

**EXAMINING THE RELATIONSHIP BETWEEN NON-COGNITIVE SKILLS AND
LEADERSHIP: THE INFLUENCE OF HOPE AND GRIT ON TRANSFORMATIONAL
LEADERSHIP BEHAVIOR**

BY

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Hope and Grit on Transformational Leadership Behavior

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ABSTRACT

Though it is widely believed that leadership is instrumental to organizational performance, there is not clear understanding of the identifiable personal factors associated with effective leaders. Recent research in psychology, education, and behavioral economics has started to recognize the importance of non-cognitive skills to many successful life outcomes. However, there is little research connecting non-cognitive skills to effective leadership. Therefore, the purpose of this study is to identify and examine the relationship between the non-cognitive skills of hope and grit in relation to self-identified transformational leadership behavior.

This study utilized elementary school principals as the leaders of interest in order to study the relationship between non-cognitive skills and transformational leadership behavior. Participants completed four instruments including: The Adult Trait Hope Scale, Grit Scale, twenty items measuring transformational leadership on the Multifactor Leadership Questionnaire (5X-Short), as well as a short demographic survey. The study used correlational analyses to examine the relationship between hope, grit, and transformational leadership behavior and also used linear regression analyses to study the predictive relationship between hope, grit, and transformational leadership when controlling for a set of demographic variables.

Findings from this study suggest that not only are both hope and grit positively related to transformational leadership behavior but that both hope and grit predicted transformational leadership behavior when controlling for age, gender, years of administrative experience, high school grade point average, undergraduate grade point average, maternal level of education, and paternal level of education. Similar to previous research examining non-cognitive skills, this study highlights the importance of including non-cognitive skills when trying to predict successful outcomes, as both hope and grit were found to be positive predictors of transformational leadership behavior. With a large literature supporting the idea that non-cognitive skills are malleable, this study has implications for the

fields of leadership development and education, as it adds to the current body of leadership literature examining the dispositional antecedents of effective leaders and has practical implications for the hiring practices and professional development opportunities of school leaders.

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CHAPTER 1

Introduction

Overview

At all levels and sectors of society, leadership is there to guide and ultimately influence results (Bass, 2006). When leaders exhibit successful leadership behaviors¹ such as building trust with colleagues, motivating employees with an inspiring vision, and recognizing that each individual has a different set of strengths, these behaviors put an organization in a position to obtain positive organizational outcomes (Avolio & Bass, 1991). Despite the commonly held view that leadership makes a difference, there still is not a clear understanding of what successful leadership truly entails. Throughout the last one hundred years, scholars have attempted to define and describe the common set of behaviors that are characteristic of effective leaders. Numerous theories such as the “Great Man” theory, McGregor’s Theory X and Theory Y, situational leadership, strengths-based leadership, and transformational leadership have been created to explain the behaviors associated with leading a group to successful outcomes (Bass, 2006).

In addition to the research examining what successful leadership is, there has also been considerable investigation of individuals identified as great leaders. Researchers have attempted to understand the common factors shared by history’s noteworthy leaders. The quest to understand why some leaders succeed at the highest of levels while others achieve average or below average results has plagued researchers as well as leaders themselves. In a review of 124 studies examining the personal traits of leaders, Stogdill (1948) asserted that there was not a consistent set of traits separating leaders

¹ For the purpose of this study, successful leadership is defined as reporting a high level of transformational leadership behaviors, as measured by the Multifactor Leadership Questionnaire (MLQ 5X-Short). The elements composing transformational leadership include the following: individualized consideration, inspirational motivation, intellectual stimulation, idealized influence attributes, and idealized influence behaviors.

from non-leaders across various domains. However, in a subsequent review of 163 new studies, Stogdill (1974) argued that leadership is driven by both personal and situational factors.

When examining the personal factors associated with leadership, recent evidence suggests that leadership is the result of a complex interaction between a person's biological, sociological, and psychological factors. With regard to the biological factors impacting leadership, researchers have demonstrated largely genetic factors such as general intelligence (Zacarro et al., 2004), height (Gladwell, 2005), and personality (Judge et al., 2002) all play a role in predicting leadership occupancy. Sociological forces also play a role in demonstrated leadership traits. Influences such as the parenting style with which a child is raised (Avolio et al., 2009) as well as the developmental experiences in childhood (e.g., Voelker, 2011) and adulthood (Burke & Attridge, 2011) influence the likelihood of serving in a leadership role. Lastly, research also supports the recognition that a leader's own psychological processes influence leadership occupancy and performance. For instance, recent scholarship has highlighted the value and importance of emotional intelligence in leadership success (Boyatzis, 2009; Goleman, 1998).

For the purposes of this study, successful leadership is defined as reporting a high level of transformational leadership behavior, as measured by the Multifactor Leadership Questionnaire (MLQ 5X-Short). The transformational leadership model is one of the most widely used models of successful leadership behavior and focuses on leadership behaviors commonly found within individuals who motivate employees to transform others around them and their organizations (Avolio & Bass, 2004; Bass, 2006). A leader demonstrating transformational leadership behavior repeatedly engages in the five elements that describe the transformational leadership model. First, the leader provides individualized consideration and treats each employee as a unique individual with a unique skillset and set of strengths. Secondly, the leader also engages in inspirational motivation, where the leader creates a vision that is met with enthusiasm and optimism for future goals. Next, the leader provides intellectual stimulation, where subordinates are constantly challenged to innovate and utilize higher-

level critical thinking skills. Finally, the leader also exhibits idealized influence attributes and behaviors where the leader develops deep trust and loyalty with those in the organization by acting with honesty, integrity, and ethical behavior (Avolio & Bass, 2004).

Despite an ample supply of literature examining the personal attributes and traits of leaders, little is known about how non-cognitive skills influence leadership. In uniting a growing body of studies from several fields and disciplines such as psychology, education, and economics, research supports that non-cognitive skills are important predictors of an individual's ultimate success in life (Heckman, Humphries, & Kautz, 2014). Whereas decades of research have highlighted the importance of cognitive skills such as general mental ability (IQ), abstract reasoning, memory, knowledge, and vocabulary, there is a growing body of research illustrating that simply possessing a high level of intelligence and cognitive skills is not always sufficient to lead individuals to the highest levels of success and achievement (Kaufman, 2013; Levin, 2012; Tough, 2012). Instead, there is increasing awareness of another set of variables called non-cognitive skills that are equally as important, if not more important, in ultimately determining the success of an individual (Jackson, 2013). These malleable non-cognitive skills include characteristics such as grit, motivation, self-control, hope, self-discipline, persistence, resiliency, and other factors that appear to play an immense role in predicting the ultimate success of an individual (U.S. Department of Education, 2013). Despite the growing body of research describing how non-cognitive factors are related to numerous successful life outcomes², there is not a clear understanding of whether, or to what degree, these non-cognitive factors influence leadership success.

² Successful outcomes examined in previous studies include labor market outcomes (Heckman et al., 2006; Heckman & Kautz, 2012; Heckman & Rubenstein, 2001), academic achievement (Dweck, 2006; Duckworth & Seligman, 2005; Tracey & Sedlacek, 1982), physical and psychological well-being (Baumeister & Tierney, 2011; Lopez, 2013; Seligman, 2006; Snyder & Lopez, 2005), and workplace performance (Bernardi, 2011; Judge et al., 2002; Judge & Bono, 2001; Luthans et al., 2007; Robertson-Kraft & Duckworth, 2013).

Two non-cognitive skills that have received recent attention by scholars, practitioners, and the popular media are hope and grit (Essig, 2013; National Public Radio and Duckworth, 2013; Perkins-Gough, 2013). Hope is defined as the “goal-directed thinking in which people perceive that they can produce routes to desired goals (pathways thinking) and the requisite motivation to use those routes (agency thinking)” (Lopez & Snyder, 2003, p. 94). Hope is viewed as having both the will to accomplish one’s goals as well as the ways to ensure completion of one’s goals occurs (Kaufman, 2013). This concept has developed as part of a new movement in psychology called positive psychology, which focuses on human strengths and optimal human functioning. Although the literature examining hope and leadership is sparse, hope has been studied alongside numerous other outcomes. For example, having higher levels of hope is associated with better performance in academics and athletics and is associated with superior psychological and physical health outcomes (Lopez, 2013; Lopez & Snyder, 2003).

Like hope, grit is another recent non-cognitive skill that has come to light in the age of positive psychology (Matthews, 2008). Grit, defined as the passion and perseverance for long-term goals, has garnered much attention by both researchers and practitioners in the fields of education, psychology, and business. Grit has been shown to be a predictor of many positive outcomes such as retention in the United States Military Academy, teacher effectiveness, success in the National Spelling Bee, and teacher retention in low-income urban schools (Duckworth et al., 2007; Duckworth et al., 2009; Duckworth et al., 2010; Duckworth & Quinn, 2009; Robertson-Kraft & Duckworth, 2013). Although grit has been found to be able to predict positive outcomes in a variety of domains, at this time there appears to be no studies examining whether grit predicts successful leadership behavior.

This study examines hope, grit, and transformational leadership, and is significant because it generates new knowledge about the dispositional antecedents of successful leaders. Specifically, the study examines the role and influence of two non-cognitive skills, hope and grit, and their relationship to

successful leadership behavior in elementary education principals. By understanding the relationship between hope, grit, and transformational leadership, this study makes a contribution to the leadership development literature and informs school leaders about the relationship between non-cognitive skills and effective leadership.

Purpose

The purpose of this paper is to examine the predictive relationship between non-cognitive skills and transformational leadership behavior by examining how the non-cognitive skills of hope and grit relate to transformational leadership behavior in elementary school administrators.

Research Questions

In order to examine the relationship between non-cognitive skills and transformational leadership behavior, the following research questions guide this study:

- 1) To what extent is there a relationship between a leader's level of hope and self-identified levels of transformational leadership behavior as measured by the MLQ (5X-Short)?
- 2) To what extent is there a relationship between a leader's level of grit and self-identified levels of transformational leadership behavior as measured by the MLQ (5X-Short)?
- 3) To what extent do hope and grit account for the variance in self-identified transformational leadership behavior when controlling for age, years of administrative experience, gender, high school grade point average, undergraduate grade point average, maternal level of education, and paternal level of education?

Significance of Topic

Recent research shows that leadership matters within educational institutions and that effective schools often have strong leaders who provide instructional leadership (Leithwood, 2003; Marzano &

Waters, 2009; Moolenaar, Daly, & Sleeger, 2010; Valentine & Prater, 2011; Wilson, 2000). Organizations improve their performance when leaders are able to command loyalty, define and instill a clear and powerful sense of mission, attract talented workers who believe they are joining something special, and make exacting demands on subordinates (Wilson, 2000). Further, Marzano and Waters (2009) found that leadership traits and behaviors such as having situational awareness, intellectual stimulation, serving as a change agent, and collecting input were all correlated with student achievement at a correlational coefficient of .30 or higher, suggesting that leaders do make a difference on the outcomes desired by educational institutions. A successful leader can make an organization thrive while an ineffective leader can bring harmful effects to an organization and create significant social and financial costs for the organization (Glickman et al., 2010). Given the importance leadership brings to any organization, including public schools, decision-makers (e.g., boards of education, superintendents, administrators) who better understand how to develop effective leaders typically lead their organizations to the highest levels of achievement.

Despite recognition of this tremendous need, there is not a clear understanding of the foundational principles that determine the likelihood of leadership success. Numerous groups and consulting companies³ have been created to help organizations foster leadership that will make their organizations rise to higher levels of organizational performance. Even with the broad scope of the leadership development field, there are still questions about what embodies a great leader. Moreover, the research on non-cognitive skills illustrates the beneficial life outcomes that occur by possessing high levels of non-cognitive skills, but there has been little research investigating the role non-cognitive skills play in determining leadership success. Therefore, the purpose of this paper is to describe the relationship between non-cognitive skills and effective leadership behaviors by examining the

³ The field of leadership development is a 12 billion dollar industry (Avolio & Hannah, 2008).

relationship of hope, grit, and transformational leadership behaviors in elementary education school principals.

Methodology

Elementary school principals in the state of Kansas were selected to participate in the study. These professionals were chosen from the Kansas Consolidated School Directory as well as from a list utilized by the United School Administrators of Kansas organization. One hundred sixteen out of 670 elementary principals participated in the study by completing four instruments measuring hope, grit, transformational leadership, and demographic data; 1) hope was measured by utilizing The Adult Trait Hope Scale, 2) grit was assessed using the 12-item Grit Scale, 3) transformational leadership was calculated by using the 20 items measuring transformational leadership on the MLQ (5X-Short) and, 4) control variables were collected in a brief demographic survey.

Descriptive statistics including means and standard deviations were calculated and analyzed for hope, grit, transformational leadership, as well as the demographic data collected in the surveys. The demographic variables included age, gender, years of administrative experience, high school grade point average, undergraduate grade point average, maternal level of education, and paternal level of education. The relationships between hope, grit, and transformational leadership were examined using Pearson product correlations, and linear regression analyses were used to examine the predictive relationship between hope, grit, and transformational leadership while accounting for the various control variables found in the demographic survey.

Summary

An examination of the literature pertaining to leadership, non-cognitive skills, hope, and grit provides a current state of knowledge and helps illustrate the need for as well as the importance of the current study. This study utilized elementary school principals to study the relationship between non-

cognitive skills and transformational leadership behavior by using four instruments including: The Adult Trait Hope Scale, Grit Scale, twenty items measuring transformational leadership on the Multifactor Leadership Questionnaire (5X-Short), as well as a short demographic survey. The study uses correlational analyses to examine the relationship between hope, grit, and transformational leadership behavior and also uses linear regression analyses to study the predictive relationship between hope, grit, and transformational leadership when controlling for a set of demographic variables.

CHAPTER 2

Literature Review

The purpose of this literature review is to examine the literature on the antecedents of leadership and to examine the relationship between non-cognitive skills and leadership behavior. The review begins by examining leadership theory and transformational leadership, a model of successful leadership behavior that has been studied over the last thirty years. Next, it examines the antecedents of leadership and summarizes the genetic, sociological, and psychological factors contributing to the emergence of leadership traits, and concludes by examining the growing body of non-cognitive skills literature and how factors such as motivation, personality traits, and emotional intelligence are related to leadership.

Leadership Theory

Across all cultures and within every aspect of society, leadership exists in all levels and sectors of human involvement (Bass, 2006). Within an organization, leadership is a key component of change and growth. As the leadership literature continues to grow, however, there remains no consensus of how to define leadership. The word “leader” was documented as early as 1300, but the term “leadership” did not become widely used until the 1800s in describing politicians in the British Parliament (Bass, 2006). In examining the multitude of ways to define leadership, Rost (1993) examined nearly 600 publications describing leadership and found 221 unique definitions for leadership.

The topic of leadership frequently leaves individuals wondering if leadership is more of an art or science, or a combination of the two. For example, Covey (2008) describes leadership as the highest of all arts, thus allowing all other creation possible. Likewise, Beach (2006) describes leadership as an art used in pursuit of survival and prosperity, which produces appropriate changes to an organizations' external environment, structure, functions, and culture. Further, members of the strengths-based

movement view leadership as the art in which a leader harnesses one's strengths to the fullest potential and then maximizes those strengths to promote the well-being of the organization (Rath & Conchie, 2008). Vroom and Jago (2007) see leadership as "a process of motivating people to work together collaboratively to accomplish great things" (p.18). With these ideas in mind, leadership appears to be an art that utilizes one's own personal qualities to motivate, inspire, and empower others within an organization.

To further describe the definition of leadership, a distinction must be made between leadership and management. Management can be described as the ability of a person to get subordinates to complete a task (McGowan & Miller, 2001). Managers often will use their supervisory rank as a force to get subordinates to achieve tasks; therefore, management can be viewed as a top-down hierarchy in which there is a clear imbalance of power, with this imbalance of power typically serving as the key motivator to accomplish activities. Whereas management attempts to understand *how* to do things, leadership emphasizes *what* to do (Kowalski, 2006). Leaders do not necessarily use the top-down approach that managers often utilize but instead motivate their subordinates to rise to a higher level. Effective leaders are guided by higher ideals and values and use these values to inspire others to achieve at higher levels, to use reflection to improve their work-related activities, and to promote a strong sense of community, ownership, and commitment (Bennis, 1984; Burns, 1978). These leaders find a way to connect with their subordinates and work to build positive relationships with others, which then serves to empower their subordinates, thus encouraging subordinates to follow the direction advocated by the leader. The current literature often portrays leadership as superior to management (Kotter, 2008). However, all great leaders must also be great managers, as possessing skills in both management and leadership are necessary for leaders to be effective (Kowalski, 2006).

In attempts to explore and better understand the concept of leadership, scholars have developed multiple theories of leadership to provide a theoretical framework for understanding how

individuals effectively lead others. Though there are numerous theories that attempt to describe leadership (see Bass, 2006), the following review will describe a few select theories including McGregor's Theory X and Theory Y model, strengths-based leadership theory, situational leadership, and transformational leadership.

McGregor's Theory X and Theory Y

One leadership theory is McGregor's (1960) Theory X and Theory Y model. The basic assumption is that managers hold different beliefs about what motivates individuals at the workplace. Theory X assumes individuals do not naturally enjoy working; therefore, managers must employ behavior management techniques to get their employees to perform the functions needed for the organization. On the other hand, Theory Y posits that humans enjoy working and that employees possess the capability to perform duties without the need for strict rules and procedures in place. Unlike in Theory X, advocates of Theory Y believe they can trust their employees and believe employees are committed to the organization, responsible, and capable of solving problems within the organization (McGregor, 1990).

In applying this theory to educational practice, Kowalski (2006) noted that an educational leader's stance on this theory will dictate how he or she treats employees and ultimately determine the behavior of the leader in the workplace. Though leaders recognize that Theory X serves its purpose of motivating employees at certain times, Lezotte (1994) found that educational leaders who work with and through other people tend to have greater success in improving school climate, learning, teaching, and parental involvement.

