THE RELATIONSHIP BETWEEN LEADERS’ EMOTIONAL INTELLIGENCE AND THEIR PERCEIVED LEADERSHIP EFFECTIVENESS

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Abstract

In recent years, the construct of emotional intelligence has gained much attention as a potential underlying attribute of effective leadership. Still, there are many viewpoints regarding the relationship (if any) between emotional intelligence and leadership effectiveness. The purpose of this doctoral study was to investigate the said relationship and explore further whether or not emotional intelligence dimensions, self-awareness, self-management, social awareness, and relationship management, could predict the perceived level of leadership effectiveness.

Quantitative survey data was obtained between 2013 and 2014 from 91 senior managers and over 1,000 employees in a large investor-owned utility company in the United States. The findings suggested that leaders’ emotional intelligence, as measured by the self-assessed Emotional Intelligence Appraisal (EIA) questionnaires, has no significant relationship with the perceived level of leadership effectiveness, as measured by the 360-degree Leadership Assessment Program (LAP) surveys. The research also showed that four emotional intelligence dimensions, as predictors, are not conclusive indicators of leadership effectiveness ratings, the desired leadership outcome.

*Keywords:* 360-degree leadership assessment program (LAP), emotional intelligence, emotional intelligence appraisal (EIA), emotional quotient, leadership effectiveness, relationship management, self-awareness, self-management, social awareness, social intelligence
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Dedication

I would like to dedicate this doctoral thesis study to my grandparents who raised and cared for my younger sister and me. They watched after us throughout our childhood. They were always there physically and emotionally while we were growing up. I remember that they were strong role models and always generous with their hearts and guidance. They taught us the meaning of hard work, perseverance, and tenacity. They showed us how they valued each given opportunity and never gave up on what they believed in. They were always kind with others and helped many who were in need. They shaped me and my sister into strong, responsible, and capable adults. I will remember them in my life’s passing for no one could impact my life the way they did. They are and will always be in my heart. I love and do miss them dearly.
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Chapter 1: Introduction

Statement of the Problem

The study of emotional intelligence has become a topic of considerable interest in leadership research and applied psychology literature over the past decade (Fambrough & Hart, 2008; Tang, Yin, & Nelson, 2010; Wong & Law, 2002). The overriding focus on this subject matter has been on whether or not emotional intelligence is one of the dominant factors in determining leadership behaviors (Tang et al., 2010). Thus far, various studies and researchers have found positive effects of emotional intelligence on leadership practices, including leadership emergence (Cote, Lopes, Salovey, & Miners, 2010; Hong, Catano, & Liao, 2011), leadership potential (Higgs & Aiken, 2003), organizational climates (Momeni, 2009; Zhou & George, 2003), organizational performance (Ozcelik, Langton, & Aldrich, 2008), and employees’ job satisfaction (Sy, Tram, & O’Hara, 2006). A growing body of studies also supports the construct that emotional intelligence is positively linked to transformational leadership (Barbuto Jr. & Burbach, 2006; Hur, Van Den Berg, & Wilderom, 2011; Leban & Zulauf, 2004; Palmer, Walls, Burgess, & Stough, 2001; Polychroniou, 2009; Sivanathan & Fekken, 2002; Wang & Huang, 2009).

The fact is emotional intelligence is not at all a new concept. The scholarly study of emotional intelligence began as early as the 1990’s. Initially, the term emotional intelligence was defined as a subset of social intelligence (Hur et al., 2011). Since then, varying emotional intelligence definitions have come into existence and the term has been used in very different ways. The most prominent definition was theorized by Salovey and Mayer (1989) as a set of
abilities, both verbal and non-verbal, “to monitor one’s own and others’ emotions, to
discriminate among them, and to use the information to guide one’s thinking and actions” (p.
189). It describes the accurate appraisal and expression of emotions both in self and others, the
adaptive regulation of emotion in the self, and the ability to use emotional knowledge to solve
problems (Abraham, 1999). Later in the mid-1990’s, the concept of emotional intelligence was
popularized by Daniel Goleman with the publication of his best-selling book *Emotional
Intelligence: Why It Can Matter More Than IQ* (Goleman, 1995). He connected the concept of
emotional intelligence to leadership practices (Goleman, 1998, 2000, 2004) and has since
attracted much attention from both academics and practitioners worldwide.

