
<td>3.80 (322)</td>
<td>0.990</td>
<td>-0.472</td>
<td>-0.460</td>
<td>P</td>
</tr>
<tr>
<td>QI – Communicating</td>
<td>3.79 (332)</td>
<td>1.009</td>
<td>-0.534</td>
<td>-0.192</td>
<td>P</td>
</tr>
<tr>
<td>QI – Monitoring</td>
<td>3.78 (296)</td>
<td>1.051</td>
<td>-0.632</td>
<td>-0.106</td>
<td>P</td>
</tr>
<tr>
<td>CL – Monitoring</td>
<td>3.77 (277)</td>
<td>1.017</td>
<td>-0.545</td>
<td>-0.027</td>
<td>P</td>
</tr>
<tr>
<td>HS – Communicating</td>
<td>3.76 (329)</td>
<td>0.960</td>
<td>-0.390</td>
<td>-0.327</td>
<td>P</td>
</tr>
<tr>
<td>CEC – Supporting</td>
<td>3.76 (291)</td>
<td>0.981</td>
<td>-0.561</td>
<td>0.082</td>
<td>P</td>
</tr>
<tr>
<td>CL – Communicating</td>
<td>3.74 (281)</td>
<td>1.019</td>
<td>-0.638</td>
<td>0.108</td>
<td>P</td>
</tr>
<tr>
<td>QI – Supporting</td>
<td>3.73 (306)</td>
<td>0.945</td>
<td>-0.442</td>
<td>0.046</td>
<td>P</td>
</tr>
<tr>
<td>HS – Supporting</td>
<td>3.71 (329)</td>
<td>0.993</td>
<td>-0.578</td>
<td>0.065</td>
<td>P</td>
</tr>
<tr>
<td>RC – Advocating</td>
<td>3.70 (299)</td>
<td>0.953</td>
<td>-0.465</td>
<td>0.022</td>
<td>P</td>
</tr>
<tr>
<td>RC – Monitoring</td>
<td>3.70 (286)</td>
<td>1.054</td>
<td>-0.489</td>
<td>-0.198</td>
<td>P</td>
</tr>
<tr>
<td>HS – Implementing</td>
<td>3.69 (306)</td>
<td>0.933</td>
<td>-0.636</td>
<td>0.589</td>
<td>P</td>
</tr>
<tr>
<td>HS – Advocating</td>
<td>3.69 (300)</td>
<td>0.989</td>
<td>-0.653</td>
<td>0.290</td>
<td>P</td>
</tr>
<tr>
<td>CL – Supporting</td>
<td>3.69 (325)</td>
<td>1.053</td>
<td>-0.715</td>
<td>0.185</td>
<td>P</td>
</tr>
<tr>
<td>PA – Monitoring</td>
<td>3.67 (251)</td>
<td>0.994</td>
<td>-0.463</td>
<td>-0.014</td>
<td>P</td>
</tr>
<tr>
<td>HS – Planning</td>
<td>3.66 (311)</td>
<td>0.930</td>
<td>-0.557</td>
<td>0.394</td>
<td>P</td>
</tr>
<tr>
<td>HS – Monitoring</td>
<td>3.66 (290)</td>
<td>1.025</td>
<td>-0.590</td>
<td>0.076</td>
<td>P</td>
</tr>
<tr>
<td>PA – Planning</td>
<td>3.66 (295)</td>
<td>0.982</td>
<td>-0.499</td>
<td>0.219</td>
<td>P</td>
</tr>
<tr>
<td>CEC – Communicating</td>
<td>3.64 (216)</td>
<td>1.099</td>
<td>-0.615</td>
<td>-0.030</td>
<td>P</td>
</tr>
<tr>
<td>PA – Communicating</td>
<td>3.64 (234)</td>
<td>1.116</td>
<td>-0.535</td>
<td>-0.262</td>
<td>P</td>
</tr>
<tr>
<td>RC – Communicating</td>
<td>3.63 (324)</td>
<td>1.037</td>
<td>-0.517</td>
<td>-0.170</td>
<td>P</td>
</tr>
<tr>
<td>CEC – Advocating</td>
<td>3.63 (210)</td>
<td>1.014</td>
<td>-0.480</td>
<td>0.101</td>
<td>P</td>
</tr>
<tr>
<td>PA – Supporting</td>
<td>3.61 (299)</td>
<td>1.025</td>
<td>-0.456</td>
<td>-0.078</td>
<td>P</td>
</tr>
<tr>
<td>CEC – Monitoring</td>
<td>3.60 (208)</td>
<td>1.121</td>
<td>-0.482</td>
<td>-0.319</td>
<td>P</td>
</tr>
<tr>
<td>PA – Advocating</td>
<td>3.60 (238)</td>
<td>0.975</td>
<td>-0.109</td>
<td>-0.512</td>
<td>P</td>
</tr>
<tr>
<td>QI – Advocating</td>
<td>3.59 (243)</td>
<td>1.046</td>
<td>-0.543</td>
<td>0.007</td>
<td>B</td>
</tr>
<tr>
<td>RC – Supporting</td>
<td>3.58 (332)</td>
<td>1.097</td>
<td>-0.444</td>
<td>-0.381</td>
<td>B</td>
</tr>
<tr>
<td>PA – Implementing</td>
<td>3.58 (288)</td>
<td>1.013</td>
<td>-0.372</td>
<td>-0.104</td>
<td>B</td>
</tr>
<tr>
<td>CEC – Implementing</td>
<td>3.55 (250)</td>
<td>1.097</td>
<td>-0.455</td>
<td>-0.345</td>
<td>B</td>
</tr>
<tr>
<td>QI – Implementing</td>
<td>3.54 (291)</td>
<td>1.077</td>
<td>-0.396</td>
<td>-0.384</td>
<td>B</td>
</tr>
<tr>
<td>CL – Planning</td>
<td>3.51 (286)</td>
<td>0.997</td>
<td>-0.328</td>
<td>-0.078</td>
<td>B</td>
</tr>
<tr>
<td>RC – Implementing</td>
<td>3.46 (274)</td>
<td>0.983</td>
<td>-0.376</td>
<td>-0.116</td>
<td>B</td>
</tr>
<tr>
<td>CEC – Planning</td>
<td>3.42 (256)</td>
<td>1.074</td>
<td>-0.264</td>
<td>-0.416</td>
<td>B</td>
</tr>
<tr>
<td>RC – Planning</td>
<td>3.39 (271)</td>
<td>1.005</td>
<td>-0.228</td>
<td>-0.140</td>
<td>B</td>
</tr>
</tbody>
</table>

Note. HS = High standards for student learning; RC = Rigorous curriculum; QI = Quality Instruction; CL = Culture of learning and professional behavior; CEC = Connections to External Communities; PA = Performance accountability. Ratings were based on a five-point Likert response scale: 1 = Ineffective; 2 = Minimally effective; 3 = Effective; 4 = Highly effective; 5 = Outstandingly effective. Mean cut scores for principal effectiveness: 1.00 – 3.28 = Below Basic (BB), 3.29 – 3.59 = Basic (B), 3.60 – 3.99 = Proficient (P), 4.00 – 5.00 = Distinguished (D). Maximum possible n = 346. See Table 26 for qualitative effectiveness descriptors.
Tables 23 and 24 illustrate the rank order of the aggregate combinations of variables into the six core component and six key process subscales based on the VAL-ED Technical Manual (Porter et al., 2008) from highest to lowest mean values. The means illustrated in Tables 23 and 24 were calculated in the same manner as those in Table 22—each response was aggregated without regard to respondent group or school. This was consistent with the method described in the VAL-ED Technical Manual (Porter et al., 2008).

Principals received the highest rating for Monitoring and received the lowest rating by respondents for Planning. In the core components, principals received the highest rating for Creating a culture of learning and professional behavior, and they received the lowest rating by respondents for Rigorous curriculum.
Table 23

**Rank Order of Key Processes from Highest to Lowest Mean Value**

<table>
<thead>
<tr>
<th>CC</th>
<th>Communicating</th>
<th>Monitoring</th>
<th>Supporting</th>
<th>Advocating</th>
<th>Implementing</th>
<th>Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS</td>
<td>3.76</td>
<td>3.66</td>
<td>3.71</td>
<td>3.69</td>
<td>3.69</td>
<td>3.66</td>
</tr>
<tr>
<td>RC</td>
<td>3.63</td>
<td>3.70</td>
<td>3.58</td>
<td>3.70</td>
<td>3.46</td>
<td>3.39</td>
</tr>
<tr>
<td>QI</td>
<td>3.79</td>
<td>3.78</td>
<td>3.73</td>
<td>3.59</td>
<td>3.54</td>
<td>3.82</td>
</tr>
<tr>
<td>CL</td>
<td>3.74</td>
<td>3.77</td>
<td>3.69</td>
<td>3.82</td>
<td>3.80</td>
<td>3.51</td>
</tr>
<tr>
<td>CE</td>
<td>3.64</td>
<td>3.60</td>
<td>3.76</td>
<td>3.63</td>
<td>3.55</td>
<td>3.42</td>
</tr>
<tr>
<td>PA</td>
<td>3.64</td>
<td>3.67</td>
<td>3.61</td>
<td>3.60</td>
<td>3.58</td>
<td>3.66</td>
</tr>
</tbody>
</table>

| Total of Means | 22.20 | 22.18 | 22.08 | 22.03 | 21.62 | 21.46 |

*Note.* The data in this table represent the aggregate responses for all schools without regard to respondent group or school, and mean values could range from a low of 1 to a high of 5. See Table 19 for complete rating scale and Table 26 for qualitative descriptors for each rating. The range of values for each qualitative rating was $1.00 - 3.28 = \text{Below Basic}; 3.29 - 3.59 = \text{Basic}; 3.60 - 3.99 = \text{Proficient}; 4.00 - 5.00 = \text{Distinguished}$. Each school’s data at the intersection of the core components and key processes were computed by respondent type. The respondent types were then aggregated by group and weighted equally to create an overall mean for each variable identified in this table consistent with the method used in the VAL-ED Technical Manual. Core Components (CC) are abbreviated in the first column as follows: HS = High standards for student performance; RI = Rigorous curriculum; QI = Quality instruction; CL = Culture of learning and professional behavior; CE = Connections to external communities; and PA = Performance accountability.
### Table 24

**Rank Order of Core Components from Highest to Lowest Mean Value**

<table>
<thead>
<tr>
<th>KP</th>
<th>Culture of Learning and Professional Behavior</th>
<th>Quality Instruction</th>
<th>High Standards for Student Learning</th>
<th>Performance Accountability</th>
<th>Connections to External Communities</th>
<th>Rigorous Curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL</td>
<td>3.51</td>
<td>3.82</td>
<td>3.66</td>
<td>3.66</td>
<td>3.42</td>
<td>3.39</td>
</tr>
<tr>
<td>IM</td>
<td>3.80</td>
<td>3.54</td>
<td>3.69</td>
<td>3.58</td>
<td>3.55</td>
<td>3.46</td>
</tr>
<tr>
<td>SU</td>
<td>3.69</td>
<td>3.73</td>
<td>3.71</td>
<td>3.61</td>
<td>3.76</td>
<td>3.58</td>
</tr>
<tr>
<td>AD</td>
<td>3.82</td>
<td>3.59</td>
<td>3.69</td>
<td>3.60</td>
<td>3.63</td>
<td>3.70</td>
</tr>
<tr>
<td>CO</td>
<td>3.74</td>
<td>3.79</td>
<td>3.76</td>
<td>3.64</td>
<td>3.64</td>
<td>3.63</td>
</tr>
<tr>
<td>MO</td>
<td>3.77</td>
<td>3.78</td>
<td>3.66</td>
<td>3.67</td>
<td>3.60</td>
<td>3.70</td>
</tr>
<tr>
<td>Total of Means</td>
<td>22.33</td>
<td>22.25</td>
<td>22.17</td>
<td>21.76</td>
<td>21.60</td>
<td>21.46</td>
</tr>
</tbody>
</table>

*Note.* The data in this table represent the aggregate responses for all schools without regard to respondent type of school, and mean values could range from a low of 1 to a high of 5 (See Table 19 for complete rating scale and see Table 26 for qualitative descriptors for each rating.). The range of scores for each qualitative rating was 1.00 – 3.28 = Below Basic; 3.29 – 3.59 = Basic; 3.60 – 3.99 = Proficient; 4.00 – 5.00 = Distinguished. Each school’s data at the intersection of the core components and key processes were computed by respondent type. The respondent types were then aggregated by group and weighted equally to create an overall mean for each variable identified in this table. Key processes are abbreviated in the first column as: PL = Planning; IM = Implementing; SU = Supporting; AD = Advocating; CO = Communicating; and MO = Monitoring.

Table 25 illustrates the overall proficiency rating for the 16 principals. The means for this table were calculated by respondent group: principals, supervisors, and teachers. The effectiveness rating mean was determined by calculating the mean values by respondent group and then dividing by three. This composite score gave equal weight to each of the three respondent groups, rather than the teacher (n=315) respondent rating outweighing the supervisors (n=15) and principals (n=16). This method was consistent
with the process indicated in the VAL-ED Technical Manual (Porter et al., 2008). The overall effectiveness rating when calculating the mean without regard to school or respondent type was 3.93 with a standard deviation of 0.9065.

Table 25

*Overall Mean Proficiency Rating of Research Principals by Respondent Group*

<table>
<thead>
<tr>
<th>Mean by Group</th>
<th>Value (SD)</th>
<th>Qualitative Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum n = 346</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Mean</td>
<td>3.6927 (0.303)</td>
<td>Proficient</td>
</tr>
<tr>
<td>Supervisors’ Responses</td>
<td>3.9147 (0.632)</td>
<td>Proficient</td>
</tr>
<tr>
<td>Teachers’ Responses</td>
<td>3.6142 (0.292)</td>
<td>Proficient</td>
</tr>
<tr>
<td>Principals’ Responses</td>
<td>3.5885 (0.465)</td>
<td>Basic</td>
</tr>
</tbody>
</table>

*Note.* Mean scores were aggregated by school and by respondent group, and then weighted equally to calculate the overall mean. This method was consistent with the VAL-ED Technical Manual. A mean range of 3.29 to 3.59 indicated an effectiveness rating of Basic; 3.60 to 3.99 indicated the range for Proficient. See Table 19 for complete rating scale and Table 26 for complete qualitative effectiveness descriptions and rating cut scores.