Strengths-based Leadership Theory

As opposed to McGregor's Theory X Theory Y model, strengths-based leadership theory has a different view. Strengths-based leadership has its root in positive psychology, a movement that seeks to

discover what is inherently right with people instead of what is wrong with them (Liesveld & Miller, 2005). Positive or strengths psychology believes that all people have strengths, and in order to become highly successful, individuals must learn about and harness their innate strengths. This philosophy was described by the founder of strengths-based psychology, Dr. Donald Clifton, as he said, "A leader needs to know his strengths as a carpenter knows his tools, or a physician knows the instruments at her disposal. What great leaders have in common is that each truly knows his or her strengths - and can call on the right strength at the right time" (Rath & Conchie, 2008, p. 13). The theory of strengths-based leadership theory highlights that every leader may use different strengths when leading, and thus no two leaders may lead in the same manner. Martin Luther King, Jr., Winston Churchill, Eleanor Roosevelt, Vince Lombardi, Adolf Hitler, Nelson Mandela, the Dalai Lama, Sandra Day O'Connor, and Mahatma Gandhi were all very different types of leaders with different styles of leadership. Strengths-based theory suggests the common thread between all of these leaders is that they knew how to utilize their strengths to help them become transformational leaders.

Research conducted by the Gallup Organization consistently demonstrates that leaders who attempt to be great at everything will never be great at anything; therefore, one of the greatest misconceptions about leadership is that of a well-rounded leader (Rath & Conchie, 2008). Instead, strengths-based leadership theory suggests that leaders should focus on employing their own strengths. Rather than being a well-rounded leader, advocates of this theory suggest leaders should work diligently to surround themselves with people whose strengths compliment their own strengths. Therefore, this theory advocates that every leader should focus on his or her own strengths and then build a team of diversified strengths.

In examining what makes great teams function, Rath and Conchie (2008) concluded that the best teams possessed four domains of effective leadership. The first domain is described as the executing domain. People strong in this domain know how to complete the work when it needs to get

done. These individuals possess an ability to take an idea of a project and make it become a reality. They can complete all the details and generate something of brilliance. The second domain is called influencing. Employees strong in influencing have the ability to sell ideas. They have tremendous confidence, an ability to take charge, and are not afraid to speak up and share their ideas. The third domain is relationship building. Individuals strong in this area serve as the glue that holds teams together, where they utilize their relationship-building skills to make people feel welcomed, respected, and valued. They work to unite group members together to create a cohesive unit. Lastly, the fourth domain is called strategic thinking. Individuals in this domain serve as the visionary thinkers of the group. Often, they are futuristic in their thinking and help the group to keep in mind what could be. In sum, while individuals may be strong in one or two domains, great teams must possess all four. Therefore, advocates of strengths-based leadership would suggest that leaders of organizations should attempt to understand each employee's strengths and build teams with members whose strengths compose each of the aforementioned domains (i.e., executing, influencing, relationship building, and strategic thinking).

Situational Leadership

A third theory of leadership is situational leadership. Paul Hersey and Ken Blanchard created the idea of situational leadership during the 1980s (Bass, 2006; Hersey, Blanchard, & Johnson, 1988; Pascarella & Lunenberg, 1988). This leadership theory became enticing for educational leaders as the complexity of school reform increased and educational leaders felt an increased pressure to provide data to illustrate their effectiveness (Kowalski, 2006). As this theory developed, advocates thought leadership should be viewed when first looking at the situation and be seen as more of a dependent variable rather than an independent variable to organizational effectiveness (Vroom & Jago, 2007). In examining the influence of the situation on leadership, Vroom and Jago (2007) concluded that leaders must recognize that organizational effectiveness, which is often taken to be an indication of leadership,

is impacted by situational influences that are not under the direct control of the leader, that situations do shape how leaders behave, and that situations influence the consequences of a leader's behavior.

In sum, there are numerous theories attempting to describe and define the nebulous concept of leadership. Previous scholarly work has shown that leadership is a separate concept than management. Further, theories such as McGregor's Theory X Theory Y, strengths-based leadership, and situational leadership have attempted to clarify the concept of leadership and explain the factors that ultimately drive organizational effectiveness.

Transformational Leadership: A Model of Successful Leadership Behavior

Over the last thirty years, one of the dominant models used throughout the leadership literature is the model of transformational leadership, which evolved from the study of transactional leadership. Unlike transformational leadership, transactional leadership is characterized by an exchange of a service for a reward (Bass & Avolio, 1991; Ginsberg and Davies, 2007). A transactional leader motivates followers with extrinsic motivators or punishes followers for failing to achieve the expectations established by the leader (Bass, 2006). In the school setting, for instance, transactional leadership occurs when students pursue goals to achieve parents' approval over their grades, to win scholarships, or for the social approval of their peers or teachers (Avolio & Bass, 2005).

In the late 1970s, James MacGregor Burns developed the concept of transformational leadership, which was initially positioned on the opposite side of a leadership continuum from transactional leadership (Bass, 2006). Burns (1978b) described the model of transformational leadership as containing three key components in which the leader 1) develops within followers a level of consciousness about the need and value of the outcomes of the organization as well as develops ways of reaching these goals; 2) motivates the followers to transcend their self-interests for the sake of the organization's goals; and 3) raises the followers' basic needs from a focus on lower-level concerns (e.g.,

safety and security) to higher level concerns such as achievement and self-actualization. After the concept of transformational leadership was introduced, Bass and Avolio (1991) further developed a continuum of effective leadership. This advanced model included the addition of laissez-faire leadership, which is characterized by a lack of any leadership effectiveness. With this revision, the continuum of leadership now had laissez-faire leadership at the lowest level, followed by transactional leadership, followed by transformational leadership at the highest level. As depicted in Figure 1, transformational leadership, then, accounts for variance in performance above and beyond both transactional and laissez-faire leadership (Avolio & Bass, 2004).

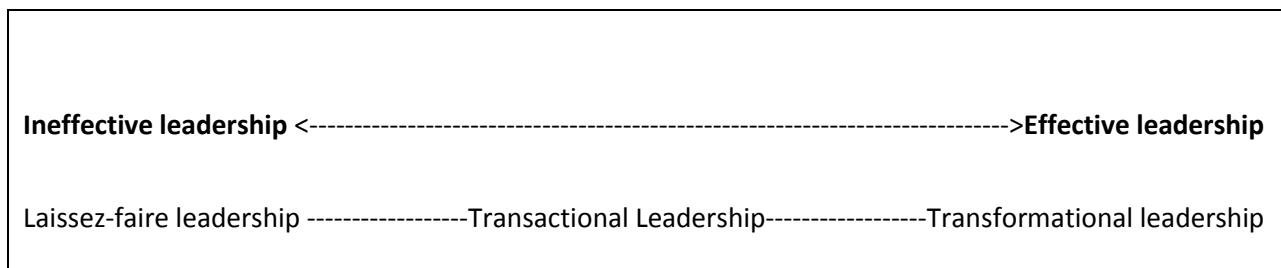


Figure 1: A Continuum of Successful Leadership Behavior. Adapted from “Multifactor Leadership Questionnaire Manual and Sample Set (3rd Ed.)”, by B.M. Bass, B.M. and B.J. Avolio, 2004, Menlo Park, CA: Mind Garden, Inc. Copyright 2004 by Bernard Bass and Bruce Avolio. Adapted with permission.

Over the last thirty years, leadership scholars have continued to expand the model of transformational leadership to include five key elements, often referred to as the five I's (Avolio et al., 1991; Bass and Riggio, 2005). The first of the five I's is individualized consideration. A leader with a high level of individualized consideration will see each of his or her followers as unique persons with unique needs and will help these associates rise to their full potential (Avolio & Bass, 2005). The leader listens to the concerns of the followers and develops relationships with followers characterized by a high degree of empathy, honesty, integrity, support and open communication. The leader seeks to understand what motivates each employee and attempts to place each employee in a position where

his or her strengths can be maximized. As a result, followers view the leader as a role model and are driven to work hard for the leader and the organization.

The second element of transformational leadership is inspirational motivation. Leaders demonstrating inspirational motivation create and sustain a vision that is understood by and inspires followers. Leaders with a high level of inspirational motivation create a sense of optimism about future goals and communicate what is possible and how to obtain those possibilities. The followers of the leader believe in the optimistic vision for what the future holds and thus are motivated to work toward completing the established vision.

The third component of transformational leadership is intellectual stimulation. The leader welcomes followers to take risks, challenges existing frames of thought, and generates innovative ideas. Followers are permitted to question beliefs, assumptions, and values and even, at appropriate times, question the beliefs of the leader (Avolio & Bass, 2005). Leaders creating an environment full of intellectual stimulation reinforce creativity among their followers. Transformational leaders constantly push their followers to be life-long learners in order to develop new ideas that will help the organization.

Finally, idealized influence is the last component of transformational leadership. This final component, though, has been broken down into two areas: idealized influence attributes and idealized influence behaviors. A leader possessing this element develops a strong sense of trust with those in the organization. A transformational leader must demonstrate a high degree of honesty, integrity, and ethical behavior. These leaders often become a strong role model for their followers due to the level of respect and admiration for the leader and thus often obtain a strong sense of loyalty from their followers (Bono and Judge, 2004). A leader with idealized influence encourages development and helps inspire his or her associates to achieve their full potential (Avolio & Bass, 2005). In conclusion, a

transformational leader utilizes a motivational style which involves developing a clear organizational vision and organizing employees to work toward that vision by establishing strong connections with the employees, understanding the unique needs of employees, assisting employees in reaching their full potential, and ultimately contributing to positive outcomes for the organization (Fitzgerald and Schutte, 2010).

Research examining transformational leaders has demonstrated the positive effects of having a transformational leader, who motivates their associates to accomplish more than they originally thought possible (Avolio & Bass, 2004). During the earlier years of the transformational leadership model, Bass (1991) claimed that transformational leadership practices could be learned and should be the subject of leadership training and development. Utilizing meta-analysis to examine twenty-five years of transformational leadership studies, Wang et al. (2011) concluded that transformational leadership has a positive influence on employee performance across numerous work domains. With regard to schools, Leithwood and Jantzi (2000) concluded that transformational leadership has significant effects on organizational conditions and moderate effects on student engagement. A recent study not only found a strong relationship between transformational leadership and instructional leadership, as rated by teachers, but also found that three components of transformational leadership (intellectual stimulation, idealized influence (behavior), and individualized consideration) actually predicted positive instructional leadership behaviors (Finley, 2014). In short, given the current evidence, organizations appear to benefit from transformational leadership.

Measuring Transformational Leadership

While measuring leadership may be a challenge, one instrument, the Multifactor Leadership Questionnaire (MLQ 5X-Short) seeks to measure transformational leadership, transactional leadership and laissez-faire leadership (Antonakis et al., 2003). It focuses on leadership behaviors that motivate

employees to transform individuals and organizations and is composed of five subscales: idealized influence (attributes), idealized influence (behavior), inspirational motivation, intellectual stimulation, and individualized consideration (Avolio & Bass, 2004). Transactional leadership is further disaggregated into three subcategories: contingent reward leadership, management by exception (active), and management by exception (passive). Bass and Avolio (2004) noted an individual using management by exception (active) focuses on subordinates' mistakes and errors and attempts to take corrective action when mistakes occur, while a person using management by exception (passive) will wait for problems to arise before taking action to assist the situation. Thus, being active is better than being passive (Bass & Avolio, 2004). Finally, the most passive and ineffective type of leadership is nontransactional laissez-faire leadership, in which the individual avoids making decisions and clarifying expectations of people in the organization (Bass & Avolio, 2004).

The MLQ (5X-Short) measures nine components of these three types of leadership and includes a total of 45 items, with 36 items being used to measure the nine scales of leadership⁴ (Bass & Avolio, 2004). The remaining nine items measure the three leadership outcomes scales. While prior studies (e.g., Avolio et al., 1995) have illustrated the earlier versions of the Multifactor Leadership Questionnaire demonstrated both sufficient construct validity and internal consistency, more recent research suggests the MLQ (5X-Short) has been validated by both confirmatory and discriminatory factor analysis (Avolio & Bass, 2004). Using a large sample size of 2,279 males and 1,089 females rating their business managers using the MLQ (5X-Short), Antonakis et al. (2003) concluded the MLQ (5X-Short) is both a valid and reliable measure of the components of transformational leadership. Bass and Avolio (2004) noted that prior research suggests that the MLQ (5X-Short) is strongly related to both individual and organization success and therefore has been the chief method to reliably differentiate ineffective from effective

⁴ The MLQ (5X-Short) uses four questions to measure each scale.

leaders in military, government, education, manufacturing, high technology, church, correctional, hospital, and volunteer settings.

Factors Contributing to Leadership

To date, there is not a clear understanding of the antecedents of transformational leadership. For centuries, scholars as well as leaders themselves have sought to understand the individual attributes and characteristics that help facilitate positive leadership behaviors vital to organizational performance. Throughout much of early history, the Great Man theory of leadership dominated. Members of society believed that a person was predestined to become a leader and born with the qualities and characteristics to rule over a country (Bass, 2006). In much of Europe, for instance, society embraced the concept of the Divine Right of Man, which articulated that leaders were chosen by God to lead the country (Spielvogel, 2005). Therefore, citizens believed those in governing positions possessed all the skills and abilities needed to successfully lead an empire.

For the last 100 years, scholars have been trying to identify what factors drive the emergence of leadership behaviors. In attempts to understand the age-old nature versus nurture debate about leadership, researchers have attempted to examine all factors influencing leadership emergence. As described in Bass (2006), the early stages of leadership research during the 1920s through 1940s focused on the common traits among individuals in leadership positions. During the humanistic era of the 1950s and 1960s, scholars largely agreed that leaders were the result of their environment instead of being the products of fortunate genetics. During the 1970s through the 1990s, researchers emphasized how the environment and the leader interact, thus developing leadership theories such as situational leadership. Finally, in the past 30 years, researchers began to utilize emerging neuroscience techniques and twin studies to highlight the role genetics and brain development may have on leadership emergence. Through these years of research, scholars have made evident that leadership is

the result of neither nature nor nurture in isolation (Arvey et al., 2006). Instead, the past one hundred years of leadership literature illustrates that leadership development is a dynamic process that involves genetic predispositions, environmental influences, as well as the leader's own mindset.

Genetic and Biological Factors of Leadership

Since genetic factors have shown to have some influence on whether an individual becomes a leader or not, the question then turns to examining which biological factors may have the greatest impact on leadership emergence. Psychologists have largely agreed that the construct of personality is largely biological and quite stable (Costa & McCrae, 1992). Almlund et al. (2011) noted how personality traits are as heritable as cognitive traits, but they are not set in stone. Based on this belief, researchers have worked to uncover what role personality has in leadership emergence and what personality traits are associated with effective leadership.

One of the most well-known models of personality is Costa and McCrae's (1992) Five Factor Model. The model posits there are five areas of personality: 1) openness (having an appreciation for adventure and curiosity, as well as a willingness to explore new concepts, ideas, and experiences), 2) conscientiousness (being organized and dutiful in completing tasks in a timely manner), 3) extraversion (being outgoing and welcoming the company of others), 4) agreeableness (preferring harmony and cooperation), and 5) neuroticism (having a lack of emotional stability) (Costa & McCrae, 1992). In examining the domains of the Five Factor Model with leadership, Judge et al. (2004) found that extraversion ($r = .33$), conscientiousness ($r = .33$), emotional stability (the inverse of neuroticism) ($r = .24$), and openness ($r = .24$) were all correlated with leadership emergence. This research suggests there is an identifiable relationship between personality and leadership emergence, with extraversion and conscientiousness having the strongest relationship to leadership emergence.

In addition to personality, general intelligence has also been identified as an indicator of leadership emergence (Illies et al., 2004). In an examination of several studies, Zaccaro et al. (2004) concluded that leaders tended to have higher levels of intelligence than non-leaders. Judge et al. (2004) conducted a meta-analysis of 151 studies and reported that IQ and leadership were positively correlated at $r = .27$. Similarly, other leadership scholars have also reported a positive relationship between intelligence and leader performance (Antonakis, 2011; Bass, 2009). These findings come as no surprise, as it would be hard for organizations to promote someone into a leadership position without evidence the person is reasonably competent and intelligent. Regardless, Illies et al. (2004) concluded that the inherited aspects of personality and intelligence account for seventeen percent of leadership emergence, leading the authors to conclude that people are indeed born with genetic predispositions to emerge as leaders.

A growing body of literature describes how modern day neuroscience provides further clues on how intelligence influences leadership. Additionally, prior to the emergence of more modern techniques utilizing functional magnetic resonance imaging (fMRI) and electroencephalogram (EEG) machines to analyze brain functioning in leaders, Sosik and Megerian (1999) concluded there appeared to be a link between emotional intelligence and transformational leaders. Using modern-day neuroimaging techniques, the evidence suggests there are differences in brain functioning between effective leaders as rated by others when compared to less effective leaders (Waldman et al., 2011). Additional research has found similar results in that effective leaders are likely to have higher levels of brain functioning in the frontal cortex, the region of the brain responsible for emotional regulation and emotional intelligence (Stackman & Devine, 2011). This finding may also shed light on and reinforce earlier research (e.g., Judge et al., 2004) regarding how emotional stability is related to leadership emergence. In sum, the recent evidence provided by neuroscience research supports the view that leadership is influenced by biological factors.