Today, emotional intelligence plays a significant role in leadership and organizations due
to the fact that leadership is an emotion-laden process, from both leaders’ and followers’
perspectives (George, 2000; Kerr, Garvin, Heaton, & Boyle, 2006). Yet, few consumers of this
common and widely used term are aware that emotional intelligence is a highly contested topic
(Fambrough & Hart, 2008). In spite of the overabundance of leadership studies in this area,
many researchers still battle among themselves whether emotional intelligence is theoretically
needed for leadership (Antonakis, Ashkanasy, & Dasborough, 2009). Various researchers debate
its meaningfulness and any predictive validity of various emotional intelligence measures,
especially related to leadership outcomes (Antonakis, 2004; Antonakis et al., 2009). Despite
these concerns, experts do believe research in emotional intelligence needs to continue, in
particular, to study emotions and their roles in leadership (Antonakis et al., 2009; George, 2000).
Past literature also suggests that emotional intelligence has the potential to contribute to effective
leadership (Dulewicz, Young, & Dulewicz, 2005; George, 2000; Hur et al., 2011; Leban &
Zulaf, 2004) and it needs to be explored further in more depth (Palmer et al., 2001).
In recent years, the construct of emotional intelligence and leadership has gained much attention as a potential underlying attribute of effective leadership (Antonakis et al., 2009; Bailie & Ekermans, 2006; Dulewicz et al., 2005; Lam & O’Higgins, 2012; Palmer et al., 2001). Still, there are many viewpoints regarding the relationship, if any, between emotional intelligence and leadership effectiveness. Many studies found linkage between emotional intelligence and leadership effectiveness (Barbuto Jr. & Burbach, 2006; Boyatzis, 2008, 2009; George, 2000; Greenockle, 2010; Hopkins, O’Neil, & Williams, 2007; Mandell & Pherwani, 2003; Nwokah & Ahiauzu, 2010; Palmer et al., 2001; Polychroniou, 2009). However, other researchers are questioning the hyperbolic claims and showing some skepticism regarding whether or not emotional intelligence predicts work success or desired leadership outcomes, in particular, leadership effectiveness (Antonakis et al., 2009; Brown, Bryant, & Reilly, 2006; Lindebaum & Cartwright, 2010; Walter, Humphrey, & Cole, 2012; Weinberger, 2009).

This present study followed a line of past research on emotional intelligence and leadership. It examined whether or not a relationship exists between emotional intelligence and leadership effectiveness amongst senior managers at the “ABC Electric Company” (a pseudonym of the research site), one of the largest investor-owned electric utility companies in the United States. The study also helped clarify past results through empirical improvements such as the use of leaders’ self-assessed emotional intelligence scores and the leadership effectiveness ratings as evaluated by multi-raters. Furthermore, this study determined the extent of said potential relationship from various emotional intelligence dimensions as defined by Goleman (1998, 2000, 2004) using participants in a non-academic or military research setting.
Significance of the Research Problem

It was important that the emotional intelligence and leadership effectiveness were studied to discover whether or not there was any relational and predictive association. Assuming that the relationship between emotional intelligence and leadership effectiveness was rigorously examined and reliable results were produced, leadership scholars would be able to continue advancing theory around this construct. The results, their implications, and limitations could then be discussed, analyzed, and added to the existing leadership body of knowledge for future reference and further research and application. If, however, the said relationship was not validated and the results continued to be methodologically problematic or questionable, then future theory development would likely rest on a shaky foundation. In addition, considerable resources might be wasted on future research and practices that are based upon invalid assumptions, findings, and claims.

Furthermore, organizations today find themselves changing often and rapidly to maintain their competitive edge. Corporations across the nation are facing drastic and frequent shifts in the global economy, the political and social conditions, and various environmental and regulatory mandates. Greater competition requires more effective leaders and a more productive workforce. Success in ever-changing work environments needs organizations and leaders to be creative and put more effort into better understanding, managing, and leading their employees’ behaviors. As described by Greenockle (2010), “there is a new premium on relationships … we have witnessed a change to a more mentoring leadership model of inclusion, cooperation, and a team spirit orientation” (p. 260). Employees are searching for more than a top-down or command-and-control leadership style; they want to be more independent, empowered, and
engaged. More specifically, the leaders of today are expected to be competent technically, cognitively, and emotionally (Boyatzis, 2008, 2009).