Using the cut scores and descriptors indicated in Table 26, the mean responses calculated by respondent group and by school were recoded to define the overall effectiveness of the principals for each of the 36 variables formed at the intersection of the six core components and six key processes as *Below Basic, Basic, Proficient,* and *Distinguished.* Each of these labels was applied to the 36 variables to indicate the principals’ overall effectiveness rating. For the sake of conciseness in the table,
effectiveness ratings were combined into two subgroups: *Below basic/Basic* and *Proficient/Distinguished*. The results of these two subgroups for the core components and key processes are illustrated in Table 27.

Of special note are those core components and key processes where more than half the principals were rated as *Basic* or *Below basic*. *Advocating Quality Instruction* (81%), *Implementing Rigorous Curriculum* (75%), *Planning Connections to External Communities* (75%), *Communicating Performance Accountability* (75%), *Communicating Connections to External Communities* (75%), *Planning Culture of Learning and Professional Behavior* (68%), *Implementing Connections to External Communities* (68%), *Implementing Performance Accountability* (68%), *Advocating Performance Accountability* (68%), *Monitoring Connections to External Communities* (68%), *Advocating Connections to External Communities* (62%), and *Planning Rigorous Curriculum* (56%) were rated by respondents as *Basic* or *Below Basic*. For the remaining 24 variables, principals were rated as *Proficient* or *Distinguished*.

A subset of research question one was to determine if there was any correlation between the mean effectiveness of each principal with years of experience as a teacher, years of experience in the current position, and years of experience as a principal. A Pearson’s product-moment correlation analysis was conducted using SPSS 19.0 to determine the strength of any association between these characteristics and the principal performance rating. The results of the analysis are included in Table 28. The analysis did not show any statistically significant correlations between the principals’ mean ratings with the principals’ years of experience as a teacher, as a principal, or in the current position.
Table 26

Descriptors and Mean Cut Scores Associated with VAL-ED Proficiency Levels

<table>
<thead>
<tr>
<th>Level</th>
<th>Descriptor</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below Basic</td>
<td>A leader at the below basic level of proficiency exhibits leadership behaviors of core components and key processes at levels of effectiveness that over time are unlikely to influence teachers to bring the school to a point that results in acceptable value-added to student achievement and social learning for students.</td>
<td>1.00 – 3.28</td>
</tr>
<tr>
<td>Basic</td>
<td>A leader at the basic level of proficiency exhibits leadership behaviors of core components and key processes at levels of effectiveness that over time are likely to influence teachers to bring the school to a point that results in acceptable value-added to student achievement and social learning for some sub-groups of students, but not all.</td>
<td>3.29 -3.59</td>
</tr>
<tr>
<td>Proficient</td>
<td>A proficient leader exhibits leadership behaviors of core components and key processes at levels of effectiveness that over time are likely to influence teachers to bring the school to a point that results in acceptable value-added to student achievement and social learning for all students.</td>
<td>3.60 – 3.99</td>
</tr>
<tr>
<td>Distinguished</td>
<td>A distinguished leader exhibits leadership behaviors of core components and key processes at levels of effectiveness that over time are virtually certain to influence teachers to bring the school to a point that results in strong value-added to student achievement and social learning for all students.</td>
<td>4.00 – 5.00</td>
</tr>
</tbody>
</table>

*Note.* In the pilot study of 300 principals to determine cut score ranges, 17% scored below basic, 33% scored basic, 36% scored proficient, and 14% scored distinguished. Adapted from “Vanderbilt Assessment of Leadership in Education: Technical Manual,” by A. C. Porter et al., 2008, retrieved from the Wallace Foundation website. Copyright 2008 by Vanderbilt University.
Table 27

Number and Percent of Principals by Proficiency Level for Core Components and Key Processes

<table>
<thead>
<tr>
<th>Key Processes and Core Components</th>
<th>Planning</th>
<th>Implementing</th>
<th>Supporting</th>
<th>Advocating</th>
<th>Communicating</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BB P</td>
<td>BB P</td>
<td>BB P</td>
<td>BB P</td>
<td>BB P</td>
<td>BB P</td>
</tr>
<tr>
<td>High standards for student learning</td>
<td>8 8</td>
<td>5 11</td>
<td>4 12</td>
<td>7 9</td>
<td>7 9</td>
<td>6 10</td>
</tr>
<tr>
<td></td>
<td>50% 50%</td>
<td>31% 69%</td>
<td>25% 75%</td>
<td>44% 56%</td>
<td>44% 56%</td>
<td>38% 62%</td>
</tr>
<tr>
<td>Rigorous curriculum</td>
<td>9 7</td>
<td>12 4</td>
<td>5 11</td>
<td>6 10</td>
<td>7 9</td>
<td>7 9</td>
</tr>
<tr>
<td></td>
<td>56% 44%</td>
<td>75% 25%</td>
<td>32% 68%</td>
<td>38% 62%</td>
<td>44% 56%</td>
<td>44% 56%</td>
</tr>
<tr>
<td>Quality instruction</td>
<td>5 11</td>
<td>7 9</td>
<td>3 13</td>
<td>13 3</td>
<td>6 10</td>
<td>8 8</td>
</tr>
<tr>
<td></td>
<td>32% 68%</td>
<td>44% 56%</td>
<td>19% 81%</td>
<td>81% 19%</td>
<td>38% 62%</td>
<td>50% 50%</td>
</tr>
<tr>
<td>Culture of learning and prof. behavior</td>
<td>11 5</td>
<td>3 13</td>
<td>7 9</td>
<td>6 10</td>
<td>5 11</td>
<td>6 10</td>
</tr>
<tr>
<td></td>
<td>68% 32%</td>
<td>19% 81%</td>
<td>44% 56%</td>
<td>38% 62%</td>
<td>32% 68%</td>
<td>38% 62%</td>
</tr>
<tr>
<td>Connections to external communities</td>
<td>12 4</td>
<td>11 5</td>
<td>7 9</td>
<td>10 6</td>
<td>12 4</td>
<td>11 5</td>
</tr>
<tr>
<td></td>
<td>75% 25%</td>
<td>68% 32%</td>
<td>44% 56%</td>
<td>62% 38%</td>
<td>75% 25%</td>
<td>68% 32%</td>
</tr>
<tr>
<td>Performance accountability</td>
<td>7 9</td>
<td>11 5</td>
<td>8 8</td>
<td>11 5</td>
<td>12 4</td>
<td>7 9</td>
</tr>
<tr>
<td></td>
<td>44% 56%</td>
<td>68% 32%</td>
<td>50% 50%</td>
<td>68% 32%</td>
<td>75% 25%</td>
<td>44% 56%</td>
</tr>
</tbody>
</table>

Note.  n = 16.  BB = Below Basic and Basic performance levels were collapsed into one subgroup; P = Proficient and Distinguished performance levels were collapsed into one subgroup. Performance ranges were 1.00 – 3.28 = Below basic; 3.29 – 3.59 = Basic; 3.60 – 3.99 = Proficient; 4.00 – 5.00 = Distinguished.
Table 28 illustrates the overall effectiveness rating of the 16 principals in the aggregate for each of the 36 variables assessed through the VAL-ED instrument. Nine variables were rated at the Basic level (3.28 – 3.59) and 27 variables were rated at the Proficient level (3.60 – 3.99).

Table 28

Proficiency Levels of Principals for Each of the VAL-ED Leadership Variables

<table>
<thead>
<tr>
<th>Components and Processes</th>
<th>Planning</th>
<th>Implementing</th>
<th>Supporting</th>
<th>Advocating</th>
<th>Communicating</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>High standards for student performance</td>
<td>Proficient</td>
<td>Proficient</td>
<td>Proficient</td>
<td>Proficient</td>
<td>Proficient</td>
<td>Proficient</td>
</tr>
<tr>
<td>Quality instruction</td>
<td>Proficient</td>
<td>Basic</td>
<td>Proficient</td>
<td>Basic</td>
<td>Proficient</td>
<td>Proficient</td>
</tr>
<tr>
<td>Rigorous curriculum</td>
<td>Basic</td>
<td>Basic</td>
<td>Basic</td>
<td>Proficient</td>
<td>Proficient</td>
<td>Proficient</td>
</tr>
<tr>
<td>Culture of learning &amp; professional behavior</td>
<td>Basic</td>
<td>Proficient</td>
<td>Proficient</td>
<td>Proficient</td>
<td>Proficient</td>
<td>Proficient</td>
</tr>
<tr>
<td>Connections to external communities</td>
<td>Basic</td>
<td>Basic</td>
<td>Proficient</td>
<td>Proficient</td>
<td>Proficient</td>
<td>Proficient</td>
</tr>
<tr>
<td>Internal performance accountability</td>
<td>Proficient</td>
<td>Basic</td>
<td>Proficient</td>
<td>Proficient</td>
<td>Proficient</td>
<td>Proficient</td>
</tr>
</tbody>
</table>
Table 29

*Correlation Between Principals’ Biographical Data and Mean Proficiency Ratings*

<table>
<thead>
<tr>
<th>Description</th>
<th>Statistic</th>
<th>Total Mean</th>
<th>Principals' Response Mean</th>
<th>Supervisors' Response Mean</th>
<th>Teachers' Response Mean</th>
<th>Years in Current Position</th>
<th>Years as a Principal</th>
<th>Years as a Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Mean</td>
<td>Pearson Cor.</td>
<td>1</td>
<td>.672**</td>
<td>.765**</td>
<td>.359</td>
<td>-.101</td>
<td>.235</td>
<td>-.192</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.004</td>
<td>.001</td>
<td>.172</td>
<td>.709</td>
<td>.380</td>
<td>.477</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>16</td>
<td>16</td>
<td>15</td>
<td>15</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Principals' Responses – Mean</td>
<td>Pearson Cor.</td>
<td>.672**</td>
<td>1</td>
<td>.165</td>
<td>.102</td>
<td>-.288</td>
<td>.226</td>
<td>-.125</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.004</td>
<td>.556</td>
<td>.708</td>
<td>.279</td>
<td>.401</td>
<td>.645</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>16</td>
<td>16</td>
<td>15</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Supervisors’ Responses – Mean</td>
<td>Pearson Cor.</td>
<td>.765**</td>
<td>.165</td>
<td>1</td>
<td>-.143</td>
<td>.189</td>
<td>.275</td>
<td>-.311</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.001</td>
<td>.556</td>
<td>.611</td>
<td>.499</td>
<td>.322</td>
<td>.260</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Teachers’ Responses – Mean</td>
<td>Pearson Cor.</td>
<td>.359</td>
<td>.102</td>
<td>-.143</td>
<td>1</td>
<td>-.333</td>
<td>-.195</td>
<td>.013</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.172</td>
<td>.708</td>
<td>.611</td>
<td>.207</td>
<td>.470</td>
<td>.961</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>16</td>
<td>16</td>
<td>15</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Years in Current Position</td>
<td>Pearson Cor.</td>
<td>-.101</td>
<td>-.288</td>
<td>.189</td>
<td>-.333</td>
<td>1</td>
<td>.513*</td>
<td>.533*</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.709</td>
<td>.279</td>
<td>.499</td>
<td>.207</td>
<td>.042</td>
<td>.033</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>16</td>
<td>16</td>
<td>15</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Years as a Principal</td>
<td>Pearson Cor.</td>
<td>.235</td>
<td>.226</td>
<td>.275</td>
<td>-.195</td>
<td>.513*</td>
<td>1</td>
<td>.247</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.380</td>
<td>.401</td>
<td>.322</td>
<td>.470</td>
<td>.042</td>
<td>.356</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>16</td>
<td>16</td>
<td>15</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Years as a Teacher</td>
<td>Pearson Cor.</td>
<td>-.192</td>
<td>-.125</td>
<td>-.311</td>
<td>.013</td>
<td>.533*</td>
<td>.247</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.477</td>
<td>.645</td>
<td>.260</td>
<td>.961</td>
<td>.033</td>
<td>.356</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>16</td>
<td>16</td>
<td>15</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>

*Note.* **Correlation is significant at 0.01(two-tailed); *Correlation is significant at 0.05 (two-tailed).* Mean was calculated by aggregating responses by school and respondent group, and evenly weighting the group responses of principals, supervisors, and teachers.
Research Question 2

To what extent, if any, did principals in selected career and technical schools demonstrate learning-centered leadership skills different from the national norm?

In research question two, the variables were the same as those in research question one. There were six core components and six key processes. The core components were (a) high standards for student learning, (b) rigorous curriculum, (c) quality instruction, (d) culture of learning and professional behavior, (e) connections to external communities, and (f) performance accountability. The key processes were (a) planning, (b) implementing, (c) supporting, (d) advocating, (e) communicating, and (f) monitoring.

The purpose of research question two was to determine if the career and technical education principals demonstrated leadership skills to a greater or lesser degree than the national norm established by the Vanderbilt Assessment of Leadership in Education (VAL-ED) for secondary school principals. To determine the extent of the differences, if any, between leadership skills demonstrated by career and technical education principals and the national norm, the overall mean effectiveness rating was computed by school and respondent group, weighted evenly among the respondent groups, and then compared to the national norm. This was calculated in the same manner as the total aggregate mean score identified for the national norm in the VAL-ED pilot study as a function of the responses to all items “across the supervisor, the principal, and the teachers, where supervisor, principal, and teachers are weighted equally” (Porter et al., 2008, p. 121).