In addition to personality and intelligence, physical characteristics have shown to influence leadership emergence. In modern day countries where most people meet their basic nutritional needs, height is largely a result of one's genetics. In examining the role of height and leadership emergence, Judge and Cable (2004) found that height was positively correlated with both leadership emergence and leadership performance. Further, a study conducted by Malcolm Gladwell (2005) found that the average height of male Fortune 500 CEOs was six feet zero inches, which is approximately three inches taller than the average American male. While only 14.5 percent of American males are six feet or taller, 58 percent of male CEOs of Fortune 500 companies reach that height. Further, only 3.9 percent of American males are at least six feet two inches tall, while 30 percent of Fortune 500 male CEOs stand that tall. This evidence implies that height, a largely genetically-driven characteristic, might aid in helping a person reach a leadership position within an organization. However, this research is only correlational in nature, and thus height cannot be said to be causing leadership attainment. Additional research illustrates, though, that height reflects increased earnings when controlling for age, weight, and sex, especially for careers that are highly social (Judge & Cable, 2004).

In furthering the understanding of how nature plays a role in a human's development, researchers have utilized monozygotic (identical) and dizygotic (fraternal) twins. Whereas dizygotic twins share only 50 percent of the same genetics, monozygotic twins share 100 percent. This makes them ideal candidates to enhance the knowledge base regarding the nature versus nurture debate. By examining twins in the study of leadership, researchers concluded that 30 percent of the variance in leadership role occupancy can be explained by genetic factors (Arvey et al., 2006).

Based on the existing evidence, the question of whether genetics plays a role in one's leadership potential suggests there is a relationship. Genetic predispositions influence whether a person is born with the traits and qualities that may assist them in becoming a leader; however, this role is quite minor. Personality studies, neuroscience research examining general and emotional intelligence, research on

the influence of height, as well as twin studies support the notion that genetics may play some role in impacting leadership. This suggests the remaining factors related to leadership emergence and effectiveness falls somewhere outside of biology and genetics.

Environmental Factors of Leadership

Since biological factors cannot fully account for all of leadership emergence, the second area of influence to be investigated is that of the social environment. One's environment undoubtedly plays a large role in an individual's development into adulthood. With specific regard to the emergence of authentic transformational leadership, Sosik and Cameron (2010) concluded that a leader's life experiences play a much greater role in leadership development than does genetics. However, it must be asked then, what life experiences and forces within a person's social environment are shared by leaders?

Leadership development is a lifelong process (Avolio & Hannah, 2008). There is no magical moment when a person instantly becomes a leader; rather, leadership develops in a slow, evolutionary manner beginning from the early moments of one's life. From the moment a child is born, one of the greatest points of influence is the child's parents. Research on attachment, which is described as a long-standing bond of significant intensity that develops between a parent and child, has illustrated that parents play a crucial role in the development of children as early as the first stages of infancy (Armsden & Greenberg, 1987). From prior research, various types of attachment have been shown to be correlated with certain behaviors and traits in children and adolescents. In particular, research by Armsden and Greenberg (1987) suggests that adolescents with secure attachments to parents report greater satisfaction with themselves, a higher likelihood of seeking social support, and less symptomatic responses such as anxiety and depression to stressful life events. On the other hand, adolescents with less secure attachment to their parents have also been found to have greater levels of depression than

their peers with more secure parental attachments (Armsden et al., 1990). Additional research has also shown that those with secure attachments tend to have higher self-esteem than those with insecure attachments (Batholomew & Horowitz, 1991; Brennan & Bosson, 1998).

Parenting style, which is a related, yet separate construct to attachment also influences the development of a child. Baumrind (1967) noted the three types of parenting styles consist of permissive, authoritarian, and authoritative parenting styles. Permissive parents are characterized by being very caring toward their child, yet do not hold the child to high expectations. Authoritarian parents are very demanding toward their child but are not responsive to the child's needs. Lastly, authoritative parents are quite demanding, but they also provide the necessary emotional support to assist the child in meeting their high expectations. Subsequently, a fourth parenting style known as negligent, which is characterized by having low expectations for the child in addition to having low responsiveness to the child's needs, was added to this previous list (Maccoby & Martin, 1983). The literature examining parenting styles has illustrated that parenting styles are correlated with certain types of well-being among children and adolescents. For example, Lamborn et al. (1991) found that those raised with an authoritative parenting style had increased academic competence, lower levels of problematic behavior, and higher levels of psychosocial functioning.

Research has shown a positive relationship between parental levels of education and parenting styles, where parents with higher levels of education exhibit more authoritative styles of parenting characterized by being concerned about developing initiative in their children, providing opportunities for children to have an active role in discussing and creating rules for the home, and utilizing less punitive and harsh physical punishment than parents with lower levels of education (Hoff, Laursen, & Tardiff, 2002). Further, a more recent study found when examining longitudinal data and controlling for indices of socioeconomic status, IQ, and family interactions that levels of parental education measured

in middle childhood accounted for both educational success and occupational prestige at age 48 (Dubow, Boxer, & Huesmann, 2009).

Though these studies' findings on the role of parents are interesting, do these findings also shed light on leadership development? More recent research demonstrates that it does. In examining the relationship of parenting styles with leadership emergence, Avolio, Rotundo, and Walumbwa (2009) found that having authoritative parents who have high expectations along with high levels of support enhances leadership development. Interestingly, the study found that minor rule breaking in childhood is associated with leadership occupancy in adulthood. It appears that children who make poor decisions early in life and have the authoritative parents to help the child learn and grow from those experiences are more likely to grow into leaders capable of making sound decisions as adults. In other words, parents serve as the first leadership developer for children, teaching them how to make sense of experiences, treat individuals, persevere through challenging times, develop, and perform in ways that are required by leaders (Avolio, Rotundo, & Walumbwa, 2009).

Parents are not the only leadership mentors present throughout one's life. Rather, there are other individuals that impact leadership emergence through childhood, adolescence, and early adulthood. In examining the experiences of high school sports captains, Voelker (2011) found that adolescent leaders tend to learn about leadership by observing and interacting with others around them. In interviewing sports captains, many noted the crucial roles previous captains of their sports teams had on their development as leaders. Further, the athletes described that older siblings, community members, past coaches, and fathers helped prepare them for having a leadership role on their team. Finally, the team leaders also described how previous life experiences also played a vital role in helping to develop their leadership skills.

Even in adulthood, a person can continue the process of leadership development. Individuals often take part in educational activities and leadership development programs to cultivate leadership potential. This belief in the ability to develop leaders has helped the leadership development industry transform into a twelve billion dollar industry (Avolio & Hannah, 2008). In a meta-analysis analyzing the effectiveness of leadership development training, Collins and Holton (2004) stated that by participating in leadership development seminars that assure the right development is provided to the right people, individuals are able to develop the behaviors and competencies needed to become successful leaders within their organizations.

Of all the areas contributing to leadership development, one of the most studied areas is life experiences. Based on the leadership development literature, a common trend with leaders is that they have faced difficult times at certain points in their lives (Burke & Attridge, 2011). Prior research has advocated that challenging times may be linked to transformational leadership, where leaders must go through a challenging crisis to emerge as a transformational leader (Avolio & Gibbons, 1988; Sosik & Cameron, 2010). These challenging times have come to be called trigger events, which are described as experiences a person faces that ultimately change them in some way (Cooper, Scandura, & Schriesheim, 2005). These events provide leaders with important learning experiences and create fundamental shifts in how leaders view themselves and others as well as how leaders grow to understand their leadership role (Luthans, 2003; May et al., 2003). Faced with these situations, individuals will experience a tipping point where their behavior finally changes and improves their leadership functioning (Boyatzis, 2008).

In Collins (2001) work examining the concept of a Level 5 leader, the highest level of leader who builds enduring greatness through a paradoxical blend of personal humility and professional will, Collins described the life experiences and trigger events that helped foster the development of Level 5 leaders. Collins noted,

that some of the leaders in our study had significant life experiences that might have sparked or furthered their maturation. Darwin Smith fully blossomed after his experiences with cancer. Joe Cullman was profoundly affected by his World War II experiences, particularly the last-minute change of orders that took him off a doomed ship on which he surely would have died. A strong religious belief or conversion might also nurture development of Level 5 traits. (Collins, 2001, p. 37)

As described in this section, environmental factors may play an important role in a person's leadership development. The research suggests that having parents utilizing an authoritative parenting style, leadership mentors such as older peers, community members, coaches, and other supportive individuals throughout childhood, and opportunities provided by leadership development training can also facilitate leadership development. Also, life experiences play an immense role. The literature describes how notable leaders often experience very challenging and difficult periods of adversity, which provide these individuals invaluable opportunities to learn and grow.

Psychological Factors of Leadership

In addition to the previously described biological and social factors that influence leadership emergence, individuals' cognition can play an integral role in leadership emergence. In the leadership development literature, one of the concepts gaining attention is the idea of developmental readiness in leadership. Developmental readiness is described as the ability and motivation to attend to, make meaning of, and assimilate new leader knowledge, skills, abilities, and attributes into knowledge structures along with associated changes in identity to employ these knowledge, skills, abilities, and attributes (Hannah & Avolio, 2010). In other words, there exists a readiness to lead for individuals

desiring leadership roles in which they feel confident they are ready to lead. With this in mind, the next step is to understand what psychological factors produce this readiness to lead.

In preparation to lead, people must have a firm understanding of themselves, and they must have a clear understanding of self-concept and self-awareness (Boyatzis & McKee, 2005). In doing so, they will ultimately quicken the speed at which they develop as leaders (Hannah & Avolio, 2010). Self-awareness and self-concept are not the only psychological factors that influence leadership, but self-esteem and confidence also impact the emergence of leadership. Not only do these factors influence leadership emergence, but research also supports that they also impact leadership styles associated with positive organizational outcomes. In a study examining self-esteem and leadership style, Schoel et al. (2011) found that leaders with higher levels of self-esteem are more likely to use democratic leadership styles whereas leaders with lower levels of self-esteem are more likely to use autocratic leadership styles. Likewise, leaders also seem to possess high levels of confidence and a “never say die” attitude that assists them in pushing through adverse periods in life and overcoming obstacles (Saghal & Pathak, 2007).

Lastly, effective leaders exhibit high degrees of self-motivation. In his examination of 100 leaders across multiple disciplines, Han (2005) found that leaders have tremendous drive and ambition, as well as a highly competitive nature. In noting the characteristics of Level 5 leaders, Collins (2001) stated that “Level 5 leaders are fanatically driven, infected with an incurable need to produce results” (p. 30). Likewise, Level 5 leaders will rarely doubt or waver in their decisions but instead possess an incredibly high degree of motivation, thus permitting them to set the standard for success and do whatever it takes to achieve results. If a person wants to emerge as a leader, they must have the desire to become a leader (Boyatzis, 2008). In a longitudinal study examining leaders, Dannels et al. (2008) found that those who wanted to attain a higher leadership position were more likely to obtain the positions they desired compared to those that did not desire to attain a higher leadership position.

In recent decades, the concept of emotional intelligence has been gaining momentum and increasing popularity within the applied and academic area of leadership. The concept grew from the early research in the 1920s by psychologist Edward Thorndike during his work examining social intelligence. Later, Salovey and Mayer (1990) developed the term emotional intelligence as a way to describe one's ability to manage one's own as well as others' emotions. Psychologist Reuven Bar-On expanded this concept to include the ability to understand and manage others, while Daniel Goleman (1998) further developed these theories and brought emotional intelligence into the mainstream (Nadler, 2011).

Emotional intelligence is a key component of leadership (Boyatzis, 2009). Research has demonstrated that emotional intelligence provides significant advantages to individuals and their organizations (Ginsberg & Davies, 2007). Leaders that possess emotional intelligence have greater levels of initiative and are more adaptable, resilient, optimistic, as well as have flourishing careers and long-lasting relationships (Nadler, 2011). Further, advocates of emotional intelligence assert that while general intelligence accounts for only four to ten percent toward a leader's success, emotional intelligence contributes as much as eighty-five to ninety percent of leadership success (Boyatzis & McKee, 2005; Goleman, 1998; Nadler, 2011).

Emotional intelligence consists of four domains: self-awareness, self-management, social awareness, and relationship management (Boyatzis & McKee, 2005). A leader with strong self-awareness has a keen understanding of his strengths and weaknesses and also has a tremendous amount of self-knowledge where he understands his needs and wants because he continuously engages in a process of self-reflection (Han, 2005). The second domain of emotional intelligence is self-management, where leaders with high levels of self-management have the ability to stay calm during stressful situations by possessing high levels of emotional self-control. Individuals high in self-

management are highly adaptable and possess great achievement-oriented behavior, initiative, and optimism (Boyatzis & McKee, 2005).

The third domain of emotional intelligence is social awareness, in which a leader has the ability to sense others' emotions using empathy. In using this skill, they can gain a sense for the organizational climate and adjust their actions to meet the employees' or customers' needs. Those high in organizational awareness can sense the current state of the organization and decipher the politics of the institution in order to make positive decisions for the organization and its people (Cooper & Sawaf, 1996). Finally, the fourth domain of emotional intelligence is relationship management. Leaders high in this domain have the ability to motivate, empower, and inspire their employees. They use their influence and ability to develop others to help build productive bonds with people within and outside of the organization. They are highly effective at building a productive team using collaboration and conflict management (Boyatzis & McKee, 2005).

In sum, the psychological concept of emotional intelligence has received considerable attention over the last twenty years and has been studied among leadership scholars. Research suggests it is important in facilitating and promoting leadership effectiveness; however, because emotional intelligence has already been studied in great detail among leadership scholars, this study will attempt to examine another set of psychological factors, known as non-cognitive skills, which may also impact leadership effectiveness.

Non-cognitive Skills

Another realm of psychological factors that may impact leadership is known as non-cognitive skills. Whereas success has traditionally been best predicted by general intelligence, there is a growing awareness that other factors may contribute to positive life outcomes beyond general mental ability (Heckman & Kautz, 2012). The term given to this category of characteristics is called non-cognitive skills.

Though the term has been used for a few decades (e.g., Tracy & Sedlacek, 1982; Fuertes et al., 1994), non-cognitive skills began to gain greater attention through the work of economist and Nobel Prize laureate, James Heckman. Non-cognitive skills include concepts such as grit⁵, self-control, trust, attentiveness, self-esteem, self-efficacy, resiliency, openness to experience, empathy, humility, tolerance of diverse ideas, and the ability to productively engage in society (Heckman et al., 2014). In their work examining non-cognitive skills, Heckman and Kautz (2012) describe how “these attributes go by many names in the literature, including soft skills, personality traits, non-cognitive skills, non-cognitive abilities, character and socioemotional skills” (p. 4). Rosen et al. (2010) described non-cognitive skills as the academically and occupationally relevant skills and traits that are not specifically intellectual or analytical in nature. The term non-cognitive skills has taken favor over non-cognitive traits due to the fact that these factors are viewed as malleable skills, in which there are proven and effective methods to develop these qualities crucial for success (Heckman et al., 2014).

Non-cognitive skills are viewed as the missing ingredients that help explain the variation of any outcome above cognitive level (Heckman et al., 2014). Heckman and Rubenstein (2001) stated the importance of non-cognitive skills when studying GED recipients relative to high school graduates. Despite having similar levels of general intelligence as high school graduates, as measured by an intelligence test, the GED recipients went on to struggle in several key life outcomes. The GED recipients ended up earning less income as adults, having higher divorce and unemployment rates, and reporting higher rates of illicit drug use. Whereas forty-six percent of the high school graduates in the study enrolled in higher education, only three percent of those with a GED went on to further their education. Further research confirmed earlier work to illustrate that non-cognitive skills impact labor market outcomes and social behavior (Heckman et al., 2006). Rauber (2007) demonstrated that non-cognitive

⁵ Grit is described as the passion and perseverance of long-term goals (Duckworth and Quinn, 2009).

skills measured in adolescence were positively related to income, occupational prestige, and happiness in adults at the age of forty-three.

Non-cognitive skills are also studied by psychologists. Unlike economists, though, psychologists have traditionally called these non-cognitive skills socio-emotional skills, personality traits, and positive psychological constructs. Similarly to the behavioral economics research showing the positive relationship between non-cognitive skills and labor market outcomes, psychologists also have discovered that these qualities are key components to success and well-being. For instance, motivation and self-regulation have been found to be predictive of successful social development and well-being (Deci & Ryan, 1985; Eccles, 2002; Rauber, 2007). Noftle and Robins (2007) found that the personality trait of conscientiousness was positively correlated with students' GPA and SAT scores. Tagney et al. (2004) found self-control to be positively correlated with student grades, good adjustment, and interpersonal success while being negatively correlated with psychological pathology. Vohs and Faber (2007) discovered that having higher levels of self-regulation prevented individuals from having impulsive shopping habits. In examining the role self-discipline has on academic achievement, researchers discovered that self-discipline was twice as good as IQ at predicting student grades (Duckworth & Seligman, 2005). Altogether, the influence of self-control and self-discipline led some scholars to claim that willpower is the greatest of all human strengths (Baumeister & Tierney, 2011). Whereas these psychological factors have been largely viewed as being stable throughout a lifetime, new research illustrates some of these personality traits may be malleable throughout a person's life, especially in childhood and young adulthood (Cunha et al., 2006, Duckworth et al., 2011; Roberts et al., 2006).

Recognizing the similar characteristics they were analyzing, psychologists and economists since have joined forces in understanding these non-cognitive skills related to success. Together, these researchers have highlighted the importance of these non-cognitive skills or personality traits in

numerous positive life outcomes, such as income levels of adults (Almlund et al., 2011; Borghans, et al., 2008). Further, educational research illustrates that non-cognitive skills serve as positive predictors of both teacher effectiveness and teacher evaluation ratings (Bastian, 2013). Carol Dweck (2006) highlighted the importance of developing a growth mindset in promoting academic achievement among students as well as workplace performance among adults.