As a result of such demand for more and more effective leaders, U.S. firms alone spend approximately forty billion dollars annually in their employee training and almost fourteen billion dollars a year on leadership development, much of which is not based upon empirical data (Bradberry & Su, 2006; Gurdjian, Halbeisen, & Lane, 2014). Moreover, colleges and universities respond to such demand by offering hundreds of degrees, certificates, and courses on leadership (Gurdjian et al., 2014). Perhaps, the development of these leadership training courses and programs could have been carried out and improved with better clarity in the current literature regarding the relationship between leaders’ emotional intelligence and leadership effectiveness. This doctoral thesis could provide more clarity on how the U.S. workforce views and responds to leaders’ emotional intelligence abilities as their perceived effective behaviors. This research could benefit the organizations and their leaders in future recruitment, talent management, and leadership development practices, potentially resulting in the improvement of internal productivity, customer loyalty, and employee job satisfaction.

Lastly, the ramification of ignoring this problem could simply be a missed opportunity to capitalize on the organizations’ most valuable asset: human capital. Alternatively, any mismanagement of the workforce’s emotions and behaviors could potentially result in other underlying problems such as high turnover, greater absenteeism, low productivity, and increased number of work-related accidents and injuries. These problems could affect the bottom line, the work climate, and the organizations’ culture. The problems could eventually jeopardize the organizations’ ability to retain top talent, remain competitive, be at the forefront of their fields, or just survive in the fast changing market place.
Research Question and Hypotheses

Research Question 1 (RQ1). The overriding aim of this study was to investigate the relationship between leaders’ emotional intelligence and their perceived leadership effectiveness. Such investigation was of extreme importance as, from literature, there is a shift towards emotional intelligence as a determinant for effective leadership (Dulewicz et al., 2005; George, 2000; Ozcelik et al., 2008; Weinberger, 2009). To reiterate, the probable relationship between emotional intelligence and leadership effectiveness could describe the statement that emotional intelligence enables leaders “to recognize the meanings of emotions and their relationships, and to reason and problem-solve on the basis of them” (Mayer, Caruso, & Salovey, 1999, p. 267). Effective leaders can perceive emotions, use emotions to facilitate thought, understand the information of those emotions, and manage emotions in a way that enhances personal growth and social relations with others (Mayer et al., 1999; Mayer, Salovey, Caruso, & Sitarenios, 2001). Having a clear understanding of the purpose, this research attempted to answer to the primary research question (RQ1): What is the relationship between leaders’ emotional intelligence and their perceived leadership effectiveness?

Research Question 2 (RQ2). To further disentangle the relationship between emotional intelligence and perceived leadership effectiveness, a secondary research question was introduced in this research to examine the extent to which emotional intelligence predicts perceived level of leadership effectiveness. Basically, this research question explored four emotional intelligence dimensions that make up emotional intelligence. Four emotional intelligence dimensions in this research were paired under two primary categories: personal and social competencies (Bradberry & Greaves, 2009; Bradberry & Su, 2006; Macaleer & Shannon, 2002). Personal competencies are made up of individual’s self-awareness and self-management.
Self-awareness is defined as one’s ability to accurately perceive his or her own emotions and understand tendencies across situations. Self-management is defined as one’s ability to utilize his or her own awareness of emotions to stay flexible and direct behaviors positively and constructively (Bradberry & Greaves, 2009; Bradberry & Su, 2006).

Social competencies are made up of social awareness and relationship management. Social awareness describes one’s ability to accurately perceive emotions in other people and understand what they are thinking and feeling, regardless of his or her own feelings. Relationship management is defined as one’s awareness of his or her own emotions and those of others to manage interactions constructively and successfully (Bradberry & Greaves, 2009; Bradberry & Su, 2006). Based on the emotional intelligence categories and dimensions described above, the research also attempted to answer to the following secondary research question (RQ2): To what extent do the four emotional intelligence dimensions predict the perceived level of leadership effectiveness?