VAL-ED has established no specific national norm for secondary career and technical education principals. However, there is a national norm for secondary school
principals. The secondary school principals’ national norm was used for comparative purposes with the career and technical education principals; the comparison is illustrated in Table 30.

Table 30

*Comparison of VAL-ED Secondary School National Norm Principals to Research Study Principals’ Proficiency Rating*

<table>
<thead>
<tr>
<th>Group</th>
<th>Secondary Norm</th>
<th>CTE Principal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>3.52 (62)</td>
<td>3.69 (346)</td>
</tr>
<tr>
<td>Supervisor</td>
<td>3.60 (75)</td>
<td>3.92 (15)</td>
</tr>
<tr>
<td>Teacher</td>
<td>3.52 (76)</td>
<td>3.61 (312)</td>
</tr>
<tr>
<td>Principal</td>
<td>3.45 (70)</td>
<td>3.59 (16)</td>
</tr>
</tbody>
</table>

*Note.* Sample sizes are given in parenthesis. CTE is Career and Technical Education. National norm data were adapted from *Vanderbilt Assessment of Leadership in Education Technical Manual*, v. 1.0, by A.C. Porter et al. (2008), p. 54. Copyright 2008 by Vanderbilt University.

Table 31 illustrates the comparison of the percentage of principals from the VAL-ED study that were rated in each qualitative category (*Below Basic, Basic, Proficient, and Distinguished*) to the percentage of career and technical education principals that were rated in each category from this research study. The career and technical education principals were rated consistently in the percentages at *Below Basic, Basic, Proficient* and *Distinguished* compared to the secondary school principals in the VAL-ED study that created the national norm.
Table 31

*Comparison of Secondary Principals’ National Norm to Research Study Principals’ Performance Rating by Respondent Group*

<table>
<thead>
<tr>
<th>Effectiveness Rating</th>
<th>National Norm</th>
<th>Research Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below Basic</td>
<td>17.0 %</td>
<td>12.5%</td>
</tr>
<tr>
<td>Basic</td>
<td>33.0%</td>
<td>25.0%</td>
</tr>
<tr>
<td>Proficient</td>
<td>36.0%</td>
<td>50.0%</td>
</tr>
<tr>
<td>Distinguished</td>
<td>14.0%</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

*Note.* For determination of national norm, n =300; for Research study, n = 16.

A one sample t-test was conducted in SPSS 19.0 to determine if there was a significant difference between the principals’ means scores as rated by the principals, supervisors, and teachers versus the national norm mean scores. The results shown in Table 32, although higher than the national norm, illustrate no statistical difference between the effectiveness rating of the career and technical education principals and the national norm.

Figure 4 illustrates the comparative data of the principals’ effectiveness rating for the research study principals, the national norm principals, and the mean values for career and technical education principals. There is, however, no statistical difference between the mean values.
Table 32

*Differences Between Research Study Principals’ Proficiency Rating and VAL-ED National Norm Proficiency Rating by Respondent Group*

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>t</th>
<th>df</th>
<th>Sig. (two-tailed)</th>
<th>Mean Difference</th>
<th>95% CI Lower</th>
<th>95% CI Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall composite mean (3.6927) vs. Test value of 3.52 SD = 0.30322</td>
<td>2.278</td>
<td>15</td>
<td>.038</td>
<td>.1727</td>
<td>.0111</td>
<td>.3343</td>
</tr>
<tr>
<td>Supervisors’ mean (3.9147) vs. Test value of 3.60 SD = 0.63210</td>
<td>1.928</td>
<td>14</td>
<td>.074</td>
<td>.3147</td>
<td>-0.353</td>
<td>.6648</td>
</tr>
<tr>
<td>Teachers’ mean (3.6142) vs. Test value of 3.52 SD = 0.29198</td>
<td>1.290</td>
<td>15</td>
<td>.217</td>
<td>.0942</td>
<td>-.0614</td>
<td>.2498</td>
</tr>
<tr>
<td>Principals’ Mean (3.5885) vs. Test value of 3.45 SD = 0.46506</td>
<td>1.192</td>
<td>15</td>
<td>.252</td>
<td>.1375</td>
<td>-.1093</td>
<td>.3864</td>
</tr>
</tbody>
</table>

*Note.* Supervisors’ n = 15; principals’ n = 16; teachers’ maximum n = 346. CI = Confidence interval.
Figure 4. An illustration of the comparison of the mean values of the research study principals and the national norms established for secondary school principals. The participants (principals, teachers, and supervisors) responded to a five-point Likert response scale with 1 = Ineffective; 2 = Minimally Effective; 3 = Effective; 4 = Highly Effective; 5 = Outstandingly Effective. The range of values for each qualitative rating are 1.00 – 3.28 = Below Basic; 3.29 – 3.59 = Basic; 3.60 – 3.99 = Proficient; 4.00 – 5.00 = Distinguished.
Research Question 3

To what extent, if any, did the perceptions of leadership skills differ among principals, teachers, and supervisors?

The purpose of this research question was to determine if a similar understanding existed among the principal, the supervisor, and the teachers about what effective leadership is, what it looks like, and how it is demonstrated. If a clear understanding exists, it ensures that the principal has an accurate perception of the supervisor’s performance expectations. In addition, for those aspiring to leadership positions within the ranks of the teachers, it ensures that they accurately perceive the skills, knowledge, and behaviors that are expected of them should they reach a leadership position.

There were three levels of the independent variable to this research question. These were the three groups of respondents: principals, supervisors, and teachers. The dependent variables were the 36 subscale values at the intersection of the six core components and six key processes. To begin the analysis, Table 33 shows the total mean rating for the composite principal effectiveness means of the 36 variables. The composite mean was calculated by school and by respondent and then weighted evenly for each of the six core components and six key processes. This is consistent with the process illustrated in the VAL-ED Technical Manual (Porter et al., 2008).
Table 33

*Mean Proficiency Rating of Principals by Respondent Group*

<table>
<thead>
<tr>
<th></th>
<th>Principal Mean n = 16</th>
<th>Supervisor Mean n = 15</th>
<th>Teacher Mean n = 315</th>
<th>Overall Mean n = 346</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>3.589</td>
<td>3.915</td>
<td>3.614</td>
<td>3.693</td>
</tr>
<tr>
<td><strong>Std. Deviation</strong></td>
<td>0.465</td>
<td>0.632</td>
<td>0.292</td>
<td>0.303</td>
</tr>
<tr>
<td><strong>Skewness</strong></td>
<td>1.623</td>
<td>-1.913</td>
<td>0.412</td>
<td>-0.337</td>
</tr>
<tr>
<td><strong>Kurtosis</strong></td>
<td>3.203</td>
<td>5.463</td>
<td>0.676</td>
<td>0.850</td>
</tr>
</tbody>
</table>

*Note.* Mean was calculated by respondent type and by school for each of the six core components and six key processes. Then each mean was weighted equally to calculate an overall mean. This is consistent with the calculation of the national norms (Porter et al. 2008).

Table 34 indicates the descriptive statistics (mean, standard deviation, standard error, 95 percent confidence interval, minimum and maximum values) by respondent group for each of the six core components and six key processes. Each of the respondent types were analyzed collectively from the 16 schools because the intent in research question three was to determine differences in the collective perceptions rather than the perceptions of respondent types at any one of the individual schools. It was not important to determine that School 1 or School 16 had similar or different perceptions. Rather, the intent was to determine if the groups, in general, varied in their perceptions of leadership skills of principals. The analysis indicated that none of the ratings varied significantly in any of the core components or key processes based on respondent group.
Table 34

Summary Descriptive Statistics and ANOVA Results by Respondent Groups

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*Note.* †Test for equal variance was not met for these subscales. Results for these subscales utilized Welch corrected ANOVA.
Research Question 4

To what extent, if any, did the leadership skills of selected career and technical education principals show an association with student achievement measured by the National Occupational Competency Testing Institute (NOCTI) end-of-program assessment?

The principals’ composite effectiveness rating by school ranged from a low of 3.01 to a high of 4.24. Table 26 defines the qualitative effectiveness rating descriptors and cut score ranges for each qualitative value of Below Basic, Basic, Proficient, and Distinguished. Table 30 illustrates the overall performance ratings of the 16 principals in this research study. Two were rated as Below Basic, four were rated as Basic, eight were rated as Proficient, and two were rated as Distinguished. This first variable, the principal’s performance rating, in research question four represents a nominal variable, or one could argue that it represents ordered categories. For the purpose of the chi-square test, principals’ performance ratings were reduced to two qualitative values: Basic/Below Basic and Proficient/Distinguished. The null hypothesis tested was that there was no relationship between the principals’ qualitative rating and student achievement.

The second variable in research question four was student achievement. Each career and technical education school is mandated by the federal Carl D. Perkins legislation to administer an end-of-program assessment. The Pennsylvania Department of Education, Bureau of Career and Technical Education, utilized an assessment created by the National Occupational Competency Testing Institute (NOCTI) for career and technical education students to meet this standard (Carl D. Perkins Career and Technical Education Improvement Act, 2006). The NOCTI assessment outcomes for each school represented the student achievement data in this study. Student performance on the
NOCTI assessment was rated qualitatively as *Below Basic, Basic, Competent, and Advanced* based on Pennsylvania Department of Education cut scores. For this research question, the student achievement variable represented the percentage of students who earned a rating of *Competent or Advanced* on the assessment, which translated into an overall student achievement performance rating. Each school’s student performance was reduced to one of nominal values: *Above the State Average or Below the State Average*. In personal correspondence (email) with Kevin Springman (October 28, 2011), an Educational Research Association for the Pennsylvania Department of Education, Bureau of Career and Technical Education, he stated that 76.1 percent of all students who participated in the NOCTI assessment in 2011 earned a qualitative rating of *Competent or Advanced*.

Table 35 illustrates the relationship between the principals’ qualitative composite performance rating and the students’ qualitative performance rating on the NOCTI assessment for each of the 16 schools that participated in this research study. The number of the school represents the rank order of the students’ performance data. The lowest overall student performance was 0.69 and the highest overall student performance was 0.96. This represented the percent of the students that participated in the NOCTI assessment at each school who earned a qualitative rating of *Competent or Advanced*.

There did not appear to be any association between the principal’s qualitative performance rating and the student’s performance rating on the NOCTI assessment. As noted in Table 35, the schools with the lowest overall student performance score of 0.69 and the school with the highest overall student performance score of 0.96 both had principals with a qualitative performance rating of *Proficient*; the two lowest principal
ratings of Below Basic were in schools that ranked in the 5th and the 9th position based on the highest overall student performance scores. The schools with the two highest rated principal performance ratings ranked in the 3rd and the 4th position based on overall student performance ratings.

Table 36 illustrates the cross tabulation of the principals’ qualitative performance rating and each of the schools’ overall student performance ratings. According to personal communication with Kevin Springman, an Educational Research Associate for the Pennsylvania Department of Education, Bureau of Career and Technical Education, 76.1 percent of all secondary student participants in the NOCTI assessment earned a qualitative score of Competent or Advanced on the 2011 assessment.

Table 36 illustrates that three of five schools with student achievement below the state average had principals that were qualitatively rated as Proficient. It also illustrates that four of seven schools that performed above the 2011 state average of 76.1 percent had principals who were rated as Basic or Below Basic. See Table 26 for cut score ranges and descriptors. Five schools’ student performance ratings were below the state average and 11 schools’ student performance were above the state average. Six principals were rated as Basic or Below Basic and ten principals were rated as Proficient or Distinguished. Table 37 illustrates that the principals’ qualitative performance ratings were within the expected ranges if no association existed between their performance and student performance. The null hypothesis was not shown to be false by the data.

Table 37 demonstrates the chi-square test measures. The continuity correction was applied because of the small sample size (16). In addition, three of the cells (75 percent) had expected counts less than five. Because of the low expected count, the
Fisher’s exact test was performed. Review of the results of the continuity correction and the Fisher’s exact test illustrated no association between the principals’ qualitative performance rating and the students’ performance rating on the end-of-program assessment.