Higher education is also beginning to sense the importance of these non-cognitive skills, as university administrators are starting to measure these non-cognitive skills in applicants (Kyllonen, Walters, & Kaufman, 2005). For example, the Educational Testing Service (ETS) recently released the SuccessNavigator, an instrument to measure applicants' and students' non-cognitive skills. In creating this instrument, they described how research supporting the importance of non-cognitive skills has not intended to show that cognitive ability is ineffective in predicting student success but is rather an incomplete way to predict success (Markle et al., 2013). In sensing the enthusiasm about the impact of these non-cognitive skills in selecting students for admissions, one *Chronicle of Higher Education* author titled his article, "Noncognitive Skills: The Next Frontier in College Admissions" and advocated that non-cognitive skills are important predictors of college success (Hoover, 2013). More recently, in reference to helping students develop their full potential, the Office of Educational Technology at the United States Department of Education stated, "If students are to achieve their full potential, they must have opportunities to engage and develop a much richer set of skills. There is a growing movement to explore the potential of the "non-cognitive" factors—attributes, dispositions, social skills, attitudes, and intrapersonal resources, independent of intellectual ability—that high-achieving individuals draw upon to accomplish success" (United States Department of Education, 2013, p. 1).

In conclusion, there is a growing awareness to the role non-cognitive skills play in determining numerous successful outcomes. Literature from behavioral economics, psychology, and education are beginning to synthesize a better understanding of these factors and characteristics that drive life

achievement and success (Heckman and Kautz, 2012). Although often referred to by different names, each of these academic disciplines describes the same set of characteristics. While it is clear these non-cognitive skills are important for many life outcomes, there is a very limited literature that describes the relationship between non-cognitive skills and its potential relationship to leadership traits and activities.

Non-cognitive Skills and Leadership

In addition to the psychological factors such as emotional intelligence and components of the Big Five personality taxonomy (i.e., openness, conscientiousness, extraversion, agreeableness, and neuroticism), leadership scholars have examined other non-cognitive skills related to leadership. In reviewing the body of literature of these non-cognitive skills and character traits of leaders, Bass (2006) concluded:

The leader is characterized by a strong drive for responsibility and completion of tasks, vigor and persistence in the pursuit of goals, venturesomeness and originality in problem solving, a drive to exercise initiative in social situations, self-confidence and a sense of personal identity, willingness to accept the consequences of his or her decisions and actions, readiness to absorb interpersonal stress, willingness to tolerate frustration and delay, ability to influence other people's behavior, and the capacity to structure social interaction systems to the purpose at hand. (p. 101)

The set of personal factors noted in Bass' characterization of effective leaders largely describe the non-cognitive factors of hope and grit.

Hope

Hope is defined as “goal-directed thinking in which the person utilizes pathways thinking (the perceived capacity to find routes to desired goals) and agency thinking (the requisite motivations to use those routes)” (Snyder & Lopez, 2005, p. 189). Research in psychology suggests that hope is different from other similar positive psychological constructs such as optimism, self-efficacy, and problem-solving (see Seligman, 2006; Bandura, 1994; Snyder et al., 2005, respectively). As a person works toward the pursuit of a goal, the individual may encounter a stressful event that could potentially block the intended route and prevent the individual from accomplishing the goal. It is at this moment when pathways thinking (i.e., developing alternate routes that circumvent the obstacle) is necessary. If a person is able to successfully navigate around the obstacle and continue the goal-directed behavior, then positive outcomes result. However, if the individual either lacks the agency (i.e., desire to move forward and pursue the goal) or the person cannot determine pathways (i.e., alternate routes to the goal), then the process of achieving a goal is hindered (Snyder, Rand, & Sigmon, 2005). Therefore, hope emphasizes reaching positive goal-directed outcomes instead of distancing oneself from negative outcomes (Snyder et al., 2005).

Individuals with higher levels of hope compared to those with lower levels of hope have been found to have higher academic achievement, greater success in athletics, better physical health, improved psychological adjustment, and positive outcomes in psychotherapy (Snyder & Lopez, 2005). Studies have shown that hope is correlated with higher grades, ability to handle negative stressors, as well as better scores on achievement tests, increased likelihood of graduating, and decreased likelihood of dropping out of school (Ciarrochi, Heaven, & Davies, 2007; Snyder et al., 2005; Valle, Huebner, & Suldo, 2006). Hope was also found to be a protective factor with regard to mental health concerns, reducing the severity of depression and anxiety symptoms (Arnaud et al., 2007). In an examination of the hope literature, Lopez (2013) notes that hope leads to a twelve percent gain in academic achievement, a

fourteen percent improvement in organizational outcomes, and a ten percent improvement in psychological well-being.

Like the literature examining other non-cognitive factors, however, the literature examining hope is sparse in its relationship to leadership. In their work examining successful leaders, Rath and Conchie (2008) found that having hopeful leaders was important for organizational success. Of employees who reported their leaders made them feel enthusiastic about their future, sixty-nine percent of the employees reported being engaged in their jobs. On the flip side, of the employees reporting their leaders did not make them feel enthusiastic about their future, only one percent of employees reported being engaged. Avey et al. (2006) found that employees with high levels of hope took less than three days of sick time throughout the year versus more than ten days of sick time for those with low levels of hope. Thus, research suggests that hope matters.

Grit

Another non-cognitive skill that has gained recent attention is grit, which is defined as a passion and perseverance for long-term goals (Duckworth et al., 2007). Although somewhat related to self-control at levels of $r = .60$ or greater, grit is considered a separate construct (Duckworth et al., 2007). For instance, Duckworth and Gross (in press) note that whereas self-control involves continuing actions toward a valued goal despite on-going distractions over the short term (e.g., hourly temptations), grit is viewed as the ability to work toward a valued goal over the course of years or even decades without giving up.

In studying this non-cognitive skill, grit has been found to be a predictor of success in the National Spelling Bee contest, retention among West Point cadets in the United States Military Academy, teacher effectiveness, and teacher retention among novice teachers (Duckworth et al., 2009; Duckworth et al., 2010; Duckworth and Quinn, 2009; Robertson-Kraft and Duckworth, 2013). More

recent work examining grit discovered that although grit predicted retention among United States Military Academy cadets, it did not predict performance among the group of cadets (Maddi et al., 2012). In a study examining college grades, Strayhorn (2013) found grit explained twenty-four percent of the variance in Black male's college grades that were attending predominantly white educational institutions. Eskries-Winkler et al. (2014) found that grit predicted positive outcomes such as the likelihood of soldiers completing the Army Special Operations Forces selection course, sales employees retaining their jobs, high school students graduating high school, and males staying married beyond a set of variables that included intelligence, physical aptitude, Big Five⁶ personality traits, and job tenure.

Like the previously mentioned non-cognitive skills, grit is a positive predictor of several important life outcomes. In examining research involving grit, though, there has been no published studies that examine the role of grit in predicting effective leadership behavior. Thus, a primary goal of this study will be to explore whether effective leaders, possessing and demonstrating transformational leadership behavior, are more likely to have higher levels of grit than those exhibiting less transformational leader behavior.

Measuring Non-cognitive Skills

Despite research suggesting non-cognitive skills are important for many successful life outcomes, there are considerable difficulties in attempting to measure these skills (Kyllonen et al., 2005). In describing the importance of measurement, Lopez and Snyder (2003) stated "If we are impressed with something that is labeled, we are even more impressed when some sort of measurement metric is attached to that named entity" (p. 23). Therefore, it is critical to have valid and reliable instruments to measure non-cognitive skills, for without these instruments, there would be no

⁶ The Big Five personality traits include openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism.

way to assess the existence of these skills that research suggests are important. For this paper, two self-report assessments will be utilized to measure the non-cognitive skills of hope and grit.

Since the study of hope began in the late 20th century, there have been at least 26 theories or definitions attempting to clarify and define the concept of hope (Lopez & Snyder, 2003). The dominant model of hope over the last 25 years, however, has been the model proposed by C.R. Snyder, where hope is defined as “a cognitive set that is based on a reciprocally derived sense of successful (a) agency (goal-directed determination) and (b) pathways (planning of ways to meet goals)” (Snyder et al., 1991, p. 570). To measure this model, Snyder developed The Adult Trait Hope Scale, which is made of twelve questions, with four questions assessing the agency subscale, four questions assessing pathways subscale, as well as four questions that serve as distractor items. The instrument uses an eight-point Likert scale ranging from “definitely false” to “definitely true”. A total hope score is calculated by adding together the score on each of the items measuring agency and pathways. In summing these eight items, hope scores can range from eight to sixty-four, with sixty-four being the highest hope score possible.

The Adult Trait Hope Scale has demonstrated sound psychometric properties, including its reliability, which has demonstrated acceptable levels of internal consistency ($\alpha = .74 - .84$). This illustrates that all the items on the scale are assessing the same construct. The test-retest correlations have been above .80 over time periods of ten weeks or more, demonstrating that the construct of hope is not a state-dependent psychological construct. Further, The Adult Trait Hope Scale demonstrates discriminant validity when compared to other similar non-cognitive skills such as optimism and self-confidence (Lopez & Snyder, 2003), thus showing that it is a separate and unique construct from other positive psychological variables.

Grit is a relatively new construct measuring the trait-level passion and perseverance for long-term goals (Duckworth et al., 2007; Duckworth & Quinn, 2009). Duckworth et al. (2007) first developed

the Grit Scale, which utilizes a five-point Likert scale to respond to twelve items such as "I finish whatever I begin" as well as reversed scored items such as "My interests change from year to year." A total grit score is calculated by reverse scoring the appropriate items, summing the score for each of the twelve items on the Grit Scale, and dividing the total score by twelve. Scores on the Grit Scale can range from one through five, with five being the highest grit score possible. Although there are no norms established for grit, Duckworth et al. (2007) found the mean grit score was 3.65 for a sample of 1,545 adults aged 25 and older. The instrument was found to have good internal consistency ($\alpha = .85$), thus providing evidence that the items on the Grit Scale are measuring the same construct (i.e., grit). The assessment uses a two-factor model, measuring for consistency of interests and perseverance of effort over extended periods of time. Analyses demonstrate that neither factor is more predictive of outcomes than the other and that the two factors together are more predictive of positive outcomes, thus leading the authors to recommend using total scores for the twelve-item instrument designed to measure grit (Duckworth et al., 2007).

Summary

The goal of this paper is to examine whether there is an identifiable relationship between non-cognitive skills and transformational leadership behavior. There has been an abundance of research that has sought to understand the identifiable personal factors effective leaders share. Further, there is a growing body of research in psychology, education, and behavioral economics that suggests that non-cognitive skills are related to many positive life outcomes. However, there has been little research examining the relationship between non-cognitive skills and effective leadership behavior. Because the term non-cognitive skills is so broad and could encompass hundreds of different personality traits and behavioral characteristics, it would be impossible to explore the role of all non-cognitive skills in one paper. Therefore, this paper examines the relationship of two specific non-cognitive skills, hope and grit, and their relationship with transformational leadership behavior.

CHAPTER 3

Methodology

The purpose of this study is to examine the relationship between the non-cognitive skills of hope and grit and transformational leadership behavior. The first two chapters of this paper introduced the topic of the study and provided a review of the literature describing the factors related to leadership as well as a review of the growing body of non-cognitive skills literature. The following study seeks to connect these bodies of literature to examine how hope and grit influence transformational leadership behavior. The study will focus on a sample of Kansas public elementary school principals who completed the survey and scale instruments used to assess hope and grit and self-reported transformational leadership behavior. The following section outlines the procedures used to collect data on the relationship between hope, grit, and transformational leadership behavior in Kansas elementary school principals.

Research Questions

The goal of this study is to examine the relationship between hope and grit and transformational leadership behavior. With this in mind, the three research questions guiding this study include:

- 1) To what extent is there a relationship between a leader's level of hope and self-identified levels of transformational leadership behavior as measured by the MLQ (5X-Short)?
- 2) To what extent is there a relationship between a leader's level of grit and self-identified levels of transformational leadership behavior as measured by the MLQ (5X-Short)?
- 3) To what extent do hope and grit account for the variance in self-identified transformational leadership behavior when controlling for age, years of administrative experience, gender, high school grade point average, undergraduate grade point average, maternal level of education, and paternal level of education?

Null Hypotheses

The null hypotheses of the study include:

- 1) There is no relationship between a leader's level of hope and his or her self-identified levels of transformational leadership behavior as measured by the MLQ (5X-Short).
- 2) There is no relationship between a leader's level of grit and his or her self-identified levels of transformational leadership behavior as measured by the MLQ (5X-Short).
- 3) Hope and grit do not account for more variance in self-identified transformational leadership behavior than age, years of administrative experience, gender, high school grade point average, undergraduate grade point average, maternal level of education, and paternal level of education.

Examination of Variables

The study applied quantitative methods to understand the relationship between non-cognitive skills (i.e., hope and grit) and transformational leadership behavior. Data for this study were collected using The Adult Trait Hope Scale, the Grit Scale, the MLQ (5X-Short), as well as demographic data collected in a short survey. The independent variables of interest were the leaders' levels of hope and grit, as measured by The Adult Trait Hope Scale and the Grit Scale, respectively. In assessing levels of hope, participants completed only eight items on the instrument used to generate a hope score. The four distractor items included in the full instrument were not utilized in order to limit the number of items each participant had to complete in attempt to improve the sample size of the study. The level of grit was measured by the subject's score on the 12-item Grit Scale, as developed by Duckworth et al. (2007). The dependent variable for this study was the subjects' transformational leadership behavior scores on the MLQ (5X-Short). The transformational leadership model was used in this study because of the ample supply of studies demonstrating its ability to predict positive organizational outcomes in

several fields, including education (see Avolio & Bass, 2004; Leithwood & Jantzi, 2000; Finley, 2014; Kirby et al., 1992). Further, the MLQ (5X-Short) was used because it is a valid and reliable method to operationally define transformational leadership (Avolio & Bass, 2004; Kirby et al., 1992). In this study, subjects took the self-report leader version of the MLQ (5X-Short). Since the purpose of this paper is to examine only transformational leadership behavior, participants responded only to the twenty questions on the MLQ (5X-Short) that measured transformational leadership behavior. A single total transformational leadership score was created by adding together the scores of the items assessing the five subscales of the transformational leadership model (i.e., individualized consideration, inspirational motivation, intellectual stimulation, idealized influence attributes, and idealized influence behaviors).

In order to isolate the variables of interest from factors not associated with grit or hope, a demographic survey was used to collect data related to the control variables. Some of these variables (i.e., gender, age, and years of administrative experience) were included for descriptive purposes while the other variables were included to account for personal factors that may be associated with transformational leadership behavior. For example, high school grade point average, undergraduate grade point average, and ACT scores were used as proxies of cognitive ability while parental levels of education were used as a way to control for a person's family background (e.g., parenting style, attachment, etc.), which research has demonstrated to influence positive leadership behavior. A list of variables is included in Table 1.

Table 1: List of Study Variables

Variable	Type of Variable	Description/Definition	Measurement
Transformational Leadership	Dependent variable of interest	The ability to proactively raise follower awareness for collective interests and help followers achieve extraordinary goals (Antonakis et al., 2003)	Multifactor Leadership Questionnaire (5X-Short) (20 items)
Hope	Independent variable of interest	Goal-directed thinking in which people perceive that they can produce routes to desired goals (pathways thinking) and the requisite motivation to use those routes (agency thinking). (Lopez & Snyder, 2003, p. 94)	Trait Hope Scale (8 items)
Grit	Independent variable of interest	Passion and perseverance for long term goals (Duckworth et al., 2007)	The Grit Scale (12 items)
Undergraduate GPA	Control	Cumulative grade point average during undergraduate program	Self-report continuous range on a 4.0 scale
Maternal Level of Education	Control	Highest degree earned by the subject's mother	Self-report Scaled Range 0 = less than high school 1 = high school/GED 2 = some college 3 = bachelor's degree 4 = master's degree 5 = doctorate/professional degree 6 = does not know/does not apply
Paternal Level of Education	Control	Highest degree earned by the subject's father	Self-report Scaled Range 0 = less than high school 1 = high school/GED 2 = some college 3 = bachelor's degree 4 = master's degree 5 = doctorate/professional degree 6 = does not know/does not apply
Gender	Control	Gender of the subject	Self-report <input type="checkbox"/> male <input type="checkbox"/> female
Years of Administrative Experience	Control	Years serving as a licensed school administrator	Self-report years of experience continuous range
ACT Score	Control	Score earned on the ACT	Self-report continuous range
High School GPA	Control	Cumulative unweighted grade point average earned during high school	Self-report continuous range on a 4.0 scale

Sample Population

Participants in this study ($n=116$) included a sample of Kansas elementary principals. For the purpose of this study, an elementary principal was defined as a professional school employee possessing a license to serve as an educational administrator at the elementary level and who is currently employed as a principal (Kansas State Department of Education, 2014). Elementary school administrators in Kansas were chosen using a convenience sample to be the leaders investigated. In order to increase the potential sample size, there are a greater number of elementary principals than middle school principals, high school principals, or superintendents in Kansas. Therefore, this population was utilized in the study in hopes of obtaining the largest possible sample size. Elementary school administrators were chosen from a list provided by the executive director of the Kansas United School Administrators (KUSA) organization with the goal of obtaining a sample size of approximately 100 participants, which is similar to other studies examining non-cognitive skills (e.g., Duckworth & Seligman, 2005; Saxe, 2011). This sample size was deemed appropriate because it would provide enough participants to determine whether there was a relationship between the variables while still creating statistically significant results (Slavin, 2007).

Data Collection

In the first phase of data collection, an email message describing the study was sent to the Kansas elementary school principals on the list provided by KUSA. The email explained the purpose of the study, invited participation to the study, and provided a survey link to access the instruments. The link began with an opening webpage that informed the participants that by clicking on the following link, they provided consent and agreed to participate in the study. Next, participants took the instruments to measure hope (Appendix A), grit (Appendix B), transformational leadership behavior (Appendix C,) as well as demographic data (Appendix D). The Adult Trait Hope Scale and the Grit Scale are public domain

for research purposes, while the creators of the MLQ (5X-Short) permit usage of the instrument after purchasing a license to reproduce the instrument from Mind Garden, Inc. (Appendix E). All four instruments were reproduced in an online single survey using Qualtrics to simplify the process for the participants. The Qualtrics survey instruments were password protected, thus limiting access to participation via invitation only.