The test for the strength of a relationship between the principals’ qualitative performance rating and the students’ performance on the NOCTI assessment was the Kendall’s Tau-b. This is illustrated in Table 38. The higher values of this statistic indicated that the observed outcomes of the students’ performance on the NOCTI assessment was more likely to occur by chance rather than because of an association with the principals’ qualitative performance rating.
Table 35

*Relationship between Principal Qualitative Performance Rating and Student Performance Rating on the NOCTI Assessment*

<table>
<thead>
<tr>
<th>School</th>
<th>Principal’s Qualitative Performance Rating</th>
<th>Students’ NOCTI Performance Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Proficient</td>
<td>0.96</td>
</tr>
<tr>
<td>2</td>
<td>Proficient</td>
<td>0.94</td>
</tr>
<tr>
<td>3</td>
<td>Distinguished</td>
<td>0.93</td>
</tr>
<tr>
<td>4</td>
<td>Distinguished</td>
<td>0.90</td>
</tr>
<tr>
<td>5</td>
<td>Below Basic</td>
<td>0.89</td>
</tr>
<tr>
<td>6</td>
<td>Basic</td>
<td>0.87</td>
</tr>
<tr>
<td>7</td>
<td>Basic</td>
<td>0.87</td>
</tr>
<tr>
<td>8</td>
<td>Proficient</td>
<td>0.86</td>
</tr>
<tr>
<td>9</td>
<td>Below Basic</td>
<td>0.86</td>
</tr>
<tr>
<td>10</td>
<td>Proficient</td>
<td>0.84</td>
</tr>
<tr>
<td>11</td>
<td>Proficient</td>
<td>0.81</td>
</tr>
<tr>
<td>12</td>
<td>Basic</td>
<td>0.77</td>
</tr>
<tr>
<td>13</td>
<td>Proficient</td>
<td>0.75</td>
</tr>
<tr>
<td>14</td>
<td>Proficient</td>
<td>0.73</td>
</tr>
<tr>
<td>15</td>
<td>Basic</td>
<td>0.73</td>
</tr>
<tr>
<td>16</td>
<td>Proficient</td>
<td>0.69</td>
</tr>
</tbody>
</table>

*Note.* Students’ NOCTI Performance Rating percentages are given for the students who tested and scored Competent or Advanced on the NOCTI assessment in 2011. The line space break between schools 12 and 13 illustrates those schools above and below the 2011 state average of 76.1 percent (percentage of students who scored Competent or Advanced on the NOCTI assessment). Principal’s Qualitative Performance Rating was based on principal cut scores and rating descriptors identified in Table 26. NOCTI is the National Occupational Competency Testing Institute assessment, the Pennsylvania Department of Education, Bureau of Career and Technical Education, mandated end-of-program assessment for career and technical education schools.
Table 36

*Cross Tabulation of Student Performance Rating on the NOCTI Assessment and Principal Performance Rating on the VAL-ED*

<table>
<thead>
<tr>
<th>Categories, Counts, and Percent</th>
<th>Principal Performance</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Below Basic/Basic</td>
<td>Proficient/Distinguished</td>
</tr>
<tr>
<td><strong>NOCTI Scores</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below the State Average</td>
<td>Count</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td>% within NOCTI Scores</td>
<td>40.0%</td>
</tr>
<tr>
<td></td>
<td>% within Principal Performance</td>
<td>33.3%</td>
</tr>
<tr>
<td>Above the State Average</td>
<td>Count</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>4.1</td>
</tr>
<tr>
<td></td>
<td>% within NOCTI Scores</td>
<td>6.4</td>
</tr>
<tr>
<td></td>
<td>% within Principal Performance</td>
<td>66.7%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>Count</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>% within NOCTI Scores</td>
<td>37.5%</td>
</tr>
<tr>
<td></td>
<td>% within Principal Performance</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

*Note.* The 2011 Pennsylvania performance data indicated that 77.7 percent of all students who participated in the NOCTI assessment earned a qualitative rating of *Competent* or *Advanced* (K. Springman, personal email correspondence, October 27, 2011).
Table 37

*Chi-Square Tests of the Relationship Between Principal Qualitative Performance Rating and Student Performance Rating on the NOCTI Assessment*

<table>
<thead>
<tr>
<th>Analysis</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
<th>Exact Sig. (2-sided)</th>
<th>Exact Sig. (1-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>0.019a</td>
<td>1</td>
<td>.889</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity Correctionb</td>
<td>.000</td>
<td>1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>.019</td>
<td>1</td>
<td>.889</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisher's Exact Test</td>
<td>.019</td>
<td>1</td>
<td>1.000</td>
<td>.654</td>
<td></td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>.018</td>
<td>1</td>
<td>.893</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*a* Three cells (75.0%) have expected count less than five. The minimum expected count is 1.88.

*b* Computed only for a 2 x 2 table.
Table 38

**Symmetric Measures of Cross Tabulation of Principal Performance Rating Measured by the VAL-ED with Student Performance Rating Measured by the NOCTI Assessment**

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Value</th>
<th>Asymp. Std. Error&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Approx. T&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Approx. Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinal by Ordinal</td>
<td>Kendall’s tau-b</td>
<td>.035</td>
<td>.252</td>
<td>.138</td>
</tr>
<tr>
<td></td>
<td>Kendall’s tau-c</td>
<td>.031</td>
<td>.226</td>
<td>.138</td>
</tr>
<tr>
<td></td>
<td>Spearman Correlation</td>
<td>.035</td>
<td>.252</td>
<td>.130</td>
</tr>
<tr>
<td>Interval by Interval</td>
<td>Pearson’s R</td>
<td>.035</td>
<td>.252</td>
<td>.130</td>
</tr>
</tbody>
</table>

| N | 16 |

*Note.* NOCTI is the National Occupational Competency Testing Institute. The NOCTI assessment is mandated by the Pennsylvania Department of Education as the end-of-program student performance assessment.

<sup>a</sup>Not assuming the null hypothesis.  <sup>b</sup>Using the asymptotic standard error assuming the null hypothesis.  <sup>c</sup>Based on normal distribution.
Chapter 5

DISCUSSION AND RECOMMENDATIONS

This chapter includes a restatement of the problem and a discussion of the significant findings related to the four research questions. It includes a section on the implications of the findings for career and technical education school instructional leaders and those who provide professional education programs for administrators. The last part of this chapter includes a discussion of the limitations of the study and recommendations for future research.

Restatement of the Problem

Many aspects of instructional leadership have been studied. Researchers have investigated the traits of effective leaders (Crow, Hausman, & Shribner, 2002), the behaviors of instructional leaders and what effective instructional leaders do (Blase & Kirby, 2000; Marzano, Waters, & McNulty, 2005), the problems with and types of instructional leadership (Marks & Printy, 2003), and claims about successful school leadership (Leithwood, Harris, & Hopkins, 2008). Instructional leadership, however, is not any more definitive or easier to demonstrate. Despite an extensive review of literature exploring the role of the principal in affecting student achievement, Hallinger and Heck (1998) made no specific conclusions about the exact manner in which principals contribute to school effectiveness. The review of research conducted by Hallinger and Heck (1998) found the process that principals implement in creating effective schools “as well as the interplay with contextual forces that influence the exercise of school leadership” (p. 186) to be highly complex and beyond any one definition. The literature pointed to the need for future research on the principal’s role in
creating school effectiveness through vision, mission and goals, and the interaction of “school goals, school structure and social networks, people, and organizational culture” (p. 187).

There is a wealth of research about principal leadership. Researchers have acknowledged, however, that knowing what to do and being able to do it are two different skill sets (Huff, 2009). For example, while principals may believe they are effectively communicating, the other participants in that communication may not agree. Assuming that principals desire to perform effectively in their roles, then formative and summative feedback from those in the school environment, including supervisors and teachers, is important in order for principals to assess how well their performance is meeting the expected standards of performance and the goals of the organization (Smither, London, & Reilly, 2005).

Part of the difficulty in giving feedback to principals and in principals’ evaluations, both of which are designed to improve the performance of the principal, is determining what to assess and how to assess it (Catano & Stronge, 2007; Glasman & Heck, 1992). If principals are to be accountable for student achievement through their role as instructional leaders, and they are to improve their leadership skills, it is imperative that they know and understand the standards, measures, and level of their daily performance. Without the knowledge of the expectations and measures, as well as the level of their performance as the foundation for professional education, efforts to improve deficiencies in performance are not likely to be productive (Huff, 2009).

As both a formative and summative process, much criticism exists about the effectiveness of evaluating principals’ leadership skills (Goldring, Cravens, et al., 2009;
Samuels, 2011). Research findings have demonstrated that the context in which principals perform their work has a significant impact upon the effectiveness of their leadership skills. The contextual factors include the school grade levels, the socioeconomic makeup of the student population, the curricular content, and attitudes of the staff (Glasman & Heck, 1992; Servais & Sanders, 2006; Thomas, Holdaway, & Ward, 2000). These factors point to the need to study principal effectiveness in the context of specific school environments.

Researchers have studied principal preparation programs to determine if principals are being adequately prepared for the complex positions and the competing demands placed upon them (Blum, Butler, & Olson, 1987). The principals’ perceptions of their own preparation programs are not encouraging. In a report by Public Agenda for the Wallace Foundation, members of the National Association of Secondary School Principals expressed their opinions (Farkas, Johnson, & Duff et, 2003). As a group, these principals expressed negative opinions about the preparation and education they received in their graduate school programs to prepare them for leadership positions. Only four percent of those surveyed felt that their graduate school programs were most valuable in preparing them for their positions. Davis et al. (2005) conducted a review of research and stated that “principal candidates and existing principals are often ill-prepared and inadequately supported to organize schools to improve learning while managing all of the other demands of the job” (p. 4).

If principals believe that their preparation programs have inadequately prepared them for their current administrative positions, there are at least two avenues that exist for increasing the effectiveness of schools through the leadership of principals. One avenue
is to better prepare future principals through an improvement in principal preparation programs. A second avenue is to improve the skills of those principals currently practicing in the field.

Despite the extensive research and knowledge that exists about leadership skills, principals’ leadership characteristics, styles of leadership, traits, and behaviors, little research exists about leadership specifically in the context of career and technical education. Student achievement continues to fall short of expectations (U.S. Department of Education, 2010). In particular, this continues to be true regarding the academic achievement of students enrolled in career and technical education schools. Career and technical education participants at the secondary level have “less advantaged educational backgrounds than nonparticipants” (U.S. Department of Education, 2008, p. xi).

The purpose of this research study was to investigate the learning-centered leadership skills of principals in selected area career and technical schools using an instrument made commercially available in 2008 called the Vanderbilt Assessment of Leadership in Education (VAL-ED). It is an online survey instrument that may be purchased through Discovery Education™. In this research study, leadership skills of secondary school principals were analyzed within the unique context of the career and technical education school.

A review of the research refers to the term principal interchangeably with the school’s instructional leader. In this study, the term principal was used interchangeably with the school’s instructional leader, regardless of the actual title of the person in the position. The positions in which the subjects of this research were employed included assistant director, principal, supervisor, and director of secondary education.
Review of the Survey Instrument

The instrument used in this research study, VAL-ED, is a proprietary instrument developed by researchers at Vanderbilt University in Nashville, TN. As of this dissertation printing, it is owned by Discovery Education™. The VAL-ED was administered online to participants. There were 36 variables for teachers, the principal, and the principal’s supervisor to assess about the principal. Teachers, supervisors, and principals from each of 16 schools completed the survey to rate the principal on the 36 variables. Responses were categorized separately by respondent group and by school. This method was consistent with the method adopted by the researchers who developed VAL-ED (Porter et al., 2008), conducted the pilot studies, and established the national norms. Because of the volume of teacher responses for each principal, one question was used to represent each variable. Because the principal rated him or herself and was considered a group of one, two questions were used for each variable to ensure greater reliability. Similarly, two questions were used for each supervisor respondent.

The 360-degree feedback instrument used in this study to assess the leadership skills of principals was evaluated and judged to be psychometrically valid and reliable. It was aligned to the professional standards of the Interstate School Leaders Licensure Consortium (ISLLC) 2008. It was administered electronically online. Information about the assessment is included as Appendix N.

Participants responded to each variable on a Likert response scale from 1 to 5, with 1 = Ineffective; 2 = Minimally effective; 3 = Satisfactorily effective; 4 = Highly effective; and 5 = Outstandingly effective. Respondents could refuse to answer any of
the questions in two ways: leave the item blank or select response item 6 to represent

*Don’t know* from the list of possible responses.

Mean scores were aggregated and reported in the manner similar to that conducted by Discovery Education™ in the preparation of written reports provided to principals (Porter et al., 2008) and in the calculation of the national norms. The mean value for teachers was aggregated and then weighted evenly with the responses for the principal and the supervisor from each school to create a mean for each of the 36 variables formed at the intersection of six core components and six key processes. Variables were combined in the manner similar to that conducted by Discovery Education™ to create 12 subsets that corresponded to six key processes and six core components studied in this research. The overall composite principal mean effectiveness score was calculated by aggregating all 36 variables by response group and weighting them equally. The composite principal mean effectiveness score was compared to the nominal category ranges identified in Table 26 to label each principal as *Below Basic, Basic, Proficient, or Distinguished*.

**Discussion**

Of the 16 schools participating in the study, 16 (100 percent) of the principals, 15 of the supervisors (93 percent) and 315 (79.7 percent) of the teachers completed the survey instrument. Missing data accounted for between 4 and 39.9 percent (valid n = 208) of the responses for the 36 variables. No incentives or encouragement were given to participants to provide a rating for every variable because it was reasonable to assume that a teacher might simply not have personal knowledge of the effectiveness of the principal for every given performance skill. An incentive may have persuaded the
teachers to provide a rating even though they had no objective data upon which to base a rating. It is assumed that the lack of first-hand information accounted for the large percentage of Don’t know responses to survey questions from the teacher group.

Four research questions in this study analyzed the leadership skills of instructional leaders from the conceptual framework of learning-centered leadership. The instructional leader was defined as the person who had primary responsibility for teacher supervision and evaluation. The term principal was used to identify the instructional leader in each school system, regardless of the actual name of the position held.

Discussion regarding the implications for each of the four research questions follows.

**Research Question One.**

Research question one was, to what extent, if any, did principals in selected career and technical schools demonstrate learning-centered leadership skills as measured by the Vanderbilt Assessment of Leadership in Education? The subset key process variables were (a) planning, (b) implementing, (c) supporting, (d) advocating, (e) communicating and (f) monitoring. The subset core component variables were (a) high standards for student learning, (b) rigorous curriculum, (c) quality instruction, (d) culture of learning and professional behavior, (e) connections to external communities, and (f) performance accountability. The overall composite rating for all 16 principals (all variables and the subsets) as a group was proficient (3.69 within the proficient range of 3.60 – 3.99). Of the key processes, the highest mean ratings were for supporting, communicating, and monitoring; the lowest mean ratings were for planning, implementing, and advocating. Of the core components, the highest mean ratings were for culture of learning and professional behavior, quality instruction, and high standards
for student learning; the lowest mean ratings were for performance accountability, connections to external communities, and rigorous curriculum.

Conducting a more detailed analysis of the intersection of the core components and key processes showed areas in which more than half of the principals were rated as Below basic or Basic: Planning: Rigorous curriculum (56%), Culture of learning and professional behavior (68%), and Connections to external communities (75%); Implementing: Rigorous curriculum (75%), Connections to external communities (68%), and Performance accountability (68%); Advocating: Quality instruction (81%), Connections to external communities (62%), and Performance accountability (68%); and Communicating: Connections to external communities (75%), and Performance accountability (75%). Overall, the ratings were lowest in the key processes of Planning, Implementing, and Advocating, and in the core components of Rigorous curriculum, Performance accountability, and Connections to external communities. The only process related to Connections to external communities where more than half the principals were rated as proficient was Advocating. In each of the other five key processes, more than half the principals were rated at the level of Basic.