Data Analysis

Data were collected, recorded, and analyzed using Microsoft Excel to tabulate administrators' responses on The Adult Trait Hope Scale, the Grit Scale, the MLQ (5X-Short), and the demographic survey. The data were then imported in Statistical Package for the Social Sciences (SPSS) and examined, with each variable analyzed to evaluate whether normal distributions were obtained. While some variables such as hope and administrative tenure showed evidence of a negative and positive skew, respectively, the dependent variable of transformational leadership behavior demonstrated normal distribution. Because the assumption of normality in regression modeling was met by the dependent variable of the study (i.e., transformational leadership behavior), it was not necessary to normalize the other data in this study. To analyze the first two proposed research questions, Pearson product moment correlations were used to examine the relationship of the two non-cognitive skills and transformational leadership behavior. Finally, to examine the impact of hope and grit above and beyond the control variables, multiple linear regression analyses were used to examine this relationship. These regression analyses permitted the ability to hold constant a variety of factors related to transformational leadership such as age, gender, years of administrative experience, grade point averages, and maternal/paternal levels of education.

Ethical Considerations

All participants indicated consent to take part in the study, and as noted in Appendix F, participation in the study was voluntary. To help protect confidentiality, no identifying data such as the participants' names or places of employment were collected. Participants were given the option to decline participation or choose to no longer participate in the study. Participants were not compensated in any manner, and all data collected as part of the study were kept confidential and in a locked and secure location within a password protected computer. Data were kept through the duration of the study and dissertation process and are to be destroyed upon conclusion of the study.

Limitations

Slavin (2007) notes that external validity can be a common threat to research in education. Thus, one limitation of the study involves the generalizability of the results. Due to the challenge in getting educational leaders to complete several instruments, obtaining a large enough sample size to generalize the results to elementary educational leaders across the state of Kansas was a challenge. Secondly, another limitation involved using self-report instruments to measure both non-cognitive skills and leadership effectiveness. For instance, the MLQ (5X-Short) Self Form measures the potentially biased self-perception of leaders' transformational leadership behavior. Leaders could inflate their scores of their own perceived leadership behavior relative to having subordinates or superiors complete the form describing the leader's observed behavior.

CHAPTER 4

Results

The goal of this study was to examine the relationship between the non-cognitive skills of hope and grit and transformational leadership behavior in elementary education principals in Kansas. With the first research question, the study attempted to understand the relationship between hope and self-reported transformational leadership behavior, while the second research question sought to understand the relationship between grit and self-reported transformational leadership behavior. With the third research question, the study attempted to examine whether hope and grit account for more of the variance in self-identified transformational leadership behavior than age, years of administrative experience, gender, high school grade point average, undergraduate grade point average, maternal level of education, and paternal level of education. Multiple null hypotheses were tested to address each of the aforementioned research questions. The following chapter presents the statistical analyses completed in the study to answer the research questions.

Descriptive Statistics

Of the 670 Kansas elementary administrators sent a request to participate in the study, 139 elementary administrators responded to the survey. However, of this group only 116 completed all the instruments. Due to the need of having all items of the instruments completed in order to provide a valid hope, grit, and transformational leadership score, this study analyzed only the results provided by the sample of 116 respondents that completed the survey in its entirety. To identify and avoid any elimination bias, statistical analyses were run to compare the means and standard deviations of all variables collected in the sample of 139 principals versus the sample of 116 principals. The mean scores of the sample of 139 principals was calculated by first removing the total scores for transformational leadership behavior, hope, and grit for any subject that did not have every item completed on each respective assessment. For example, if an administrator did not complete all twelve items on the Grit

Scale, the total grit score was deleted for that particular subject while the hope and transformational leadership behavior total scores of that subject were retained. Mean scores were then calculated using the remaining information. This same process was then utilized to examine the mean scores and standard deviations of the 23 subjects from the original sample size of 139 that did not complete every item on the various instruments. As described in Table 2, comparison of the means and standard deviations demonstrated there was not a significant difference in scores for the variables in each sample. These results suggested the samples were quite similar in nature. Thus, respondents that had missing data were removed from the data analysis, leaving a final sample size of 116.

Table 2

Mean Scores and Standard Deviations for Various Samples (n = 139, n = 116, and n = 23)

	\bar{x} (n = 139)	SD (n = 139)	\bar{x} (n = 116)	SD (n = 116)	\bar{x} (n = 23)	SD (n = 23)
TL	85.10	8.86	85.15	8.13	84.13	6.58
Grit	3.88	.46	3.90	.48	3.72	.53
Hope	57.44	3.95	57.43	3.95	57.50	4.11
Age	48.90	9.14	49.47	8.98	46.37	10.25
Years Served	10.44	8.08	10.53	8.16	9.63	7.57
HS GPA	3.45	.43	3.48	.42	3.32	.59
U GPA	3.49	.36	3.52	.36	3.42	.49
Mother Ed	3.03	1.21	3.03	1.21	3.11	1.29
Father Ed	3.08	1.49	3.06	1.48	3.16	1.57

Note: TL = transformational leadership, Years Served = number of years served as an elementary administrator, HS GPA = high school grade point average, U GPA = undergraduate grade point average, Mother Ed = mother's highest level of education earned (1 = less than high school, 2 = high school/GED, 3 = some college/associate's degree, 4 = bachelor's degree, 5 = master's degree, 6 = doctoral degree), Father Ed = father's highest level of education earned (1 = less than high school, 2 = high school/GED, 3 = some college/associate's degree, 4 = bachelor's degree, 5 = master's degree, 6 = doctoral degree).

Of the sample of 116 elementary administrators, 65 (56 percent) were male and 51 (44 percent) were female. As illustrated in Table 3, ages of the respondents in the sample of 116 administrators ranged from 30 to 67, with an average age of 49.47 years (SD = 9.0 years). As shown in Figure 2, years of administrative experience as an elementary school principal ranged from 1 year to 39 years, with an average of 10.53 years as an elementary school administrator (SD = 8.2 years). The respondents earned

an average high school grade point average of 3.48/4.00 ($SD = .42$) and an average undergraduate grade point average of 3.52/4.00 ($SD = .36$).⁷ Finally, the highest level of education earned by the respondents' mothers and fathers ranged from having less than a high school diploma to having a doctoral degree, with the average respondents' mother and father both having the equivalent of some college/associate's degree.

Table 3

Descriptive Statistics

	Minimum	Maximum	\bar{x}	SD
Transformational Leadership	66.00	100.00	85.15	8.13
Grit	2.00	5.00	3.90	.48
Hope	42.00	64.00	57.43	3.95
Age	30.00	67.00	49.47	8.98
Years Served	1.00	39.00	10.53	8.16
HS GPA	2.20	4.00	3.48	.42
U GPA	2.50	4.00	3.52	.36
Mother Ed	1.00	6.00	3.03	1.21
Father Ed	1.00	6.00	3.06	1.48

Note: Years Served = number of years served as an elementary administrator, HS GPA = high school grade point average, U GPA = undergraduate grade point average, Mother Ed = mother's highest level of education earned (1 = less than high school, 2 = high school/GED, 3 = some college/associate's degree, 4 = bachelor's degree, 5 = master's degree, 6 = doctoral degree), Father Ed = father's highest level of education earned (1 = less than high school, 2 = high school/GED, 3 = some college/associate's degree, 4 = bachelor's degree, 5 = master's degree, 6 = doctoral degree).

⁷ The average ACT score reported was 23 ($SD = 4.12$); however, these data were eliminated from the data analysis due to so few school administrators ($n = 54$) reporting their ACT scores. Attempts were made to input the average ACT score (23.35) for missing ACT data points. Analyses illustrated that adding the average ACT score to the missing data points created statistically insignificant results. Therefore, the researcher decided to exclude the ACT control variable from the data set.

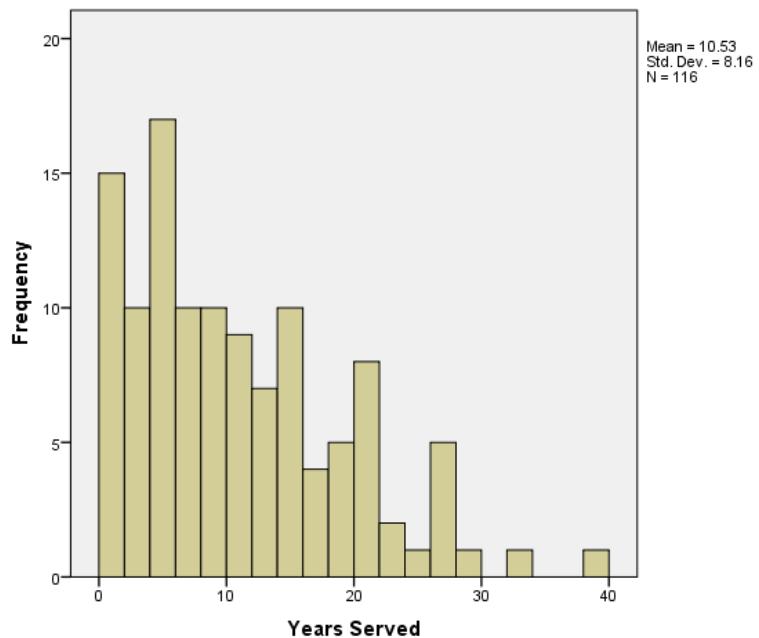


Figure 2. Histogram of Years Served as School Principal

As shown in Table 4, compared to the larger population of school administrators in Kansas, these data demonstrate some commonalities with state and national averages. For instance in Kansas, the percent of male to female elementary administrators is 70.3 percent to 29.7 percent, respectively, while the average age of elementary education principals is 47 years with an average of 8.1 years' experience working as a school principal (U.S. Department of Education, 2012). National data illustrate that the average public school elementary principal is 48 years with an average of 7.2 years' experience working as a school principal. Of this national sample, 48.4 percent were male and 51.6 percent were female (U.S. Department of Education, 2012). The percent of female school principals (44 percent) closely resembled the national average (48 percent) but was higher than the Kansas average (30 percent). Finally, the average total years served as an elementary administrator was slightly higher in this sample (10.53 years) than the Kansas average (8.1 years) and national average (7.2 years).

Table 4

Representativeness of Sample to Population

	Sample (n)	Kansas	National
Age	49.47	47.00	48.00
Percent Female	44.00	29.70	48.40
Years of Principal Experience	10.53	8.10	7.20

Research Question 1

To what extent is there a relationship between a leader's level of hope and self-identified levels of transformational leadership behavior as measured by the MLQ (5X-Short)?

To test the null hypothesis of this first research question, a Pearson product moment correlation was analyzed to examine the relationship between hope and transformational leadership behavior. This statistical analysis was selected because both hope and transformational leadership behavior scores are continuous variables, making Pearson product moment correlations the appropriate test to assess the degree and direction of the relationship between these two variables. The null hypothesis for the first research question was as follows:

H_0 : There is no relationship between a leader's level of hope and his or her self-identified levels of transformational leadership behavior as measured by the MLQ (5X-Short).

Scores on The Adult Trait Hope Scale ranged from a low score of 42 to a high score of 64, with the highest score possible being 64. The mean score was 57.43 ($SD = 3.948$). The correlation matrix shown in Table 5 depicts the Pearson correlations between all variables of the study.

Table 5

Intercorrelations between Study Variables

	M	SD	1	2	3	4	5	6	7	8	9	10
1. TL	85.15	8.133	-	.453**	.493**	.145	.198*	.090	-.026	.011	.117	.143
2. Grit	3.90	.480		-	.326**	.152	.129	.141	-.031	.047	-.019	-.126
3. Hope	57.43	3.948			-	-.010	.208*	-.053	.096	.099	.073	.122
4. Age	49.47	8.982				-	.064	.593**	.002	-.162	-.057	-.114
5. Female	-	-					-	-.071	.338**	.164	-.120	-.001
6. Years Served	10.53	8.160						-	-.063	-.098	-.027	-.014
7. HS GPA	3.48	.422							-	.514**	-.119	.047
8. U GPA	3.52	.361								-	-.096	-.050
9. Mother Ed	3.03	1.210									-	.423**
10. Father Ed	3.06	1.477										-

Note: Total=116. * p < .05, **p < .01. TL = self-identified transformational leadership, Female (0 = male, 1 = female), Years Served = number of years served as an elementary administrator, HS GPA = high school grade point average, U GPA = undergraduate grade point average, Mother Ed = mother's highest level of education earned (1 = less than high school, 2 = high school/GED, 3 = some college/associate's degree, 4 = bachelor's degree, 5 = master's degree, 6 = doctoral degree), Father Ed = father's highest level of education earned (1 = less than high school, 2 = high school/GED, 3 = some college/associate's degree, 4 = bachelor's degree, 5 = master's degree, 6 = doctoral degree).

When examining the control variables of the study, there were some notable correlations shown in Table 5. In using a point-biserial correlation due to gender being a dichotomous variable, results showed there was a statistically significant correlation ($r_{pb} = .198$, $p < .05$) between gender and transformational leadership behavior. Thus, of those examined in the study, females were more likely to report exhibiting transformational leadership behaviors than their male counterparts. Additionally, females were more likely to be hopeful ($r_{pb} = .208$, $p < .05$) and more likely to have earned a higher high school grade point average ($r_{pb} = .338$, $p < .01$) than the males in the study. Next, hope and grit were positively related ($r = .326$, $p < .01$). As would be expected, age and years served as an administrator were related ($r = .593$, $p < .01$), as were high school and undergraduate grade point average ($r = .514$, $p < .01$), as well as the highest level of education earned by the respondents' mothers and fathers ($r = .423$, $p < .01$).

$p < .01$). As illustrated in Figure 3⁸, the results illustrated a positive correlation between hope and self-identified transformational leadership behavior ($r = .493$, $p < .001$), thus leading to a rejection of the null hypothesis, suggesting that there is a positive relationship between hope and self-identified transformational leadership behavior.

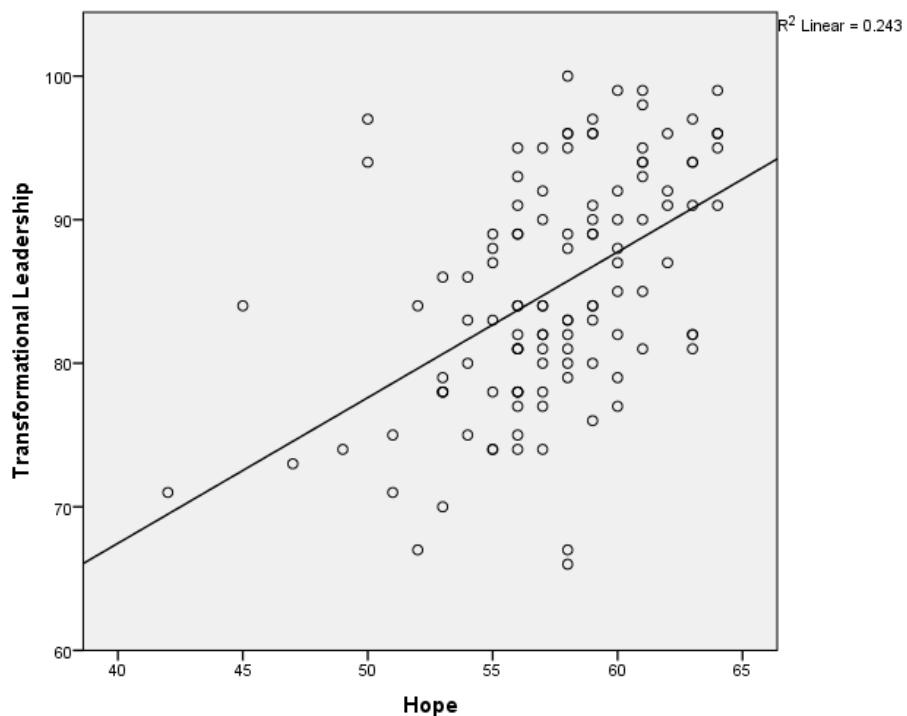


Figure 3. Scatter Plot Correlation: Hope's Relation to Elementary Administrators' Self-Identified Transformational Leadership Behavior

⁸ To examine whether outliers were influencing the results of the correlation and regression analyses of the study, separate analyses were conducted after removing the outliers from the data set. Removal of the outliers resulted in negligible parameter differences and no changes in the level of statistical significance ($p < .001$) compared to the original data set.

The next part of the analysis involved linear regression modeling to examine the effects of hope on self-identified transformational leadership behavior. The full model is shown below:

$$TL_i = \beta_0 + \beta_1 Hope + \epsilon_i$$

where TL = transformational leadership score, i = individual respondent, β_0 = constant, Hope = values from The Adult Trait Hope Scale, and ϵ_i = error. As described in Table 6, linear regression modeling showed that 24.3 percent of the variance in transformational leadership can be explained by hope ($F(1,114) = 36.513, p < .001$). The results of the regression equation relating to this first research question examining hope and transformational leadership is shown in Table 6. These results suggest that hope is a positive predictor of self-identified transformational leadership behavior. Specifically, the linear regression model suggests that a one point increase in levels of hope predicts a 1.015 point increase in elementary principals' level of transformational leadership behavior ($p < .001$).

Table 6

Summary of Hope Regression Analysis Predicting Self-identified Transformational Leadership Behavior

Regression Equation 1			
Dependent Variable: Self-identified Transformational Leadership Behavior F = 36.513		$R^2 = .243$	
		B	SEB
Constant	26.875***	9.666***	
Hope	1.015***	.168***	.493***

Note. N = 116. ***p < .001.