A subset of research question one was to determine if there was any correlation between the mean effectiveness rating of each principal compared to years of experience as a teacher, years of experience in the current position in their school, and years of experience as a principal. A Pearson’s product-moment correlational analysis was conducted. It did not show any statistically significant correlations between these factors and the principals’ mean effectiveness rating. However, given the small sample in this research study from the population of career and technical education principals, as well as
the purposeful sample used to mirror the population of career and technical principals at large, it is not surprising that the data did not show an association between the principals’ demographic characteristics and their performance ratings.

**Research Question Two.**

Research question two was, *to what extent, if any, did principals in selected career and technical schools demonstrate learning-centered leadership skills different from the national norm?* The performance ratings of the national norm comparison group of secondary school principals were 3.52, 3.60, 3.52, and 3.45 for overall, supervisor ratings, teacher ratings, and principal ratings, respectively. This was compared to the research group of 3.69, 3.92, 3.61, and 3.59 for overall, supervisor ratings, teacher ratings, and principal ratings, respectively. A one sample $t$ test was conducted. Although the career and technical education principals were rated somewhat higher than the national norm values, the one sample $t$ test showed no statistically significant difference between the mean ratings of the research group and the national norm group. This suggests that the career and technical education principals appear to be performing at least as effectively as the non-career and technical education secondary school principals who were rated as part of the Vanderbilt Assessment of Leadership in Education (VAL-ED) pilot study group used to establish the national norms.

**Research Question Three.**

Research question three was *to what extent, if any, did the perceptions of leadership skills differ among principals, teachers, and supervisors?* Based on the data that exist for the national norm, no statistical difference was shown to exist between the perceptions of the teachers, principals, and supervisors of the principals’ effectiveness,
although the ratings of the principals by the principals were the lowest of the three groups. The supervisors tended to have the highest ratings among the groups. In the research study, the same basic themes existed.

An analysis of variance was conducted, and it demonstrated no statistical difference between the ratings of the three groups, although the principals rated themselves lower than either the supervisors or the teachers. In both the national data and the research study, the supervisors rated principals the highest, and the principals rated themselves the lowest.

**Research Question Four.**

Research question four was, *to what extent, if any, did the leadership skills of selected career and technical education principals show an association with student achievement as measured by the National Occupational Competency Testing Institute (NOCTI) end-of-program assessment?* The end-of-program assessment required for students enrolled in career and technical education schools is distributed by the National Occupational Competency Testing Institute (NOCTI). The NOCTI student assessment served as the measure of student achievement for this research study. Qualitative ratings of students based on state-created cut scores were translated into nominal categories of *Below Basic, Basic, Competent,* and *Advanced.* For each school, the percentage of students who scored in each of the four categories was reported by the school’s administrative director. These scores were then collapsed into two nominal categories: *Above the state average* and *Below the state average.* The statistics on student performance in Pennsylvania showed that 76.1 percent of the students who participated in the NOCTI assessment in 2011 scored in the *Competent* and *Advanced* category ranges.
Similarly, each school principal’s overall mean effectiveness rating was reviewed and collapsed into two nominal categories. Utilizing the overall composite mean ratings, the 16 principals were rated qualitatively as Below Basic, Basic, Proficient, or Distinguished based on the value ranges and descriptors in Table 26. The principals’ qualitative ratings were then collapsed into two categories: Below basic/Basic and Proficient/Distinguished. Six principals were rated in the Below basic/Basic category and 11 principals were rated in the Proficient/Distinguished category.

A chi-square table was constructed and a Fisher’s exact test was performed. The continuity correction was applied as a conservative adjustment to chi-square because 75 percent of the cells had frequencies less than five (Garson, 2009). These calculations demonstrated no direct association between the qualitative effectiveness rating of the principal and the qualitative performance of the students measured by the NOCTI assessment.

**Implications and Recommendations for Professional Practice**

At the beginning of this project, the researcher expected to add to the body of research related to leadership skills of career and technical education principals in an effort to focus the professional education efforts in those areas that would have the greatest impact upon student achievement. Additionally, it was expected that personnel in administrative preparation programs and Act 45 Providers might gain knowledge of the skills most critical to create highly effective schools and high student achievement. A discussion of the implications and recommendations for the professional practice follow.

Critical to the improvement of the performance of instructional leaders is formative and summative feedback (Reeves, 2009). Learning-centered leadership skills
provides the conceptual framework for this feedback. This research study provided specific feedback to the principals about their level of effectiveness in each of the core components and key processes that have an association with increasing student achievement. This feedback is necessary for them to improve the leadership skills that will have a positive impact upon student achievement. The first discussion item for the principals’ supervisors is the extent to which principals in their schools regularly receive this type of specific feedback. If principals and supervisors are knowledgeable about the leadership framework necessary for effective schools and the principals’ level of effectiveness in each area, improvements in student achievement are virtually certain to occur (Murphy, Elliott, Goldring, & Porter, 2006). By understanding these components and the processes that are necessary to create them, principals should clearly understand the expectations for their positions, and supervisors should be able to give specific feedback. If teachers are knowledgeable about the components and processes, they will be aware of the conditions that principals are trying to create to have a positive impact upon student achievement. An important contribution from this research study to the collective body of knowledge is that principals need to have a solid understanding of the what and how of their positions—what conditions they should create (core components) and how they should create them (key processes). When principals, their supervisors, and their teachers all share a common understanding of the desired school conditions and how they are expected to bring them about, achieving the conditions in which student achievement increases should be virtually certain to occur.

A second recommendation for the practice is to examine our perceptions about the purposes of feedback and evaluation. Feedback and evaluation are necessary for each of
us to improve our practice. Without specific feedback, improvement is unlikely. It was interesting to note that the principals in this study seemed to be their own biggest critics. They appeared to be more keenly aware of their shortcomings and potential areas for growth than the teachers and the supervisors. In addition, several supervisors appeared uncomfortable or reluctant to provide direct feedback to their principals by completing the survey instrument as opposed to the teachers in this study who provided feedback under the cover of anonymity. This may account for the highest ratings of the principals by their supervisors. An interesting question raised by this research study is why would supervisors be uncomfortable giving direct feedback to principals? Supervisors should be well versed and practiced in providing specific feedback and evaluative data to principals about their performance. Supervisors should assess and overcome any reluctance on their part to provide formative and summative feedback related to effective school performance. Only through frank conversations will principals be able to improve their leadership skills and bring about the changes in our school systems that result in higher student achievement.

A review of the literature regarding effective schools in Chapter 2 pointed to the need for and success of distributed and shared leadership theories (Bass, 1990; Blasé & Blasé, 200; Clark, Martorell, & Rockoff, 2009; Gronn, 2002; Printy, 2010; Spillane, 2005). These leadership theories point to the higher success rates in school reform efforts when teachers are involved in the planning and implementing. Joint planning and implementing alone, however, may not result in sustainable reforms that lead to increased student achievement. Empowering teachers to act in ways that improve school performance and student achievement implies that the teachers have knowledge of the
core components and key processes that lead to effective schools. This is an education and training opportunity waiting to be implemented.

The high percentage of teacher responses of Don’t Know for the leadership variables in this study is noteworthy. It may be an indication that career and technical education principals are more prone to autocratic leadership styles as opposed to distributed leadership styles where teachers play an active role in planning, implementing, advocating, supporting, communicating, and monitoring the core components that lead to highly effective schools. Professional development related to distributed leadership models may better enable principals to collaborate with teachers in the leadership style that encourages synergy and produces more effective schools.

Improvements in education begin with a planning strategy (Lezotte, 2004; Marzano, Waters, & McNulty, 2005). Once the plan is formed, implementation strategies are employed to meet objective outcomes. If these two primary skills are lacking to the extent demonstrated in this research, it should be expected that the desired outcomes in terms of student achievement may be much more difficult or impossible to achieve. Without effective planning and implementation strategies, improvements in student achievement may be chance byproducts of the principal’s performance, at best. With other administrators, in particular with the principal’s supervisor and with the school’s teachers, collaborative planning and implementation should be the norm for new and experienced principals. Through collaboration and a team approach, the practices of planning and implementation are more likely to end with the desired student achievement outcomes, given the principles of collaborative and distributed leadership (Spillane, 2005; Spillane, Halverson, & Diamond, 2001).
Curriculum based on high standards is the core of effective instruction (Pennsylvania Department of Education, SAS, n.d.). Performance accountability or measuring performance against prescribed goals as a performance improvement strategy is critical (Cromwell, 2010). If these two critical skills (rigorous curriculum and performance accountability) are not firmly in place, it will be difficult to achieve sustained improvements in student performance. Preparation and professional education programs must ensure that principals acquire the skills and knowledge to plan and implement a rigorous curriculum, regardless of the content area in order to increase student achievement. In addition, Act 45 program providers should be encouraged to design and enhance focused professional education experiences for principals in these lowest rated skill areas (planning, implementing, rigorous curriculum and performance accountability) to improve the leadership practices and school effectiveness as the vehicle to increase student achievement.

Between 62 percent and 75 percent of the principals were given Basic performance ratings related to all aspects of Connections to external communities except Supporting. This is a strong indication that principals need to demonstrate more efforts and focus on engaging the external communities in the aspects of the school. This may include Local Advisory Committees, parent groups, outreach and participation in Chambers of Commerce, Workforce Investment Boards, Youth Councils, service organizations, and professional organizations.

A final implication of the findings in research question one relates to communication. The key process of Communicating, overall, was perceived as one of the highest key processes. It is interesting to note, however, that Communicating Connections
to external communities, Communicating Performance accountability, and Communicating Culture of learning and professional behavior were among the variables with the highest percentage of missing data defined by Don’t Know responses by participants. If communication was highly effective in these three areas, teachers and supervisors should be knowledgeable of the principal’s performance and better able to provide appropriate feedback. Perhaps there is a distinction here to be made between perception and reality.

The data in this research project showed that career and technical education principals were perceived by respondents to be performing as well as the principals in the national norm. It is generally accepted that principal leadership is second only to teachers in terms of its effect on student achievement (Leithwood, Harris, & Hopkins, 2008). Research conducted by others showed that effective principals have a modest but significant effect in schools in general, but the effects are far more significant in schools where more challenges exist. “Especially when we think of leaders in formal administrative roles, the greater the challenge, the greater the impact of their actions on learning” ((Leithwood, Seashore-Louis, Anderson, & Wahlstrom, 2004, p. 5). With the higher incidence of students enrolled in career and technical education that have individual education plans, are members of an at-risk population, or performing below the state average on state academic assessments, the career and technical education principal serves a population in greater need of effective leaders (Pennsylvania Department of Education, 2009-2010 PSSA). Because of these challenging student needs, it is important that career and technical education principals be more effective than the national norm.
State and national educational policy make it clear that increasing student performance is the educational priority. One of the essential strategies to improving performance is measuring performance in the areas most likely to lead to increased student achievement (Reeves, 2009). Principal assessment instruments are woefully inadequate or outdated where they exist at all (Catano & Stronge, 2007; Condon & Clifford, 2009; Linn, 2000; Thomas, Holdaway, & Ward, 2000). Administrators responsible for supervising and evaluating principals must utilize a valid and reliable assessment instrument in a consistent manner to drive improvements in principals’ practices. The data from research question two demonstrated that career and technical principals were performing at the national norm levels, but if principals are to perform above the norm levels, it is imperative that supervisors provide timely, specific, and accurate formative feedback (Catano & Stronge, 2007; Cromwell, 2010). The principals in this research study may be served by focusing professional education efforts to improve the processes of (a) planning in the core component areas of culture of learning and professional behavior, connections to external communities, and rigorous curriculum; (b) implementing in the core component areas of quality instruction, performance accountability, connections to external communities, and rigorous curriculum; (c) supporting in the component area of rigorous curriculum; and (d) advocating in the component area of quality instruction. These were the variables where the principals were perceived by respondents as performing below the level of proficiency.

Because principals rated themselves the lowest of the three groups of respondents (teachers, supervisors, and principals), it can be assumed that principals have very high expectations for themselves and for their own performance. They tended to evaluate
themselves more critically than either their supervisors or their teachers. In this respect, principals may be more keenly aware of their own shortcomings and needs for specific professional education than others observing their behavior. It illustrates an encouraging view about principals’ self-reflection on their performance. A critical component of their professional growth and desire to increase student learning would be for supervisors to encourage and financially support principals in their desire to participate in professional education related to the principals’ perceived shortcomings. It appears that no one may know better what a principal needs to do a better job than the principal him or herself. If this implication is accurate, it is very good news. Assuming ownership of the problem and accepting constructive criticism are important first steps in making improvements in one’s own performance (Cromwell, 2010).

The data in this research study showed no direct association between the principals’ performance and student achievement. The implication that the principal’s performance does not impact student achievement is contrary to many significant studies that involved far more robust data samples and analysis, beginning with effective schools research from 1970 (Clark, Martorell, & Rockoff, 2009; Cotton, 2003; Edmonds, 1982; Erwin, Winn, Gentry, & Cauble, 2010; Leithwood, Louis, Anderson, & Wahstrom, 2004; Lezotte, 1991, 2004). This research study sought to demonstrate a direct relationship between leadership and student achievement. While a direct relationship was not demonstrated, this is not surprising. The finding in this research study appears to confirm the highly complex relationship that does exist between leadership and student achievement. It confirms the complexity of the intermediary variables shown in Figure 1. These variables, such as previous experiences, family educational and economic
background, school climate, school policies and practices, all play a critical part in student achievement. The school leader, by creating the conditions for effective schools does have an indirect and positive impact upon student achievement.

Limitations of the Study

First, this research study may not be generalized to the entire population of career and technical administrators because it fell far short of involving a random sample of the population. Only 19% (16 of 83) of the career and technical education schools in Pennsylvania participated in this study. Additionally, this research involved only part-time career and technical education schools. Other delivery systems, including senior only and full-time, comprehensive career and technical education schools were not included in this study.