To further explore the relationship of hope and transformational leadership, an additional regression analysis was run to examine how the specific items in The Adult Trait Hope Scale (i.e. each question on The Adult Trait Hope Scale) related to transformational leadership behavior. This procedure was conducted to examine what factors of hope may be most related to transformational leadership behavior. The model for this multiple regression, which utilized the forced entry method of regression analysis, is shown below:

$$TL_i = \beta_0 + \beta_1 HopeItems + \varepsilon_i$$

where TL = transformational leadership score, i = individual respondent, β_0 = constant, and $HopeItems$ is a vector of questions one through eight on The Adult Trait Hope Scale, and ε_i = error. Table 7 depicts the Pearson product correlations of each item relative to transformational leadership behavior while Table 8 shows the regression analysis examining hope and transformational leadership behavior. These results show that while seven of the eight hope items were positively correlated with transformational leadership behaviors at a statistically significant level ($p < .05$), only question two ("I energetically pursue my goals") ($B = 2.474$, $p < .05$) and question five ("Even when others get discouraged, I know I can find a way to solve the problem") ($B = 2.749$, $p < .05$) serve as statistically significant predictors of transformational leadership behavior, as shown in Table 8.

Table 7

Intercorrelations between The Adult Trait Hope Scale Items and Self-Identified Transformational Leadership Behavior

Hope 1	I can think of many ways to get out of a jam.	.082
Hope 2	I energetically pursue my goals.	.477**
Hope 3	There are lots of ways around any problem.	.210*
Hope 4	I can think of many ways to get the things in life that are most important to me.	.447**
Hope 5	Even when others get discouraged, I know I can find a way to solve the problem.	.483**
Hope 6	My past experiences have prepared me well for my future.	.327**
Hope 7	I've been pretty successful in life.	.298**
Hope 8	I meet the goals that I set for myself.	.407**

* $p < .05$. ** $p < .01$ level.

Table 8

Summary of The Adult Trait Hope Scale Items Regression Analysis of Self-identified Transformational Leadership Behavior

Regression Equation 2			
Dependent Variable: Self-identified Transformational Leadership Behavior			
	B	SEB	β
Constant	14.778	10.014	
Hope 1	-1.357	.719	-.188
Hope 2	2.474	1.028	.223*
Hope 3	.895	.811	.108
Hope 4	2.091	1.144	.180
Hope 5	2.749	1.147	.235*
Hope 6	.539	1.116	.047
Hope 7	.084	1.211	.007
Hope 8	2.311	1.319	.156

Note. N = 116. * $p < .05$.

In response to the first research question examining the relationship between hope and self-identified transformational leadership behavior, there appears to be a positive relationship between these two variables. Further, the regression analysis showed that hope plays a significant role in transformational leadership behavior in this sample of elementary educational administrators. As such, the null hypothesis of the first research question can be rejected, suggesting that there exists a positive relationship between hope and self-identified transformational leadership behavior.

Research Question 2

To what extent is there a relationship between a leader's level of grit and self-identified levels of transformational leadership behavior as measured by the MLQ (5X-Short)?

To test the null hypothesis of this second research question, a Pearson product moment correlation was analyzed to examine the relationship between grit and transformational leadership behavior. The null hypothesis for the first research question was as follows:

H_0 : There is no relationship between a leader's level of grit and his or her self-identified levels of transformational leadership behavior as measured by the MLQ (5X-Short).

Scores on the Grit Scale ranged from a low score of 2.75 to a high score of five, with the highest score possible being five. The mean score was 3.90 ($SD = 0.448$). As shown in Figure 4, the results illustrated a positive correlation between grit and self-identified transformational leadership behavior ($r = .453$, $p < .001$), thus allowing the rejection of the null hypothesis, suggesting a positive relationship between grit and self-identified transformational leadership behavior.

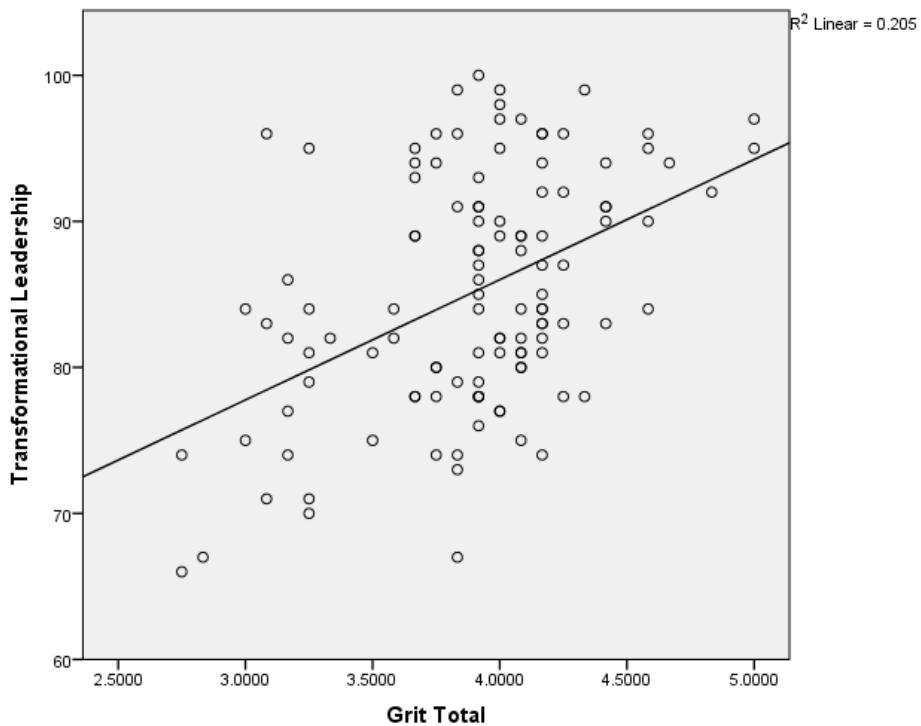


Figure 4. Scatter Plot Correlation: Grit's Relation to Elementary Administrators' Self-Identified Transformational Leadership Behavior

A linear regression model was used to analyze the effect of grit on transformational leadership behavior.

The model is shown below:

$$TL_i = \beta_0 + \beta_1 \text{Grit} + \varepsilon_i$$

where TL = transformational leadership score, i = individual respondent, β_0 = constant, Grit = values from the Grit Scale, and ε_i = error. Results in Table 9 showed that 20.5 percent of the variance of

transformational leadership behaviors is likely explained by grit ($F(1,114) = 29.442$, $p < .001$). These results suggest that grit is a positive predictor of self-identified transformational leadership behavior.

Table 9

Summary of Grit Regression Analysis Predicting Self-identified Transformational Leadership Behavior

Regression Equation 3		
Dependent Variable: Self-identified Transformational Leadership Behavior		
	B	SEB
Constant	53.067***	5.951***
Grit	8.234***	1.518***

Note. N = 116. *** $p < .001$.

To further explore the relationship of grit and transformational leadership behavior, an additional regression analysis was run to examine how the specific items in the Grit Scale relate to transformational leadership behavior. This procedure was done to explore what aspects of grit may be most predictive of transformational leadership behavior. Table 10 depicts the Pearson product correlations of each item relative to transformational leadership behavior, and Table 11 illustrates the regression analysis. The regression equation, which utilized the forced entry method of regression analysis, is shown below:

$$TL_i = \beta_0 + \beta_1 GritItems + \varepsilon_i$$

where TL = transformational leadership score, i = individual respondent, β_0 = constant, and $GritItems$ = a vector of questions one through twelve on the Grit Scale, and ε_i = error. Eight of the twelve items on the Grit Scale were positively correlated with transformational leadership behavior at a statistically significant level of $p < .01$, while two of the items were correlated at a level of $p < .05$. In examining the regression analysis, however, only items one ("I have overcome setbacks to conquer an important challenge") ($B = 3.426$, $p < .001$) and twelve ("I am diligent") ($B = 3.004$, $p < .05$) served as statistically significant predictors of transformational leadership behavior.

Table 10

Intercorrelations between Grit Scale Items with Self-Identified Transformational Leadership Behavior

Grit 1	I have overcome setbacks to conquer an important challenge.	.457**
Grit 2	New ideas and projects sometimes distract me from previous ones. (Reverse)	.186*
Grit 3	My interests change from year to year. (Reverse)	.257**
Grit 4	Setbacks don't discourage me.	.257**
Grit 5	I have been obsessed with a certain idea or project for a short time but later lost interest. (Reverse)	.220*
Grit 6	I am a hard worker.	.332**
Grit 7	I often set a goal but later choose to pursue a different one. (Reverse)	.118
Grit 8	I have difficulty maintaining my focus on projects that take more than a few months to complete. (Reverse)	.265**
Grit 9	I finish whatever I begin.	.281**
Grit 10	I have achieved a goal that took years of work.	.306**
Grit 11	I become interested in new pursuits every few months. (Reverse)	.039
Grit 12	I am diligent.	.377**

* p < .05. ** p < .01 level.

Table 11

Summary of Grit Scale Items Regression Analysis of Self-identified Transformational Leadership Behavior

Regression Equation 4			
Dependent Variable: Self-Identified Transformational Leadership Behavior			
	B	SEB	β
Constant	41.737*	8.518*	
Grit 1	3.426***	.805***	.352***
Grit 2	.338	.845	.038
Grit 3	1.594	1.009	.162
Grit 4	.723	.755	.087
Grit 5	.739	1.089	.075
Grit 6	2.101	1.927	.105
Grit 7	-.269	1.054	.026
Grit 8	.761	.863	.088
Grit 9	-.918	1.320	-.087
Grit 10	-5.515	1.138	-.049
Grit 11	-.555	.793	-.060
Grit 12	3.004*	1.311*	.268*

Note. N = 116. *p < .05. ***p < .001.

The null hypothesis of the second research question can be rejected, as these results suggest there is a positive relationship between a leader's level of grit and self-identified levels of transformational leadership behavior. Although not as strong as hope, the regression analysis showed that grit plays a role in transformational leadership behavior in this sample of elementary educational administrators.

Research Question 3

To what extent do hope and grit account for the variance in self-identified transformational leadership behavior beyond age, years of administrative experience, gender, high school grade point average, undergraduate grade point average, maternal level of education, and paternal level of education?

To examine the third research question, multiple linear regression analyses were utilized to examine whether hope and grit account for more of the variance in self-identified transformational leadership behavior than age, years of administrative experience, gender, high school grade point average, undergraduate grade point average, maternal level of education, and paternal level of education. Thus, the null hypothesis for this third research question was the following:

H_0 : Hope and grit do not account for more variance in self-identified transformational leadership behavior than age, years of administrative experience, gender, high school grade point average, undergraduate grade point average, maternal level of education, and paternal level of education.

In order to examine whether hope and grit account for more variance in transformational leadership behavior than the control variables, three regression analyses were run. First, as shown in Model 1 of Table 10, the first multiple regression analysis involved using hope and grit only. This regression analysis is shown below:

$$TL_i = \beta_0 + \beta_1 \text{Hope} + \beta_2 \text{Grit} + \varepsilon_i$$

where TL_i = transformational leadership score, i = individual respondent, β_0 = constant, $Hope$ = values from The Adult Trait Hope Scale, and $Grit$ = values from the Grit Scale, and ϵ_i = error. This model showed that hope and grit account for 33.8 percent of the variance in self-identified transformational leadership behavior ($F(2,113) = 28.878$, $p < .01$). Following this regression analysis, a second multiple regression analysis, as shown below, was analyzed to investigate the role of the control variables in predicting transformational leadership without hope and grit present.

$$TL_i = \beta_0 + Covariates\beta_1 + \epsilon_i$$

where TL = transformational leadership score, i = individual respondent, β_0 = constant, $Covariates$ = a vector of covariates including age, years of administrative experience, gender, high school grade point average, undergraduate grade point average, maternal level of education, and paternal level of education, and ϵ_i = error. As shown in Model 2 in Table 11, this analysis suggests these control variables account for 11.5 percent of the variance ($F(7,106) = 1.974$, $p < .10$), with only female gender ($B = 4.132$, $p < .05$) serving as a statistically significant predictor of self-identified transformational leadership behavior.

Finally, a multiple regression model was run, as shown below, containing hope, grit, and the control variables (i.e., age, years of administrative experience, gender, high school grade point average, undergraduate grade point average, maternal level of education, and paternal level of education).

$$TL_i = \beta_0 + \beta_1 Hope + \beta_2 Grit + Covariates\beta_3 + \epsilon_i$$

where TL = transformational leadership score, i = individual respondent, β_0 = constant, $Hope$ = values from The Adult Trait Hope Scale, $Grit$ = values from the Grit Scale, $Covariates$ = a vector of covariates including age, years of administrative experience, gender, high school grade point average, undergraduate grade point average, maternal level of education, and paternal level of education, and ϵ_i = error. The data presented in Model 3 of Table 12 suggest that 40.5 percent of the variance in self-

identified transformational leadership behavior can be attributed to hope, grit, and the various control variables ($F(9,109) = 7.879$, $p < .001$). These results provide evidence suggesting that both hope ($B = .738$, $p < .001$) and grit ($B = .480$, $p < .001$) play a significant role in transformational leadership behavior even when accounting for the control variables.

Table 12

Summary of Hope, Grit, and Control Variables Regression Analyses Predicting Self-identified Transformational Leadership Behavior

	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3</u>
Grit	.496 ** (.123)		.480 ** (.125)
Hope	.738 ** (.167)		.738 ** (.169)
Age		.147 (.106)	.111 (.088)
Gender		4.132 * (1.615)	2.107 (1.366)
Years Served		.020 (.114)	.005 (.095)
HS GPA		-3.663 (2.229)	-2.801 1.856
U GPA		2.949 (2.506)	1.488 (2.085)
Mother Ed		.628 (.691)	.351 (.573)
Father Ed		.698 (.563)	.709 (.474)
Constant	16.339	74.372	15.303
r^2	.338	.115	.405
\bar{R}^2	.327	.057	.354
Observations	116	114	114

Note: * $p < .05$, ** $p < .01$. Standard error in parenthesis.

However, when conducting a regression comparison in which the number of variables changes in each regression analysis, it is necessary to examine the adjusted R square results to account for the decrease in the number of variables in each regression analysis. When examining these data, the

adjusted R square of the regression analysis that included only hope and grit was ($\bar{R}^2 = .327$), while the adjusted R square of the regression analysis that included only the control variables was ($\bar{R}^2 = .057$). Finally, the adjusted R square of the regression model that included hope, grit, and the control variables was ($\bar{R}^2 = .354$).

When conducting a multiple regression analysis involving numerous variables, it is also important to explore whether multicollinearity is influencing results. Multicollinearity is a statistical condition that occurs when two or more variables are highly correlated and influence the outcomes of the regression by inflating standard errors or making statistically significant results insignificant (Graham, 2002). In examining the correlations of this study found in Table 5, the highest correlation was between age and years of leadership experience ($r = .593$), while the next highest correlation involved high school grade point average and undergraduate grade point average ($r = .514$). Farrar and Glauber (1967) state that multicollinearity can become an issue when correlations between explanatory variables exceed levels of $r = .80$ to $r = .90$. Because the highest correlation between variables in this study did not meet this threshold, it was determined that multicollinearity was not posing a substantial threat to the integrity of the results; therefore, it was determined there was no need to further explore the degree to which multicollinearity may have influenced the regression analysis.

In sum, these various multiple regression analyses provide empirical support that hope and grit account for more of the variance in transformational leadership behaviors than the control variables of the study, thus allowing the rejection of the null hypothesis of the third research question.

Summary

The results of the data analyses suggest there exists a statistically significant positive relationship between both hope and grit and self-identified transformational leadership behavior. Although both non-cognitive skills showed a positive correlation with self-reported transformational leadership behavior, hope had a slightly higher correlation to self-reported transformational leadership

behavior than grit, suggesting there is a stronger positive relationship between hope and transformational leadership behavior than there is for grit and transformational leadership behavior.

Based on the regression analyses examined in the study, hope and grit accounted for more of the variance in self-identified transformational leadership behavior than the set of control variables. These control variables included age, gender, years served as an administrator, high school grade point average, undergraduate high school grade point average, and maternal and paternal levels of education. Other than gender, these control variables failed to demonstrate a statistically significant relationship to self-identified transformational leadership behavior. When examined independently of hope and grit, the set of control variables accounted for only 5.7 percent of the variance in self-identified transformational leadership behavior. However, when hope and grit were added to the regression equation, the new set of variables accounted for 35.4 percent of the variance of self-identified transformational leadership behavior. In sum, the results suggest that hope and grit serve as positive predictors of self-reported successful leadership behavior in the elementary education principals in Kansas.

CHAPTER 5

Discussion

This study found that the non-cognitive skills of hope and grit were positively related to self-identified transformational leadership behavior. Further, hope and grit predicted transformational leadership behavior when controlling for age, gender, years of administrative experience, high school grade point average, undergraduate grade point average, maternal level of education, and paternal level of education.

Hope and Transformational Leadership Behavior

The first variable of interest in the study was the non-cognitive skill of hope. When examining hope, it was found that the average hope score of the elementary principals in the study was 57.43. Although there were not any norms for hope scores for professional employees such as school administrators found in the literature, Lopez et al. (2000) noted that the average hope score for college and noncollege student samples was 48, with scores ranging from a low score of eight to a high score of 64. Therefore, the individuals' hope scores in the present study ($\bar{x} = 57.43$) were higher than what has been found with other samples. Given that hope has been correlated with successful outcomes such as grades (Ciarrochi, Heaven, & Davies, 2007) and increased likelihood of graduating (Snyder et al., 2005), this finding is not all that surprising. Similarly, it may be plausible that higher levels of hope are helpful in completing a graduate degree in school administration and obtaining licensure to work as a school principal.