This study involved a purposeful sample of 16 schools from the population of 83 career and technical education schools in Pennsylvania. Schools were selected from the western, central, and eastern regions as defined by their participation in one of the three teacher preparation programs. Five schools were located in western Pennsylvania, six in central Pennsylvania, and five schools in eastern Pennsylvania.

Schools were selected based on the instructional leader’s characteristics that most closely matched the characteristics of the statewide population in terms of experience as a principal and experience as a teacher, but not the characteristic of gender. In 2010, the statewide population included approximately 51.0% female and 49.0% male instructional leaders; this research sample included 33.0% female and 67.0% male instructional leaders.
The evaluation instrument, the Vanderbilt Assessment of Leadership in Education (VAL-ED), is a 360° assessment instrument. Teachers and supervisors rated the instructional leaders, and the instructional leaders rated themselves. This study was limited to the extent that the evaluators were able to accurately rate the instructional leader’s effectiveness in each of the variables based on personal observations, documents, reports from others, school projects and activities, or other objective sources of data. For some variables, less than 50 percent of the participants were able to rate the principal.

An unexpected limitation of this study was the extent to which the teachers and supervisors were able to rate the instructional leader, as noted by the number of values labeled as Don’t know. In the pilot study conducted by Vanderbilt University in 2008, there were significantly fewer Don’t know responses. This may have been due, in part, to the financial incentive provided to schools with complete answers, or it may be an indication that career and technical school principals have a more limited type and content of communications and interactions with their teachers and supervisors. Career and technical education principals may perform their duties and responsibilities more in isolation from their teachers and supervisors than secondary school principals or may not communicate their activities as clearly or frequently as other secondary school principals.

**Recommendations for Future Research**

Career and technical education remains an accessible area of research. According to the 2010 Consolidated Annual Report (CAR), grade 11 career and technical education students represented about 12 percent of the total grade 11 statewide population. Yet, this population of schools, teachers, and administrators has taken part in little research designed to solicit information and best practices that have the potential to improve this
and other aspects of the profession. Because career and technical education is unique in serving more students with individualized education plans than that which exists in regular education, and because, as a whole, career and technical education students do not perform as well as their non-career and technical education counterparts on high-stakes academic assessments, career and technical education schools may be considered low performing schools. The research demonstrates that effective leadership has a more significant impact in low performing schools. More research in career and technical education schools would benefit the profession and may increase student achievement.

A second strand of future research is recommended to examine the effectiveness rating of career and technical education principals trained through specific principal preparation programs. Significant dollars are invested by individuals and by schools through tuition reimbursements to their administrators for advanced certification and degrees. In this day of best practices and performance accountability, it would be highly valuable for individuals and for the schools hiring administrators to know which programs help principals demonstrate the most effective performances.

A third possibility for future research exists with the Bureau of Career and Technical Education. Since 2008-2009, the Bureau of Career and Technical Education has provided financial and professional development supports to career and technical education schools through the Technical Assistance Program (TAP). The TAP program has provided professional education programs for significant numbers of teachers and administrators. The foci of the professional education for these groups (as of the 2011 - 2012 school year) have been on improving student performance in the end-of-program assessment provided by the National Occupational Competency Testing Institute
(NOCTI), improving the integration of academics (specifically, numeracy, literacy) in the career and technical program areas, highlighting best educational practices for special education students, coaching, and Standards Aligned System (SAS). Of the schools participating in this research study, four schools took advantage of the supports through the TAP beginning in 2008-2009, three schools began in 2009-2010, five schools began in 2010-2011, and one school began in 2011-2012. Three of the schools that participated in this research study had yet to participate in TAP as of September 2011 (Bureau of Career and Technical Education, 2010). Research to determine the extent to which the TAP has had a positive influence on leadership would benefit the profession.

Finally, it would be of value to learn more about the specific leadership styles of principals who create highly effective schools. As noted previously, this study produced a high percentage of Don’t know responses from the participants. It would be particularly insightful to learn if highly effective principals demonstrate distributed leadership approaches in their management practices to a greater extent. If the high percentage of Don’t know responses is an indication of principals working in isolation from their teachers to create highly effective schools, and if those principals who practice a distributed leadership style create more effective schools, it would be valuable to provide coursework, internships, and more professional development emphasis upon distributed leadership practices.

Conclusion

The purpose of this research study was to assess the extent of leadership skills of principals in part-time career and technical education schools selected as a purposeful sample. The term principal was used to designate the school’s instructional leader,
regardless of the actual position in which the instructional leader was employed. Actual positions of employment included supervisor, assistant director, principal, and director of secondary education. There were four research questions in this research study. The four questions were as follows.

1. To what extent did principals in selected career and technical schools demonstrate learning-centered leadership skills as measured by the Vanderbilt Assessment of Leadership in Education?

2. To what extent, if any, did principals in selected career and technical schools demonstrate learning-centered leadership skills different from the national norm?

3. To what extent, if any, did the perceptions of leadership skills differ among principals, teachers, and supervisors?

4. To what extent, if any, did the leadership skills of selected career and technical education principals show an association with student achievement measured by the National Occupational Competency Testing Institute (NOCTI) end-of-program assessment?

The research findings demonstrated that the overall composite effectiveness rating of the principals in this research study was in the Proficient category (3.69 on a 5-point Likert response scale in the proficiency range of 3.60 – 3.99) based on values assigned to four categories of Below Basic, Basic, Proficient, and Distinguished. This rating was consistent with the national norm for secondary school principals (3.59). The research findings in this project demonstrated that no significant differences in the perceptions of leadership skills among principals, supervisors, and teachers. Finally, no association was
found in this research between the principals’ performance rating measured by the VAL-ED and the students’ performance rating measured by the NOCTI assessment.

This research demonstrated that principals rated themselves most conservatively, perhaps knowing their needs better than others. The profession would benefit by ensuring principals receive specific and frequent formative and summative assessment data about their performance from their supervisors, as well as financial and professional support in their professional development efforts directed toward shortcomings that have the greatest impact on student achievement. For the principals participating in this research study, the key processes of Planning, Implementing, and Advocating, and the core components of Quality Instruction, Rigorous curriculum, Connections to external communities, and Performance accountability were the areas that received the lowest ratings. Based upon this research study, pre-service and in-service training in these concepts may assist career and technical education principals lead their schools to become high performance organizations.
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Appendix A
Letter of Invitation

Dear Career and Technical Education School Director:

Leadership is second only to teaching in influencing student learning. In addition, leadership has the greatest impact in schools that have the greatest needs.

Career and technical administrators are under great pressure to increase the academic achievement of their students. Our career and technical education students consistently perform below non-career and technical education students on standardized achievement tests. The chart on page 2 illustrates the performance of career and technical education students and non-career and technical education students on the 2009 Pennsylvania School of School Assessment.

Learning-centered leadership consists of six core components and six key processes that have been demonstrated through research to have a positive influence on student learning. The core components are

- High standards for student learning,
- Rigorous curriculum,
- Quality instruction,
- Culture of learning and professional behavior,
- Connections to external communities,
- Systemic performance accountability.

The key processes are the means through which the core components are created and delivered. They key processes are

- Planning,
- Implementing,
- Supporting,
- Advocating,
- Communicating,
- Monitoring.

The core components and key processes form the basis of the Vanderbilt Assessment of Leadership in Education, a very new commercially available valid and reliable assessment instrument. It sells for $360 per principal. Through your participation in this study, this reliable and valid $360 assessment will be provided free of charge to your instructional leader.
Your instructional leader will receive a detailed report of the triangulated data about the extent of his or her leadership skills. This information may be used by the instructional leader to focus professional education experiences to create a positive influence on student learning. In addition, you will receive a copy of the complete report that details the aggregated data on learning-centered leadership in career and technical education schools in Pennsylvania.

I am asking you to be a part of this research study. It will involve less than one hour of time for you, your instructional leader, and your teachers to complete an on-line questionnaire in the comfort of your school on a day and time of your convenience between April and May 2011. The average time to complete the survey is 20 to 25 minutes.

For my doctoral study through The Pennsylvania State University, I am studying leadership in career and technical education schools. My research questions are

1. To what extent, if any, do instructional leaders in career and technical education schools demonstrate learning-centered leadership?
2. To what extent, if any, do the learning-centered leadership skills of instructional leaders in career and technical education schools differ from the national norm?
3. To what extent, if any, do the perceptions of learning-centered leadership skills differ among teachers, instructional leaders, and supervisors of instructional leaders?
4. To what extent, if any, is there an association between specific learning-centered leadership skills and student achievement on NOCTI?

If you are willing to participate in this important research, please complete the enclosed authorization form and return it to me by email (mer265@psu.edu) or in the self-addressed envelope provided for that purpose. More detailed information will be provided to you after I receive your authorization form to participate. I sincerely appreciate your cooperation with this study.

Sincerely,

Mary E. Rodman
Figure 1 Comparison of the Percentage of 2008-2009 Grade 11 Career and Technical Education Students to All Students Who Scored Proficient and Advanced Proficient on the PSSA
Appendix B

Email Recruitment Information

A Study of Leadership in Career and Technical Education Schools
Mary Rodman, mer265@psu.edu

As a part-time career and technical education school, you are being asked to participate in a study of learning-centered leadership in career and technical education schools in the Commonwealth of Pennsylvania being conducted by Mary Rodman, doctoral candidate, through The Pennsylvania State University. Your participation in this study is voluntary. Your decision not to participate will not result in any loss of benefits to you. Learning-centered leadership is the description given to six core components (what instructional leaders do) and key processes (how instructional leaders bring about the core components) that research has demonstrated to have a positive influence on student learning. The core components are high standards for student learning, rigorous curriculum, quality instruction, culture of learning and professional behavior, connections to external communities, and systemic performance accountability. The key processes are planning, implementing, supporting, advocating, communicating, and monitoring.

The study involves administration of an on-line survey instrument about the instructional leadership that exists in your school. The survey is a 360-degree instrument, meaning that the instructional leader completes the survey about him or herself; the instructional leader’s supervisor completes the survey about the instructional leader; and the teachers supervised by the instructional leader complete the same survey. The responses of the teachers are confidential. Because there is only one instructional leader and one supervisor per school, the responses of the instructional leader about him or herself and the responses of the supervisor will be obvious to the instructional leader who receives the only copy of the individualized report. As the instructional leader, you may choose not to participate. As the supervisor of the instructional leader, you may choose not to participate. As a teacher, you may choose not to participate. This survey will be conducted in 16 schools and 1 pilot site in Pennsylvania. In order for your school to participate, the director, instructional leader, and the supervisor of the instructional leader must all choose to participate. Teachers will voluntarily participate by attending a voluntary faculty meeting after receiving the Notice of Participation. The survey instrument takes less than one hour to complete. The average time to complete the survey is 20-25 minutes.

The data used for the research study will not identify specific schools or specific instructional leaders. A detailed report for your school’s instructional leader will be provided only to the instructional leader. It is the decision of the instructional leader to share the report. The data used in the research study will detail the results from the 16 schools in this study. Information about any one school or one instructional leader will not be reported.
I will send to you via email, provide to you in person, or mail through US mail a copy of the Participation Form. The Participation Form allows your site to be used to collect the data. Also included will be the instructions to be read at the time of the survey administration. Informed Consent Form for the instructional leader; the informed consent for the supervisor of the instructional leader; the Implied Consent Form for the teachers, whose responses will be confidential; an Overview of the Vanderbilt Assessment of Leadership in Education (VAL-ED); a summary of the psychometrics for the VAL-ED; a sample report for the instructional leader, which will be provided only to the instructional leader; a visual representation of the study; and the study abstract. It is expected that the survey will be conducted in late April or May, if the Participation Form, and two Informed Consent Forms (one from the instructional leader and one from the supervisor of the instructional leader) are returned to me.

In order for your school to participate, your director must allow the participants to use the school site to administer the survey. In addition, the instructional leader and the supervisor of the instructional leader must both choose to participate. If your school participates, your school will receive a copy of the full study detailing the aggregated data. If the instructional leader chooses to participate, he or she will receive a detailed report that may provide the basis for professional education activities that have a direct impact upon student learning. The results of this study may also serve as the basis for a Pennsylvania Inspired Leader program for career and technical education school administrators.

You may complete the survey between now and June 15, 2011.
Appendix C

Consent to Participate in the Study of Leadership in Career and Technical Education Schools

As the Administrative or Executive Director for my school system, I agree to participate in the Study of Leadership in Career and Technical Education Schools conducted by Mary Rodman, researcher, through Pennsylvania State University and to invite the school’s teachers and instructional leader to complete the web-based survey on the school premises.

Signature _________________________________________________________
Print Name ______________________________________________________ Date ____________
School Name ______________________________________________________
Administrative Director _____________________________________________
Contact Phone for Administrative Director _____________________________
Address _________________________________________________________
Administrative/Executive Director’s Email Address _______________________

The instructional leader is defined as the person who directly supervises teachers.

Instructional Leader’s Name ____________________________________________ □Female □Male
Instructional Leader’s Job Title: □Principal □Supervisor □Assistant Director □Other*
*If Other, print position name here _______________________________________
Contact Phone for Instructional Leader ___________________________________
Instructional Leader’s Email Address _____________________________________
Instructional Leader’s Supervisor’s Name _________________________________
Supervisor’s Email Address _____________________________________________
Number of Teachers Supervised by the Instructional Leader ________________
Appendix D
Informed Consent Form for Social Science Research - Instructional Leader
The Pennsylvania State University

Title of Project: A Study of Leadership in Career and Technical Education

Principal Investigator: Mary E. Rodman, mer265@psu.edu
38 Skyline Drive, Mechanicsburg, PA 17050
412.554.1753

Advisor: Richard A. Walter, raw18@psu.edu
301A Keller Building, University Park, PA
814.865.2133

1. Purpose of the Study: The purposes of this research study are to investigate (1) the extent of learning-centered leadership skills in selected area career and technical education schools; (2) the extent of differences in leadership skills from the national norm; (3) the extent of differences in perceptions of leadership skills among instructional leaders, teachers, and supervisors; and (3) an association, if any, of leadership with student performance on NOCTI. The survey will be conducted using a commercially prepared instrument, the Vanderbilt Assessment of Leadership in Education (VAL-ED). Sixteen schools will be recruited to participate.

2. Procedures to be followed: You will be asked to complete a 72-item on-line questionnaire about yourself as the instructional leader in your building. The instructional leader is defined as the person in your school system that directly supervises teachers. Your supervisor and the teachers you supervise will be asked to complete the same 72-item on-line questionnaire about you. Only you will receive a detailed report of the aggregated data from your school. For the purpose of the research study, only aggregated data will be used. Individual schools will not be identified in the study, nor will individual school data be reported. Individually identifiable information about you will not be provided about you.

3. Duration/Time: It is expected that you will complete the questionnaire in one session of less than 60 minutes. Average response time is 20-25 minutes.

4. Benefits: If you are the instructional, the benefits to you include access to the summary report from your school that indicates the perceptions of the teachers and your supervisor of the learning-centered leadership skills you demonstrate in your school. The benefits to the career and technical education community include providing insight about the learning-
centered leadership in career and technical education schools and highlighting areas in which additional professional education may produce positive outcomes related to student achievement.

5. **Statement of Confidentiality:** Because there is only one supervisor and only one instructional leader per school, the supervisor’s responses and your own responses will be obvious to you. Data reported by the teachers will be aggregated and not individually identifiable. The data will be stored and secured in Nashville, TN, in a password-protected file on a server monitored daily for security purposes. In the event of a publication or presentation resulting from the research, no personally identifiable or school identifiable information will be shared. Participants will be provided with an entry access code that will be associated with a specific instructional leader. Entry codes will not be individually assigned to or associated with the respondent. Aggregated data about the instructional leader will only be provided to the instructional leader. Aggregated data from all of the schools participating in this study (about 16 schools) will be used by the researcher for the purpose of this study. No individually identifiable information will be used in the research study results. Summary data only will be used.

6. **On-line internet survey:** Your confidentiality will be maintained to the degree permitted by the technology being used. No guarantees can be made regarding the interception of data sent via the Internet by any third parties.

7. **Right to Ask Questions:** Please contact Mary Rodman at 412.554.1753 with questions, complaints or concerns about this research.

8. **Voluntary Participation:** Your decision to be in this research is voluntary. You can stop at any time. You do not have to answer any questions you do not want to answer. Refusal to take part in or withdrawing from this study will involve no penalty or loss of benefits you would receive otherwise. You must be 18 years of age or older to consent to take part in this research study. If you agree to take part in this research study and the information outlined above, please sign your name and indicate the date below.

Please keep a copy of this form for your records or future reference.

__________________________________________________  __________________
Instructional Leader’s Signature  Date

(Please print your name here) ____________________________________________

__________________________________________________  __________________
Signature of Researcher  Date
Appendix E

Informed Consent Form for Social Science Research – Supervisor

The Pennsylvania State University

Title of Project: A Study of Leadership in Career and Technical Education

Principal Investigator: Mary E. Rodman, mer265@psu.edu
38 Skyline Drive, Mechanicsburg, PA 17050
412.554.1753

Advisor: Richard A. Walter, raw18@psu.edu
301A Keller Building, University Park, PA
814.865.2133

1. Purpose of the Study: The purposes of this research study are to investigate (1) the extent of learning-centered leadership skills in selected area career and technical education schools; (2) the extent of differences in leadership skills from the national norm; (3) the extent of differences in perceptions of leadership skills among instructional leaders, teachers, and supervisors; and (3) an association, if any, of leadership with student performance on NOCTI. The survey will be conducted using a commercially prepared instrument, the Vanderbilt Assessment of Leadership in Education (VAL-ED). Sixteen schools will be recruited to participate.

2. Procedures to be followed: As the supervisor of the instructional leader, you will be asked to complete a 72-item on-line questionnaire about the instructional leader in your building. The instructional leader is defined as the person in your school system that directly supervises teachers. Only the instructional leader will receive a detailed report of the aggregated data from your school. For the purpose of the research study, only aggregated data will be used. Individual schools will not be identified in the study, nor will individual school data be reported.

3. Duration/Time: It is expected that you will complete the questionnaire in one session of less than 60 minutes. Average response time is 20-25 minutes.

4. Benefits: As the supervisor of the instructional leader, the benefits to you include providing valuable feedback to your instructional leader about leadership skills that have an influence on student learning. The benefits to the career and technical education community include providing insight about the learning-centered leadership in career and
technical education schools and highlighting areas in which additional professional education may produce positive outcomes related to student learning.

5. **Statement of Confidentiality:** Because there is only one supervisor and only one instructional leader per school, your responses to the instructional leader will be obvious. The data will be stored and secured at Discovery Education, Nashville, TN, in a password-protected file on a server monitored daily for security purposes. In the event of a publication or presentation resulting from the research, no personally identifiable or school identifiable information will be shared. You will be provided with an entry access code that will be associated with your school’s instructional leader. Your response and aggregated data from the teachers about the instructional leader will only be provided to the instructional leader. Aggregated data from all of the schools and schools’ instructional leaders and supervisors participating in this study (about 16 schools) will be used by the researcher for the purpose of this study. No individually identifiable information will be used in the research study results. Summary data only will be used.

6. **On-line internet survey:** Your confidentiality will be maintained to the degree permitted by the technology being used. No guarantees can be made regarding the interception of data sent via the Internet by any third parties.

7. **Right to Ask Questions:** Please contact Mary Rodman at 412.554.1753 with questions, complaints or concerns about this research.

8. **Voluntary Participation:** Your decision to be in this research is voluntary. You can stop at any time. You do not have to answer any questions you do not want to answer. Refusal to take part in or withdrawing from this study will involve no penalty or loss of benefits you would receive otherwise.

You must be 18 years of age or older to consent to take part in this research study. If you agree to take part in this research study and the information outlined above, please sign your name and indicate the date below.

Please keep this form for your records or future reference.

_____________________________________________________  ____________
Supervisor’s Signature  Date

(Please print your name here)____________________________________________________

____________________________________________________  ______________
Signature of Researcher  Date
Appendix F

Notice of Participation

A Study of Leadership in Career and Technical Education Schools

Mary Rodman, mer265@psu.edu

As a teacher in ____________________________[school name], you are being asked to participate in a statewide study of instructional leadership in career and technical education schools conducted by Mary Rodman, doctoral student, at The Pennsylvania State University.

The study will take less than one hour of your time. It will be conducted on-site at your school on ____________________________[date] at __________[time]. Your participation is voluntary. Should you choose not to participate, you will lose no benefits or suffer any penalty.

Your participation in this study may assist the instructional leader in your building ____________________________ [name] to participate in professional education activities that have an influence on student learning. Your participation may also assist in the development of Pennsylvania Inspired Leaders (PIL) programs that have an influence on student achievement.

We appreciate your participation in this study.
Appendix G

Implied Consent Form for Social Science Research - Teachers
The Pennsylvania State University

Title of Project: A Study of Leadership in Career and Technical Education

Principal Investigator: Mary E. Rodman, mer265@psu.edu
38 Skyline Drive, Mechanicsburg, PA 17050
412.554.1753

Advisor: Richard A. Walter, raw18@psu.edu
301A Keller Building, University Park, PA
814.865.2133

1. Purpose of the Study: The purposes of this research study are to investigate (1) the extent of learning-centered leadership skills in selected area career and technical education schools; (2) the extent of differences in leadership skills from the national norm; (3) the extent of differences in perceptions of leadership skills among instructional leaders, teachers, and supervisors; and (3) an association, if any, of leadership with student performance on NOCTI. The survey will be conducted using a commercially prepared instrument, the Vanderbilt Assessment of Leadership in Education (VAL-ED). Sixteen schools will be recruited to participate.

2. Procedures to be followed: You will be asked to complete a 72-item on-line questionnaire about the instructional leader in your building. The instructional leader is defined as the person in your school system that directly supervises teachers. Your responses will be anonymous. Only the instructional leader in your school will receive a detailed report of the aggregated data from your school. For the purpose of the research study, only aggregated data will be used. Individual schools will not be identified in the study, nor will individual school data be reported. Individual responses from teachers will not be identified in any way.

3. Discomforts and Risks: There are no risks in participating in this research beyond those experienced in everyday life. All of the questions relate to behaviors of the instructional leader. You may experience emotional discomfort in providing anonymous feedback to the instructional leader with whom you work. The data you provide to the instructional leader will be aggregated in the report. No personally identifiable data about teachers will be recorded.

4. Benefits: The benefits to you include providing your school’s instructional leader with your perceptions of the extent of his or her leadership skills that research has shown to have a positive influence student achievement. This will allow the instructional leader in your school the opportunity to focus professional education on those activities that lead to attainment of these leadership skills. The benefits to the career and technical education community include providing insight about the learning-centered leadership in career and technical education schools and highlighting areas in which additional professional education for instructional leaders may produce positive outcomes related to student achievement.
5. **Duration/Time:** It is expected that you will complete the questionnaire in one session of less than 60 minutes during normal workday hours between 7:30am and 4:00pm. Average response time is 20-25 minutes.

6. **Statement of Confidentiality:** Teachers’ participation in this research is confidential. The data will be aggregated by group (teachers, instructional leader, and supervisor). Because there is only one supervisor and only one instructional leader per school, the supervisor’s responses and the instructional leader’s responses about his or her own performance will be obvious to the instructional leader. The data will be stored and secured at Discovery Education in Nashville, TN, in a password-protected file on a server monitored daily for security purposes. The Pennsylvania State University’s Office for Research Protections, the Institutional Review Board and the Office for Human Research Protections in the Department of Health and Human Services may review records related to this research study. In the event of a publication or presentation resulting from the research, no personally identifiable or school identifiable information will be shared.

Participants will be provided with an entry code and password that will be associated with a specific instructional leader’s identification number. Entry codes will not be assigned to or associated with specific teachers. Only aggregated data about the instructional leader will be provided to the instructional leader. Aggregated data will be used by the researcher for the purpose of this study. No individually identifiable information will be used in the research study results. Summary data only will be used.

7. **On-line internet survey:** Your confidentiality will be maintained to the degree permitted by the technology being used. No guarantees can be made regarding the interception of data sent via the Internet by any third parties.

8. **Right to Ask Questions:** Please contact Mary Rodman at 412.554.1753 with questions, complaints or concerns about this research. You can also call this number if you feel this study has harmed you. If you have any questions, concerns, problems about your rights as a research participant or would like to offer input, please contact The Pennsylvania State University’s Office for Research Protections (ORP) at (814) 865-1775. The ORP cannot answer questions about research procedures. Questions about research procedures can be answered by the researcher.

9. **Voluntary Participation:** Your decision to be in this research is voluntary. You can stop at any time. You do not have to answer any questions you do not want to answer. Refusal to take part in or withdrawing from this study will involve no penalty or loss of benefits you would receive otherwise.

You must be 18 years of age or older to consent to take part in this research study.

Completion and return of the survey implies that you have read the information in this form and consent to take part in the research.

Please keep this form for your records or future reference.
Dear VAL-ED Customer:

Thank you for your partnership with Discovery Education Assessment (DEA) through the use of the Vanderbilt Assessment for Leadership in Education (VAL-ED). Demand for VAL-ED has grown across the nation as states and districts utilize this instrument for both formative and summative purposes to develop and support learning-centered leaders. I am pleased to share several new updates regarding VAL-ED.

Based on feedback from the field on how to make the program more effective, the VAL-ED authors have completed studies that show the reliability and validity of the results from the instrument are in no way compromised when teachers answer only half of the 72 items (half of the teachers in the school answering one half of the 72 items and the other half of the teachers answering the other half of the items). The instrument has been changed, and as of April 1, 2011, all new VAL-ED activations will have 36 questions for teacher respondents, which will nearly halve the time for teachers to complete the survey. Other respondent groups--principal and supervisor--will remain with 72 questions because the reliability of their survey with only one respondent would be negatively affected by reducing the number of questions.

In the past year, DEA has launched comprehensive VAL-ED implementation training to support districts in their roll-out of the VAL-ED instrument. Please click here to learn more about the VAL-ED implementation training resources available from Discovery Education. In addition to the implementation training available, Discovery now offers free modules on the VAL-ED tool to all customers to help better understand the instrument and to assist districts in the set-up and administration of their surveys. You can find these modules in the Help Tab at valed.discoveryeducation.com. If you have misplaced your VAL-ED log-in information, please contact DEA customer support at 1-866-814-6685, option 2.

My team and I look forward to our continued work together to support your district's principal leadership efforts. Please contact our customer support team by email at assessments@discovery.com or by phone if we can answer any questions and/or provide any additional information. Thank you.

Sincerely,
Hardin Daniel, Vice President

Discovery Education Assessment
IMPLEMENTATION PLANNING

Measure the effectiveness of your school leaders

VAL-ED, a research-based evaluation tool, offered by Discovery Education Assessment (DEA), measures the effectiveness of building principals by providing a detailed assessment of a principal’s perceived performance. With VAL-ED, supervisors can provide building principals with comprehensive, constructive feedback in order to be the most effective instructional leaders for their teachers and students.

Aligned to the widely used Interstate School Leaders Licensure Consortium (ISLLC) Standards, VAL-ED assesses building principals in six areas related to student learning: high standards of learning, rigorous curriculum, quality instruction, culture of learning and professional behavior, connections to external communities, and performance accountability. Six additional evaluation areas, called Key Processes, measure leadership skills.