The correlational analyses illustrated there is a positive relationship between hope and self-identified transformational leadership behavior. Specifically, hope and transformational leadership behavior were found to be moderately positively correlated at $r = .493$. Compared to similar studies examining factors related to leadership, this correlational coefficient is relatively high. For example, when examining the relationship between the facets of the Five-Factor model of personality and

leadership, Judge et al. (2002) found the correlations with leadership were neuroticism $r = -.24$, extraversion $r = .31$, openness to experience $r = .24$, agreeableness $r = .08$, and conscientiousness $r = .28$. Therefore, the relationship with hope and self-identified transformational leadership behavior was stronger than has been illustrated in past research examining non-cognitive constructs.

Next, a rather interesting finding involved the relationship between each item on The Adult Trait Hope Scale and self-identified transformational leadership behavior. When using correlational analyses, seven out of the eight Hope Scale items were positively correlated with transformational leadership behavior. However, when doing regression analyses, it was found that only two items on The Adult Trait Hope Scale were positive predictors of transformational leadership behavior. These two items from the scale, which were also the items correlating with transformational leadership behavior at the highest level, were “I energetically pursue my goals” and “Even when others get discouraged, I know I can find a way to solve the problem.” These two items compose different components (i.e., agency and pathways) of the hope construct.

The item stating “I energetically pursue my goals” is a component of the agency subscale of The Adult Trait Hope Scale. In describing hope, Lopez (2013) states, “agency is shorthand for our perceived ability to share our lives day to day. As ‘agents’ we know we can make things happen (or stop them from happening), and we take responsibility for moving toward our goals. Over time, we develop our ability to motivate ourselves; we build our capacity for persistence and long-term effort. Agency makes us authors of our lives” (p. 25). As has been described previously, transformational leaders demonstrate inspirational motivation. With this, they communicate to their followers a strong sense of purpose, which then motivates the organization to move forward to succeed in accomplishing its goals. Additionally, the transformational leader articulates and communicates a clear vision and generates optimism and hope to accomplish goals associated with the vision (Bass, 2006; Luthans, et al., 2006). If a school principal does not possess the hopeful mindset to energetically pursue his or her goals, it is

unlikely the principal will be able to motivate school staff members to do so. This is also congruent with the concept of idealized influence, one of the subscales of transformational leadership. Before subordinates will choose to follow a leader in a manner that is beneficial to the organization, they must see the leader act as a role model of proper behavior. By possessing agency and energetically pursuing pre-established goals, it is believed the leader motivates followers to mimic this behavior, creating a goal-oriented organization.

The other item on The Adult Trait Hope Scale serving as a predictor of transformational leadership behavior was “Even when others get discouraged, I know I can find a way to solve the problem.” This item of the instrument comprises the pathways subscale. Pathways thinking provides an individual with multiple routes to accomplish the goals he or she has established (Snyder et al., 1991). Despite a leader communicating a clear vision and working with great ambition toward the goals of that vision, it is likely obstacles will arise. It is hypothesized this question addresses a component of resiliency that is needed and necessary for transformational leadership. In order to be resilient in the face of problems and setbacks, leaders need to possess the pathways thinking where they will not give up when confronted with a challenging situation. Rather, the ability to circumnavigate through issues helps maintain a level of hope and optimism within the organization that is necessary for it to thrive.

In sum, the results from this study found that not only is hope significantly positively related to transformational leadership, but aspects of it may also be possible dispositional antecedents of transformational leadership behavior. The results examining this research question support the idea that the non-cognitive skill of hope serves as a positive force in allowing a leader to engage in the continual pursuit of meaningful goals as well as the ability not to give up when confronted with obstacles and challenges. The study also found, though, that only two items on The Adult Trait Hope Scale actually predicted transformational leadership behavior, and therefore more research is needed to further examine the reasoning behind this unexpected finding. It may be possible, for instance, that

there is more to the construct of hope than what is communicated by the total hope score. Regardless, the results of this study support Luthans' et al. (2007) idea that hopeful leaders possess a mindset filled with positive energy and determination, which ultimately trickles down and generates motivation in followers to positively impact the organization.

Grit and Transformational Leadership Behavior

The next variable examined was grit. Similar to hope, grit was significantly positively related to self-identified transformational leadership behavior. On a scale of one to five, with five being the highest grit score possible, the elementary school principals had an average grit score of 3.90. Though slightly less than hope, grit was moderately positively correlated with transformational leadership ($r = .453$). These results suggest that having the passion and perseverance to accomplish long-term goals is linked to transformational leadership behavior in Kansas elementary school administrators.

When examining items on the Grit Scale that predict transformational leadership, it was found that the items "I have overcome setbacks to conquer an important challenge" and "I am diligent" served as the only statistically significant positive predictors of self-reported transformational leadership behavior. This is in light of the fact that ten of the twelve Grit Scale items positively correlated with transformational leadership behavior. However, these two positive predictors were also the two items that were correlating with transformational leadership at the highest levels ($r = .457$ and $r = .377$, respectively).

The first item involving overcoming setbacks is likely addressing some of the values incorporated in the inspirational motivation and idealized influence components of transformational leadership. By being resilient and having the ability to overcome setbacks, a leader is likely to maintain a level of hope for future goals that is necessary in order for the leader's followers to continue exerting efforts to

accomplish the organization's goals. Possessing this quality, the leader likely gains the respect of his or her followers and motivates those employees to exhibit similar types of behavior.

The next item that states, "I am diligent" may be addressing a component of conscientiousness. In research examining grit, Duckworth and Quinn (2009) found a very strong correlation ($r = .77$) between grit and conscientiousness. Judge et al. (2002) examined the relationship between the Big Five personality traits (i.e., openness, conscientiousness, extraversion, agreeableness, and neuroticism) and found that conscientiousness had the second highest correlation ($r = .28$) to successful leadership than the other four facets of Big Five model of personality. Extraversion had the highest correlation at $r = .31$. Thus, it may be possible that the Grit Scale is measuring a facet that is similar to conscientiousness, which in turn, is generating the positive relationship with transformational leadership in this study. When followers see their leader being diligent, the followers likely are inspired and motivated to follow the model behavior of the leader and engage in similar behavior.

The finding that hope had a higher correlation ($r = .493$) than grit did to transformational leadership ($r = .453$) was intriguing. In attempting to explain why the non-cognitive skill of hope would have a stronger relationship than grit, it is hypothesized that the construct of hope incorporates more components of the 5 I's⁹, the subscales making up the transformational leadership model. While future research will need to examine whether this is true, it is believed that hope is related most closely with the inspirational motivation subscale of the transformational leadership model. Being a strong leader entails motivating others to achieve goals. This, in turn, requires continual emphasis on the leader's part to envision the future. As noted by Beach (2006), a vision instills a sense of what the organization will become, defines the ideal future, inspires, motivates, and unifies the organization's members. Hope likely provides these leaders with the foresight to think about this future in an optimistic fashion, which

⁹ The five I's of transformational leadership include the following: Inspirational Motivation, Intellectual Stimulation, Individualized Consideration, Idealized Influence – Attributes, Idealized Influence – Behaviors.

helps them communicate the organization's goals to the subordinates in a positive manner. Next, the pathways subscale of hope then helps the leader possess the wherewithal and ability to overcome the obstacles and challenges that impede progress of accomplishing the goal.

Additionally, the results from this study suggest a link between a school leader's grit and self-reported transformational leadership behavior. In order to continually work toward the vision of the organization and complete goals on a long-term basis, grit may likely serve as a necessary antecedent of transformational leadership. Gritty leaders are more likely to persist through the challenges and setbacks than their counterparts with lower levels of grit. By having the passion and perseverance for long-term goals, school administrators are likely to be more successful in sticking with their goals. In turn, it is believed that possessing this non-cognitive skill allows leaders to engage in transformational leadership behavior, gain the respect and admiration of their followers, and persevere in leading their schools to successful educational outcomes.

Not only did the study illustrate that hope and grit are related to transformational leadership behavior, but it also showed that aspects of hope and grit can be used to predict transformational leadership behavior in Kansas elementary education principals. Results from the regression analyses demonstrated that both hope and grit are positive predictors of self-identified transformational leadership, even when controlling for age, gender, years of experience, high school GPA, undergraduate GPA, and parental levels of education. This result provides evidence that non-cognitive skills may play a role in predicting transformational leadership behavior.

Other Findings

Though the positive relationship between hope and grit and transformational leadership behavior was expected, it was extremely surprising to see the lack of predictive validity of the control variables utilized in the study. The findings showed that age, years of experience as an administrator,

high school GPA, undergraduate GPA, as well as the subjects' mother's and father's levels of education were not related to transformational leadership behavior. Most surprising was the lack of a statistically significant positive relationship between an elementary school administrator's high school and undergraduate grade point average and self-identified transformational leadership behavior. This finding is especially unexpected since earlier literature has found a positive connection with IQ and leader performance (Bass, 2009). For example, Judge et al. (2004) concluded after examining a meta-analysis of 151 studies that IQ and leadership were correlated at .27, and Antonakis (2011) noted that general intelligence has stood the test of time and has consistently shown to be strongly related to leadership.

In attempts to explain these unexpected results of this study, it is hypothesized that transformational leaders do not necessarily have to be smart leaders, as defined by cognitive ability. While it may be possible that this study's method of assessing cognitive ability (i.e., high school and undergraduate grade point average) is a poor measure of cognitive ability, it is believed that extremely high levels of cognitive ability are not necessary in order to demonstrate transformational leadership behavior. Instead, to be a transformational leader, one needs to demonstrate behaviors characterized in the 5 I's (i.e., intellectual stimulation, idealized influence (behavior), idealized influence (attributes), inspirational motivation, and individualized consideration). These behaviors include the ability to build positive and trusting relationships with others, communicate a compelling vision to motivate individuals to take action for a cause greater than themselves, and act with integrity. These skills may not require high levels of general intelligence (e.g., analytical ability, problem-solving, etc.) but instead require a set of competencies that incorporates emotional intelligence (see Boyatzis, 2009; Goleman, 1998; Saxe 2011) and other non-cognitive factors like hope and grit.

Also surprising was the lack of a relationship between transformational leadership behavior and the other control variables. Although there was a small correlation ($r = .145$) between transformational

leadership behavior and age, this correlation was not statistically significant. A similar result occurred with maternal level of education ($r = .117$) and paternal level of education ($r = .143$). Finally, leadership experience (i.e., years served as an administrator) did not have a strong relationship with self-identified transformational leadership behavior ($r = .09$).

Although it would seem intuitive that leaders with more experience would exhibit higher levels of transformational leadership behavior, the literature examining the relationship between a leader's experience and a leader's performance has mixed findings. McEnrue (1988) found a strong relationship between job experience, as measured by length of tenure as a restaurant manager, and restaurant sales and profits. In discussing the positive relationship found between NBA coaches' previous coaching experiences and the percentage of NBA games won during a season, Avery (2003) stated that leadership experience is useful in predicting performance only when the previous leadership experience closely matches the individual's current leadership role. On the flip side, in his article titled "Leadership Experience and Leader Performance – Another Hypothesis Shot to Hell," Fiedler (1970) found a negative relationship ($r = -.12$) between years of supervisory experience and leadership performance, as measured by group productivity, leading the author to state, "leadership experience appears to have no salutary effect on group and organizational performances" (p. 12). In sum, these mixed findings in the literature regarding leadership experience and performance may help explain the unexpected finding that principal experience was not highly related to self-identified transformational leadership behavior.

The finding that females demonstrated higher levels of transformational leadership behavior also came as a surprise; however, Bass and Avolio (2004) found a similar trend when analyzing transformational leadership and gender. Interestingly, the females in this study also reported having higher high school grade point averages than the males, as female gender and high school grade point average was correlated at $r_{pb} = .593$. In attempting to explain why females reported higher levels of transformational leadership behavior, it is believed that sociological and psychological forces could be at

work. Historically, school administrative positions have been dominated by men. Throughout history, women have had to overcome the challenges of the glass-ceiling effect in getting into leadership positions, especially positions at the top of an organization's hierarchy (Cotter, Hermsen, Ovadia, & Vanneman, 2001). In Kansas, for instance, males compose 70 percent of elementary principal positions, whereas females compose only 30 percent of elementary principal positions (U.S. Department of Education, 2012). Therefore, it is possible that those women who overcome these barriers and ultimately ascend to these leadership positions may possess a non-cognitive skill-set that assists them in becoming transformational leaders within their organizations. Future research should continue to examine whether there is a relationship between non-cognitive skills and women's ability to overcome the glass-ceiling effect.

Outside of gender, though, only hope and grit served as positive predictors of self-identified transformational leadership behavior. Serving as a school administrator is a stressful position. Hope may play a protective role in helping to minimize this level of stress school leaders face on a daily basis. For instance, Ong et al. (2006) found that individuals with higher levels of hope showed less reactivity to stressful events and more effective emotional recovery to these stressful events. By possessing higher levels of hope, it may be plausible that this non-cognitive skill allows a leader to engage in transformational leadership behavior rather than succumb to the stress and pressures of the job. Luthans, Youssef, and Avolio (2007) stated, "hopeful organizational leaders and managers become crucial to the growth, if not the very survival, of any organization" (p.72). By possessing hope, leaders are able to stimulate positive attitudes about the organization's future.

Next, this study supports the finding that leaders who possess grit, the passion and perseverance to continually work toward long-terms goals, are more likely to exude behaviors that characterize transformational leadership. These gritty leaders likely persist working through the challenges they face in school day after day, week after week, and year after year. Having this high level

of perseverance over the long-term allows them to remain optimistic about achieving the organization's goals when faced with hardship.

In sum, the purpose of this study was to explore the relationship between hope and grit and transformational leadership behavior. In completing this study, there were several significant conclusions:

- Hope and grit predicted transformational leadership behavior in Kansas elementary principals even when accounting for a set of control variables that included age, gender, years of administrative experience, high school grade point average, undergraduate grade point average, and parental levels of education.
- Kansas female elementary principals were more likely to have higher levels of self-reported transformational leadership behavior than their male counterparts.
- High school grade point average and undergraduate grade point average did not predict nor were they related to self-identified transformational leadership behavior.
- Leadership experience, as measured by years served as an administrator, was not a positive predictor of self-identified transformational leadership behavior.
- Although most of the items measuring hope and grit were positively related to transformational leadership, only two items on each instrument actually predicted transformational leadership behavior, suggesting there is a more nuanced notion occurring with the hope and grit subscales relative to the transformational leadership subscales.

Implications

Whether an elementary school or a large Fortune 500 corporation, transformational leadership has been shown to make a difference in organizational performance. Prior research found that

transformational leaders motivate their followers, create a strong sense of trust within their organizations, and ultimately help their followers maximize their potential in order to create positive outcomes for the organization (Avolio & Bass, 2005; Bono & Judge, 2004; Fitzgerald & Schutte, 2010). At this time, however, there is not a clear understanding of the non-cognitive skills that highly effective leaders harness and utilize to effectively lead their organizations.

There is a growing movement to further understand non-cognitive skills and the role they play in determining successful outcomes. Research in behavioral economics (e.g., Heckman et al., 2014; Heckman & Kautz, 2012), education (e.g., Dweck, 2006; Tough, 2012), and psychology (e.g., Duckworth et al., 2007) has demonstrated non-cognitive skills to be predictive of numerous successful life outcomes. This current study has now added to this research base and helped illustrate the important relationship between non-cognitive skills and transformational leadership behavior.

With this in mind, greater emphasis needs to be placed on measuring and evaluating potential school leaders' non-cognitive skills in order to help account for the behavioral antecedents that influence transformational leadership behavior. Based on the results of this study which found that both hope and grit predicted transformational leadership behavior in Kansas elementary principals, future research should continue to explore whether schools may benefit by evaluating hope and grit in individuals applying for school leadership positions and hiring school leaders possessing high levels of these non-cognitive skills. However, in order to do this, there needs to be an improved understanding of how to validly measure and assess non-cognitive skills. Currently, most measures of non-cognitive skills, such as the two instruments used in this study, utilize Likert-based self-report methods. When attempting to measure and assess non-cognitive skills for high stake purposes such as hiring, these simple instruments would not suffice since individuals taking the self-report instruments could easily fake certain responses to appear more desirable in the eyes of the potential employer. Therefore, other techniques such as forced-choice assessments, situational judgment tests, 360 degree instruments,

written qualitative analysis (e.g., Robertson-Kraft & Duckworth, 2013), and anchoring vignettes (e.g., King & Wand, 2007) may prove to be more reliable and valid methods of assessing non-cognitive skills (Burkus et al., 2013).

This study also brings to light the need to understand how to foster optimal levels of non-cognitive skills. There is a growing research base showing that non-cognitive skills can be developed in children (e.g., Dweck et al., 2011) and adults (e.g., Luthans et al., 2007; Peterson et al., 2011). To improve school performance outcomes, it is recommended that scholars continue to research the impact of non-cognitive skills on positive organizational outcomes. If the results of this study are replicated, schools may choose to devote more attention and resources to develop non-cognitive skills in their school leaders by providing professional development opportunities that focus on building and developing non-cognitive skills such as hope and grit.

In conclusion, the study found that grit and hope were positive predictors of transformational leadership behavior in elementary education principals. With this in mind, schools should consider assessing non-cognitive skills such as hope and grit when hiring their school leaders in order to account for the dispositional antecedents related to transformational leadership behavior. Research suggests that non-cognitive factors are malleable and capable of being developed. Therefore, to help foster and enhance positive organizational outcomes, school districts may consider engaging in professional development and training opportunities to build non-cognitive skills like hope and grit in their school leaders if this study's findings can be replicated in future research.