VAL-ED utilizes a multi-rater, evidence-based approach to measure the effectiveness of school leadership behaviors known to influence teacher performance and student learning. It is a 360° assessment tool, intended to be taken by not only the principal, but by teachers and the principal’s supervisor, ensuring that the very best feedback is given to principals, feedback that encompasses the entire professional school environment.

Process for VAL-ED Implementation Planning

Implementation planning for using VAL-ED requires a collaborative planning conversation with the Discovery Education Professional Development Team. The focus of this conversation is to answer and plan for how and when to roll out the use of VAL-ED as well as appropriate messaging throughout the educational system. Our Discovery Education Professional Development Specialists will then assist your organization in a smooth transition to using VAL-ED.

During this conversation the following topics will be discussed:

- Three phases of Implementation Planning: Prepare & Organize, Implement, Analyze & Professional Growth
- Implementation timelines and schedules
- Internal project management responsibilities
- Communication with state, district, or school stakeholders

Contact Donna Noblett at 731-707-2262 or Donna_Noblett@discovery.com for more information or to begin conversation to plan a successful implementation of VAL-ED.

VAL-ED is available through Discovery Education Assessment
2416 21st Avenue South, Suite 300, Nashville, TN 37212 toll-free: 1866-814-6685
The Vanderbilt Assessment of Leadership in Education
Considerations for VAL-ED Implementation

VAL-ED is a research based instrument that measures the effectiveness of school leaders by providing a detailed assessment of a principal's perceived performance. The 360° survey is taken by teachers, principals and administrators to provide comprehensive and constructive feedback to the principal. The results of the survey provide rich and specific detail of skills and behaviors that the principal can use, as a baseline, to measure continuous improvement.

Recommended Steps/Considerations for VAL-ED Implementation:

**Project Management:**

1) Select a VAL-ED district coordinator
2) Develop a timeline for the VAL-ED implementation (an illustrative example is listed below)
3) Discuss VAL-ED implementation training needs with Discovery Education VAL-ED training staff
4) Schedule training dates and secure meeting times and locations
5) Select a teacher leader coordinator at each school site to manage the distribution of survey codes and serve as the lead teacher on VAL-ED for the school. It is highly recommended that this individual be a respected member of the teaching faculty who is viewed as fair and impartial

**Messaging & Communication:**

6) Determine use of VAL-ED Instrument (formative or summative purpose or a combination of both)
7) Determine the messaging for the use of the instrument to district and school staff and which communication vehicles will be utilized in relaying the information.
8) Determine if the first year of VAL-ED implementation will be used for baseline purposes. If the data collected will be used for baseline purposes, you may consider relaying that information to principals.
9) In order to stress the district level commitment to the use of the instrument, you may consider a special message or letter from the superintendent or area superintendent(s) to teachers, the principal and supervisor(s). This is in addition to the template letters to the survey respondents provided by Discovery Education.
10) Consider the use of district and school communication systems to remind all teachers to complete their survey.

11) Illustrative Timeline*
*for a new VAL-ED district with purchase up to 50 VAL-ED licenses
Implementation trainings are listed in bold. Please see Implementation Training Overview for a full description of each of the trainings. **PLEASE NOTE:** The VAL-ED Authors recommend that teachers have a minimum of three months working with the principal before the survey is administered.

Month One  
**Prepare and Organize Training** for district staff and coordinators  
One Day In-Person Training

Month One  
Select teacher coordinator in each school

Month One  
Letters sent to teachers, principal and supervisor(s)

Month Two  
**Principal Implement Training** (25 principals)  
One Day In-Person Training

Month Two  
**Teacher Coordinator Implement Training** (25 teacher coordinators)  
One Day In-Person Training

Month Two  
Survey administration for all school teachers

Month Three  
**Analyze Training** for district staff  
One Day In-Person Training

Month Three  
Discussions with principals

Month Three  
Discussions on individual and district-wide professional development opportunities

Following months  
Implement professional development

**VAL-ED Resources**

Download sample VAL-ED reports and surveys at DiscoveryEducation.com/VAL-ED.

Additional information and resources on VAL-ED are available in the VAL-ED user site (valed.discoveryeducation.com), the VAL-ED User’s Guide, and the VAL-ED Handbook.

Please visit the Help Tab in the valed.discoveryeducation.com site for videos on key features on the VAL-ED instrument and “How To” guides.

For research studies and journal articles on VAL-ED, please visit [www.valed.com](http://www.valed.com).

For suggestions on professional development providers for principals which align leadership trainings to the VAL-ED core components and key processes, please contact Joni Henderson at 240.662.6737 or Joni_Henderson@discovery.com.

**Contacts**

For VAL-ED sales inquiries, please contact Discovery Education Assessment – the exclusive distributor of VAL-ED - at 1.866.814.6685

For information or questions regarding set-up, login or report information, please contact VAL-ED Customer Service at 1.866.814.6685

For VAL-ED Implementation Training, please contact Donna Neblett at 731.885.2334 or Donna_Neblett@discovery.com
Email Communication from Hardin Daniel, Vice President of Assessment Sales and Development concerning confidentiality and security.

- **How is the confidentiality of the principal, principal’s supervisor, and teachers maintained? (Is it stored by email address only, for example?)**

We provide codes that are used to access the survey. We can track responses back to codes but we never gather identifying information for the survey takers except for the principal's name. The program administrator distributes the codes to the respondents and so the confidentiality at that level resides in the hands of the customer.

- **How is the individual electronic assessment data protected and secured on the servers housing the data? Where is the server and is it password protected?**

Security is maintained on Discovery Communication (parent company of Discovery Education Assessment and Discovery Channel) servers that feature multi-tiered security, network monitoring and protection on a 24 hr./7 day/week schedule. Using the latest technology for monitoring security, traffic volumes and hardware, they provide a dependable load balanced service to our school customers. Security on individual server hosts is provided by a multi-tiered level of password protection with users defined as to their privileges, maximizing the security of program functions.

All Discovery Education Assessment work is performed on these same servers housed in redundant locations. This increases the probability that any breach of the security system would be detected by employees as they go about their daily tasks. Social and work engineered security may be the best security of all.

Discovery Education is more than an assessment company, more than a provider of instructional resources. Discovery Communications Inc. has experience with server and data security. The Discovery Communication web-based stores (The Discovery Teacher Store and The Discovery Channel Store have utilized these servers and security systems with credit card and membership transactions for years without breach. These same security systems that protect school information also protect Discovery Channel and related media based intellectual properties. Computer security is an essential business priority for Discovery Communications Inc.

**For how long is the electronic assessment data maintained on the servers?**

This is only the second full year maintaining VAL-ED assessment data. Our policy for other assessment services is to maintain customer data indefinitely to provide access for longitudinal studies. If no longer a customer, our policy is to maintain the data for 5 years.

- **What is the process for destroying the electronic assessment data on the servers?**

Data is hard deleted from production database, development database and all redundant, backup databases to ensure data is fully purged from the system.

Discovery Education Assessment, 2416 21st Ave S Suite 300, Nashville, TN 37212
Office: (615) 324-6090, Fax: (615) 383-6158, [www.discoveryeducation.com/assessment](http://www.discoveryeducation.com/assessment)
Appendix L

Instructions for Completing the

Vanderbilt Assessment of Leadership in Education (VAL-ED)

Thank you for agreeing to participate in this research study of career and technical education leadership.

The results of questionnaire data from 16 schools will form the basis of the research required for completion of my doctoral degree. No individually identifiable data will be collected. Only aggregated data will be used in the study.

The questionnaire should take less than 60 minutes.

Enclosed in this packet are the following items:

- Implied Consent Form – Please distribute one implied consent form to each teacher, instructional leader and supervisor.

- VAL-ED Instruction Sheet – This sheet is necessary for the participants to complete the questionnaire. It includes the address for the website.

- Survey ID and Access Code sheet. All survey codes are the same for the instructional leader in your school; each person has a different Access Code. (Instructional leader Access Codes begin with a P; Supervisor Access Codes begin with an S; Teacher Access Codes begin with a T.)

You may stop at any time. You may go back and change any answers. You may refuse to answer any of the questions. You will not be penalized in any way.

When you have completed the ratings for the 72 leadership behaviors, you have completed your participation in this study.

Thank you for your participation in this study!
Appendix M

INSTRUCTIONS for Completing VAL-ED surveys ONLINE:

BEGIN: A list has been provided to your contract administrator that includes the SURVEY ID and a unique principal, teacher, or supervisor ACCESS CODE for each person. All respondents within a school use the same SURVEY ID for each principal being evaluated. Each person uses a different ACCESS CODE. Principal access codes start with P, Teacher access codes start with T, Supervisor access codes start with S.

Go to the following website: val-ed.discoveryeducation.com

1. You will see a place to enter the SURVEY ID for the principal being evaluated and your individual ACCESS CODE. In order to take a survey, each person needs the SURVEY ID and an ACCESS CODE.

2. Once you have entered the survey ID and access code, the site will identify the principal’s name, confirming that you are entering the data in the correct place.

3. Complete the survey. You can always go back and change your answers at any time on any page prior to completion. When you are finished, click the CONFIRM button.

INSTRUCTIONS for Completing SURVEY ITEMS:

The Vanderbilt Assessment of Leadership in Education (VAL-ED) measures the effectiveness of a principal’s key leadership behaviors that influence teacher performance and student learning. You will be asked to make an effectiveness rating for each of 72 leadership behaviors based on evidence from the current school year.

1. Read each item describing a leadership behavior. In some cases, the principal may not have actually performed the behavior, but he or she has ensured that it was done by others in the school. Either way the behavior should be rated.

2. Check the key Sources of Evidence you use for the basis of your assessment. Note, at least one source of evidence must be checked for an item before you can make an Effectiveness Rating. If you check No Evidence, then Ineffective or Don’t Know must be marked in the Effectiveness column. (Principals do not have the option to check Don’t Know for themselves, but teachers do).

3. If you check any sources of evidence other than No Evidence, always make an effectiveness rating even if you must estimate the effectiveness of the behavior. The number of Sources of Evidence checked is not indicative of the effectiveness rating.

4. Mark the 1 to 5 Effectiveness Rating to indicate how effectively the behavior was performed.

Outstandingly effective means the principal (or the principal’s designee) has carried out a particular behavior (e.g., providing necessary support) with a very strong, positive effect on the targeted area of school activity (e.g., rigorous curriculum).

Ineffective means the principal (or the principal’s designee) has either not done the particular behavior (e.g., not provided necessary support) or has carried out the behavior with very low quality that does not have a positive effect on the targeted area of school activity (e.g., rigorous curriculum).
The Vanderbilt Assessment of Leadership in Education (VAL-ED) is a researched-based evaluation tool that measures the effectiveness of school leaders by providing a detailed assessment of a principal’s perceived performance. VAL-ED focuses on learning-centered leadership behaviors that influence teachers, staff, and most importantly, student achievement. VAL-ED is also a 360° assessment, intended to be taken by not only the principal, but by teachers and the principal’s supervisor, ensuring that the very best feedback is given to principals.

- Measure leadership skills of school principals
- Focus on learning-centered leadership behaviors that influence teachers, staff, and student achievement
- Interpret against both norm-referenced and standards-referenced criteria
- Assess principals against six key processes and six core components
- Develop effective leadership for school improvement

Would you like to learn more? Call 800.323.9084

Contact Us Call 866.814.6685 Request a Preview

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VITA

Mary E. Rodman

38 Skyline Drive, Mechanicsburg, PA 17050; Ph. 412.554.1753, maryrodman@yahoo.com

EDUCATION
The Pennsylvania State University, University Park, PA, Ph.D., May 2012 (anticipated)
California University, Charleroi, PA, M. Ed., May 2000
University of Pittsburgh, Pittsburgh, PA, B.S., December 1978

AREAS OF CERTIFICATION
Superintendent Letter of Eligibility, California State University, 2001
Principal, California State University, 1999
Vocational Administrative Director, Indiana University of Pennsylvania, 1993
Supervisor Comprehensive Vocational Education, Indiana University of Pennsylvania, 1992
Teacher – Accounting, Typing, Bus. Law, Shorthand, Cooperative Education, Marketing/DE

EMPLOYMENT HISTORY
Cumberland Perry AVTS, Mechanicsburg, PA, 17050
Administrative Director, October 2002 to August 2012
Eastern Westmoreland Career and Technology Center, Latrobe, PA 15650
Administrative Director, November 1992 to October 2002
School District of Penn Hills, Pittsburgh, PA 15235
Interim Vocational Administrative Director, Student Assistance Program Coordinator,
Cooperative Education, Perkins Plan Coordinator, Teacher
February 1978 to October 1992

PRESENTATIONS (Limited to the previous two years)
Response to Pathways to Prosperity, February 2012. Panel presenter at the Pennsylvania
Association of Career and Technical Administrators Symposium, Hershey, PA.
Career and Technical Education: Working for America, November 2011. Presentation given
to the Carlisle Sunrise Rotary Club, Carlisle, PA.
Learning-centered Leadership, February 2011. Presentation conducted at Pennsylvania
Association of Career and Technical Administrators Symposium, Hershey Lodge and
Convention Center, Hershey, PA.
Walk-throughs: Making it easy, March 2011. Presentation conducted at the Pennsylvania
Association of Career and Technical Education Special Populations Mid-winter
Conference, Hershey, PA.
Walk-throughs, July 2010. Presentation conducted at the Pennsylvania Association of Career
and Technical Administrators Summer Seminar, State College, PA.
JOC-PAC and Solicitor Relations, August 2010. Presentation conducted for the New
Director’s Workshop, Pennsylvania Inspired Leaders, State College, PA.
Coaching, August 2010. Presentation conducted for the New Director’s Workshop,
Pennsylvania Inspired Leaders program, State College, PA.

PROFESSIONAL ASSOCIATIONS AND MEMBERSHIPS
Pennsylvania Association of Career and Technical Administrators, Association for Career and
Technical Education, Cumberland County Economic Development, West Shore Chamber of
Commerce, Rotary Club of Mechanicsburg-North