Limitations and Recommendations for Future Research

When assessing the results of this study, it is important to take into consideration the limitations of this research. The assessment of non-cognitive skills is in its infancy. As like most instruments of non-cognitive skills, the two instruments used to measure hope and grit in this study were both Likert-based

self-report instruments. As a result, the elementary school principals responding to the surveys may have been influenced by social desirability bias when reporting how hopeful and gritty they were. In a similar manner, the instrument used to measure transformational leadership behavior was the self-rater version of the MLQ (5X-Short). In attempts to limit the number of items on the questionnaire, this study only assessed for transformational leadership behavior, using the 20 items on the MLQ (5X-Short) measuring transformational leadership. Likewise, the study did not include the four distractor items on The Adult Trait Hope Scale. By removing these distractor items, it may have reduced the validity of the full instrument. Therefore, to better understand the leadership effectiveness and levels of hope of each elementary principal, future research should use all 45 items of the MLQ (5X-Short), which also measures transactional leadership behavior and laissez-faire leadership behavior, as well as all the items on The Adult Trait Hope Scale.

Next, due to using the self-report version of the MLQ (5X-Short), it may have been possible that the school leaders in the study engaged in social desirability bias when reporting their levels of transformational leadership behavior, thus creating inflated scores. For example, principals could have reported that they frequently engage in behaviors associated with transformational leaders, when in reality they rarely do so. To avoid this problem and help improve the validity when measuring transformational leadership, future research should attempt to use the 360-degree version of the MLQ (5X-Short), where both self and other ratings are collected from the employees within the school.

Further, this study made no attempt to utilize external variables to measure leader effectiveness. In evaluating the leadership success of school principals, metrics such as standardized tests scores (e.g., Hallinger, Bickman, & Davis, 1996), student retention and completion (e.g., Baker, Derrer, Davis, Dinklage-Travis, Linder, & Nicholson, 2001), and student engagement (e.g., Leithwood & Jantzi, 2000) frequently are used to judge the effectiveness of a school's leader. This particular study worked to maintain the subjects' confidentiality to help limit potential social desirability bias; therefore,

data were not collected on any identifying components such as the school and district where the principal worked, which prevented the utilization of variables such as school performance (e.g., standardized test scores) as another method of measuring leadership effectiveness. Instead, this study utilized the self-reported scores of transformational leadership behavior as a measure of leadership effectiveness. Although the model of transformational leadership has been widely used in multiple domains of research, this model has not been fully accepted as the only model to define effective leadership. Therefore, future research should continue working toward creating a common understanding, definition, and measurement of successful leadership. Additionally, forthcoming studies expanding on the current study should attempt to use external metrics such as school performance, in addition to transformational leadership behavior, to evaluate effective leadership in school leaders.

Another limitation in the study involves its generalizability. Although 116 elementary education principals elected to fully participate in the study, there were 554 elementary principals that were invited to participate who chose not to complete the questionnaires, resulting in a response rate of only seventeen percent. Therefore, it may have been possible for non-response bias to influence the results. For example, it could have been the case that those who elected to participate in the study were more highly motivated professionals possessing higher levels of hope, grit, and transformational leadership behavior than those that did not participate. However, as noted in Slavin (2007), missing data are less of a concern when studying a relationship between variables than when the purpose of the study is to know about the level of a certain variable.

A second limitation involving the external validity of the study must be noted. The average age of the subjects in this study was similar to the average age of Kansas elementary administrators (49.47 years and 47.00 years, respectively); however, this study had a higher percentage of females than the state average. The percent of female administrators in this study was 44 percent, whereas only 30 percent of elementary principals in Kansas are female. Because of the limitations involving

generalizability, additional research should attempt to replicate the findings of this study with another sample in order to reinforce the relationship between hope, grit, and transformational leadership, as well as to better understand some of the counterintuitive findings of this study (e.g., the lack of relationship between years of leadership experience and transformational leadership behavior). To help explore whether the situation and environment influence whether grit and hope predict transformational leadership behavior, research could examine if the results of this study are replicated in different school settings (i.e., urban, rural, and suburban schools), at schools with various socioeconomic levels (i.e., low-income versus affluent), as well as within different levels of education (i.e., elementary, middle, high school, and postsecondary levels).

Next, although this study did find that hope and grit predicted transformational leadership behavior, it is believed the results are more nuanced than the data suggest. In other words, hope and grit may not be as simple as the scores imply. For instance, this study found that only certain items on The Adult Trait Hope Scale and Grit Scale positively predicted transformational leadership behavior. This finding was quite surprising and calls for additional research to provide an explanation for why only certain items on the instruments measuring hope and grit are predictive of transformational leadership behavior. Additionally, this study did not attempt to explore the relationship between hope and grit and the subscales of transformational leadership. Therefore, to examine whether there is a relationship between hope and grit and only certain components of transformational leadership, future studies should explore how both hope and grit are related to the specific subscales of the transformational leadership model (i.e., individualized consideration, inspirational motivation, intellectual stimulation, idealized influence attributes, and idealized influence behaviors).

Finally, the current study examined only two non-cognitive skills: hope and grit. While this study did find that hope and grit were predictive of self-identified transformational leadership behavior, it is unlikely that these are the only non-cognitive skills driving successful leadership outcomes. Ideally, the

study would have surveyed the numerous non-cognitive skills in existence; however, this is not feasible for a single study to do. Therefore, future research should continue to examine the role of other non-cognitive skills' in predicting effective leadership behavior. It is hypothesized that other non-cognitive skills such as self-efficacy, self-discipline, resiliency, adaptability, and optimism are interrelated and interdependent much like strands of a rope. Future research should continue to examine the interrelated nature of these non-cognitive constructs as well as investigate how they influence leadership. As such, it may be possible to design a synthesized model of non-cognitive skills that unites psychometrically-related non-cognitive skills into a single, coherent model used to study effective leadership in an efficient manner. Currently, there are a few models that have attempted to do this. For instance, the construct of psychological capital (see Luthans et al., 2007; Luthans, Youssef, & Avolio, 2006) unites the non-cognitive skills of hope, resilience, optimism, and self-efficacy. Another model known as core self-evaluations (see Judge et al., 2003; Judge, Locke, & Durham, 1997) integrates self-esteem, generalized self-efficacy, locus of control, and emotional stability. Future research should build upon these models to further study the relationship between non-cognitive skills and successful leadership.

Summary

The findings of this study concur with prior research illustrating the positive relationship of non-cognitive skills and beneficial life outcomes. Previous research has shown that non-cognitive skills are positively related to labor market outcomes (Heckman et al., 2006; Heckman & Kautz, 2012; Heckman & Rubenstein, 2001), academic achievement (Duckworth & Seligman, 2005; Dweck, 2006; Tracey & Sedlacek, 1982), physical and psychological well-being (Baumeister & Tierney, 2011; Lopez, 2013; Seligman, 2006; Snyder & Lopez, 2005), and workplace performance (Bernardi, 2011; Judge et al., 2002; Judge & Bono, 2001; Luthans et al., 2007; Robertson-Kraft & Duckworth, 2013). In this study, it was found that hope and grit are positive predictors of self-identified transformational leadership behavior

in Kansas elementary school principals. In sum, this study as well as previous research provides evidence that non-cognitive skills appear to make a difference.

In conclusion, when studying the common thread between history's greatest geniuses, Cox (1926) stated that, "high but not the highest intelligence, combined with the greatest degree of persistence, will achieve greater eminence than the highest degree of intelligence with somewhat less persistence" (p.187). In looking back on some of history's grand achievements accomplished by the world's most eminent leaders, it is highly plausible that non-cognitive skills like hope and grit have played a role in creating greatness. For example, after experiencing failure after failure until ultimately producing the first fully functioning electric light bulb, inventor, Thomas Edison once stated, "Genius is one percent inspiration and ninety-nine percent perspiration." (Sweetman, Luthans, Avey, & Luthans, 2011, p. 4). In this famous line, the "perspiration" required to finally create this history-changing invention likely involved both hope and grit. When Thomas Edison experienced an obstacle to getting the light bulb to shine, he likely remained hopeful, possessing both the agency and pathways to overcome the hardships that manifested after each failed attempt. Further, in never giving up after the hundreds and hundreds of futile trials, Edison likely displayed tremendous levels of grit. He stayed passionate about his goal and persevered throughout all its challenges in order to bring light to the world. Like Edison, leaders in schools across the country face their own challenges and obstacles. Faced with the task of leading their schools and obtaining outstanding results, school leaders need hope and grit. Possessing a non-cognitive skillset that includes hope and grit, these leaders will be poised to tackle the challenges that await and ultimately help their schools and their students achieve their full potential.

APPENDIX A**THE ADULT TRAIT HOPE SCALE**

Directions: Read each item carefully. Using the scale shown below, please select the number that best describes you and put that number in the blank provided.

1 = Definitely False

2 = Mostly False

3 = Somewhat False

4 = Slightly False

5 = Slightly True

6 = Somewhat True

7 = Mostly True

8 = Definitely True

- 1. I can think of many ways to get out of a jam.
- 2. I energetically pursue my goals.
- 3. There are lots of ways around any problem.
- 4. I can think of many ways to get the things in life that are most important to me.
- 5. Even when others get discouraged, I know I can find a way to solve the problem.
- 6. My past experiences have prepared me well for my future.
- 7. I've been pretty successful in life.
- 8. I meet the goals that I set for myself.

From Snyder, C.R., Harris, C., Anderson, J.R., Holleran, S.A., Irving, L.M., Sigmon, S.T., & Harney, P. (1991). The will and the ways: Development and validation of an individual differences measure of hope. *Journal of Personality and Social Psychology*, 60, 585.

APPENDIX B**GRIT SCALE**

Directions for taking the Grit Scale: Here are a number of statements that may or may not apply to you. For the most accurate score, when responding, think how you compare to most people – not just the people you know well, but most people in the world. There are no right or wrong answers, so just answer honestly.

1. I have overcome setbacks to conquer an important challenge.

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

2. New ideas and projects sometimes distract me from previous ones.

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

3. My interests change from year to year.

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

4. Setbacks don't discourage me.

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

5. I have been obsessed with a certain idea or project for a short time but later lost interest.

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

6. I am a hard worker.

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

7. I often set a goal but later choose to pursue a different one.

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

8. I have difficulty maintaining my focus on projects that take more than a few months to complete.

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

9. I finish whatever I begin.

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

10. I have achieved a goal that took years of work.

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

11. I become interested in new pursuits every few months.

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

12. I am diligent.

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

From Duckworth, A.L., Peterson, C., Matthews, M.D., & Kelly, D.R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology, 93*, 1087-1101.

APPENDIX C**MULTIFACTOR LEADERSHIP QUESTIONNAIRE LEADER FORM (5X-SHORT)**

Multifactor Leadership Questionnaire Leader Form (5X Short)

My Name: _____ **Date:** _____

Organization ID #: _____ **Leader ID #:** _____

This questionnaire is to describe your leadership style as you perceive it. Please answer all items on this answer sheet. **If an item is irrelevant, or if you are unsure or do not know the answer, leave the answer blank.**

Forty-five descriptive statements are listed on the following pages. Judge how frequently each statement fits you. The word "others" may mean your peers, clients, direct reports, supervisors, and/or all of these individuals.

Use the following rating scale:

Not at all	Once in a while	Sometimes	Fairly Often	Frequently if not always
------------	-----------------	-----------	--------------	--------------------------

0	1	2	3	4
---	---	---	---	---

1. I provide others with assistance in exchange for their efforts.

0	1	2	3	4
---	---	---	---	---

2. I re-examine critical assumptions to question whether they are appropriate.

0	1	2	3	4
---	---	---	---	---

3. I fail to interfere until problems become serious.

0	1	2	3	4
---	---	---	---	---

4. I focus attention on irregularities, mistakes, exceptions and deviations from standards.

0	1	2	3	4
---	---	---	---	---

5. I avoid getting involved when important issues arise.

0	1	2	3	4
---	---	---	---	---

Note: Mind Garden, Inc. does not allow the entire Multifactor Leadership Questionnaire (5X-Short) to be included in dissertations and proposals. Instead, they only permit researchers to include five sample questions from the instrument in any documents.

APPENDIX D**DEMOGRAPHIC SURVEY**

Directions: Please respond to the following questions as best as you can.

1. What is your current age: _____ years
2. Gender: (check one) _____ Male _____ Female
3. How many years have you served as an elementary school administrator? _____
4. On a 4.0 scale, what best describes your cumulative high school grade point average?

5. On a 4.0 scale, what best describes your cumulative undergraduate grade point average?

6. What best describes the score you received on the ACT? If you did not take the ACT or do not remember your score, please leave the item blank.
Score: _____
7. What best describes the score you received on the SAT? If you did not take the SAT or do not remember your score, please leave the item blank.
Score: _____
8. What was the highest degree earned by your mother?
_____ less than high school
_____ high school/GED
_____ some college/associate's degree
_____ bachelor's degree
_____ master's degree
_____ doctorate/professional degree
_____ do not know/does not apply
9. What was the highest degree earned by your father?
_____ less than high school
_____ high school/GED
_____ some college
_____ bachelor's degree
_____ master's degree
_____ doctorate/professional degree
_____ do not know/does not apply
10. From what college/university did you obtain your undergraduate degree/s?

In what year did you graduate? _____

In what year did you graduate? _____

11. From what college/university did you obtain your graduate degree/s?

In what year did you graduate? _____

In what year did you graduate? _____

APPENDIX E**MIND GARDEN LETTER GRANTING PERMISSION TO USE COPYRIGHT MATERIAL**

For use by Brian Davidson only. Received from Mind Garden, Inc. on January 26, 2014



www.mindgarden.com

To whom it may concern,

This letter is to grant permission for the above named person to use the following copyright material;

Instrument: *Multifactor Leadership Questionnaire*

Authors: *Bruce Avolio and Bernard Bass*

Copyright: *1995 by Bruce Avolio and Bernard Bass*

for his/her thesis research.

Five sample items from this instrument may be reproduced for inclusion in a proposal, thesis, or dissertation.

The entire instrument may not be included or reproduced at any time in any other published material.

Sincerely,

Robert Most
Mind Garden, Inc.
www.mindgarden.com

APPENDIX F**CONSENT TO PARTICIPATE IN RESEARCH**

Adult Informed Consent Statement

Name of Study: Non-cognitive Skills and Leadership: An Examination of the Relationship Between Hope and Grit on Transformational Leadership

INTRODUCTION

The Department of Educational Leadership and Policy Studies at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time without penalty.

PURPOSE OF THE STUDY

The purpose of this study is to explore the relationship between non-cognitive skills and successful leadership behaviors by examining how the specific non-cognitive factors of grit and hope are related to transformational leadership in elementary educational administrators.

PROCEDURES

In this study, you will be asked to take a survey that involves two short instruments used to measure hope and grit, one short instrument to measure leadership behavior, as well as a short demographic questionnaire. It is expected the total time to take all four instruments in the survey should take no longer than ten minutes to complete.

RISKS

There are no risks associated with this study. The content of the surveys should cause no more discomfort than you would experience in your everyday life.

BENEFITS

There may be no personal benefits from taking part in this study. However, the information obtained from this study will be helpful in understanding the relationship between non-cognitive skills and successful leadership behavior. This information may be helpful in hiring and retaining individuals that possess certain qualities and traits to help educational institutions become more effective.

PAYMENT TO PARTICIPANTS

Participants of this study will not be paid.

PARTICIPANT CONFIDENTIALITY

Your name will not be associated in any publication or presentation with the information collected about you or with the research findings from this study. Your participation is solicited, although strictly voluntary. Your identifiable information will not be shared unless (a) it is required by law or university policy, or (b) you give written permission. It is possible, however, with internet communications, that through intent or accident someone other than the intended recipient may see your response.

The researcher of this study will use the information for the purposes of completing a dissertation at The University of Kansas. All data collected as part of the study will be kept confidential. The data will be kept in a locked and secure location. Following the completion of the dissertation by December 2014, all data collected for the purposes of this study will be destroyed.

REFUSAL TO PARTICIPATE

You are not required to participate in this study, and you may refuse to do so without affecting your right to any services you are receiving or may receive from the University of Kansas or to participate in any programs or events of The University of Kansas. However, if you refuse to proceed in completing the surveys, you cannot participate in this study.

CANCELLING THIS CONSENT AND AUTHORIZATION

You may withdraw your consent to participate in this study at any time. You also have the right to cancel your permission to use and disclose further information collected about you, in writing, at any time, by sending your written request to:

Brian Davidson
14880 S Summit St.
Olathe, KS 66062
or
bdavidson@ku.edu

If you cancel permission to use your information, the researcher will stop collecting additional information about you. However, the research team may use and disclose information that was gathered before they received your cancellation, as described above.

QUESTIONS ABOUT PARTICIPATION

Questions about procedures should be directed to the researcher listed at the end of this consent form.

PARTICIPANT CERTIFICATION:

Completion of the surveys indicates your willingness to take part in this study and that you are at least 18 years old. If you have any additional questions about your rights as a research participant, you may call (785) 864-7429 or write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7563, email irb@ku.edu.

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APPROVAL OF PROTOCOL

January 30, 2014

Brian Davidson
bdavidson@ku.edu

Dea Brian Davidson:

On 1/30/2014, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title of Study:	Non-cognitive Skills and Leadership: An Examination of the Relationship Between Hope and Grit on Transformational Leadership
Investigator:	Brian Davidson
IRB ID:	STUDY00000765

The IRB approved the study on 1/30/2014.

1. Any significant change to the protocol requires a modification approval prior to altering the project.
2. Notify HSCL about any new investigators not named in original application. Note that new investigators must take the online tutorial at https://rgs.drupal.ku.edu/human_subjects_compliance_training.
3. Any injury to a subject because of the research procedure must be reported immediately.
4. When signed consent documents are required, the primary investigator must retain the signed consent documents for at least three years past completion of the research activity.

Please note university data security and handling requirements for your project:
<https://documents.ku.edu/policies/IT/DataClassificationandHandlingProceduresGuide.htm>

You must use the final, watermarked version of the consent form, available under the "Documents" tab in eCompliance.

Sincerely,

Stephanie Dyson Elms, MPA
IRB Administrator, KU Lawrence Campus

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