**Research hypotheses.** To address the proposed research questions stated prior, two hypotheses were developed and tested in this study accordingly as follows:

**Hypothesis 1 (H1):** Leaders’ self-assessed emotional intelligence scores are significantly and positively related to their leadership effectiveness ratings provided by others.

**Hypothesis 2 (H2):** Leaders’ self-assessed emotional intelligence dimension scores significantly predict leadership effectiveness ratings provided by others.

The first hypothesis served as a baseline from which this doctoral thesis could examine the relationship between emotional intelligence and leadership effectiveness. If the association was well established, there should be no reason that the study should yield unexpected results. A significant correlation would support this hypothesis. In fact, should this relationship not hold in
this study, it would be a good reason to question if emotional intelligence has any relation to leadership practices or leaders’ desired performance outcomes.

Once the baseline relationship between emotional intelligence and leadership effectiveness has been analyzed, the study further examined how four emotional intelligence dimensions enhance our understanding in leadership practices. The second hypothesis explored the extent to which emotional intelligence dimensions, for example self-awareness, self-management, social awareness, and relationship management, predict leaders’ leadership effectiveness perceived by others such as direct supervisors, followers, and peers.

Theoretical Frameworks

The overall purpose of this doctoral thesis study was to investigate the relationship between leaders’ emotional intelligence and their perceived leadership effectiveness. To conduct such research, two guiding theoretical frameworks, emotional intelligence and leadership effectiveness, were utilized to provide the abstract, logical structure of meanings that guided the development of the study. These frameworks helped explain key concepts and the relationship, if any, among the concepts. Additionally, the theoretical frameworks gave the study a focus for attacking the unknown or, in this case, a relationship between variables, leaders’ emotional intelligence and their perceived leadership effectiveness. Simply put, both frameworks helped identify the starting point of the study. They also informed and shaped the research questions and propositions to the hypotheses of the research study. Lastly, the theoretical frameworks made research findings meaningful and potentially generalizable to help predict or control other similar situations or future research efforts.

Emotional intelligence overview. Fundamentally, studies referred to emotional intelligence as learnt abilities (Macaleer & Shannon, 2002; Tang et al., 2010) to: “a) recognize,
understand, and express emotion and feelings, b) understand how others feel and relate with them, c) manage and control emotions, d) manage, change, adapt, and solve problems of a personal and interpersonal nature, and e) generate positive affect and be self-motivated” (Bar-On, 2006, p. 14). Under Goleman’s (1998, 2000, 2004) approach, emotional intelligence was further viewed and analyzed in this research using two main categories, personal and social competencies, and four sets of dimensions, self-awareness, self-management, social awareness, and relationship management (Bradberry & Greaves, 2009; Bradberry & Su, 2006; Macaleer & Shannon, 2002). According to Goleman (2004), each emotional intelligence competence and dimension describes desired behaviors, capabilities, or skills that differentiate great leaders from the rest (also see Figure 1 for more details). These competencies and dimensions are unique contributions to leaders’ job performance and can draw, to some extent, on certain others (Goleman, 2004, Macaleer & Shannon, 2002).

Figure 1. Goleman’s Four Core Emotional Intelligence Dimensions. Adapted from “Emotional Intelligence Model,” by TalentSmart, n.d., The Emotional Intelligence Appraisal – ME Edition [Product fact sheet].
The emotional intelligence construct was chosen here because many prominent researchers have viewed it as a wide array of competencies that drive managerial performance (Bar-On, 2006; Boyatzis, 2008, 2009; Goleman, 2000). According to Goleman (2004), “truly effective leaders are distinguished by a high degree of emotional intelligence” (p. 82). In other words, effective leaders are more alike in one critical element: they all have a high degree of emotional intelligence. Goleman (2004) strongly states that leadership is more art than science. He suggests that intelligence quotient and technical skills are important but they only represent threshold capabilities or entry-level requirements for leadership positions. Emotional intelligence, on the other hand, is “the sine qua non of leadership” (Goleman, 2004, p. 82).

Moreover, Goleman (1998) analyzed numerous studies of outstanding performers in hundreds of organizations across the globe. He found that about two-thirds of the abilities that set star performers apart from the rest are based on emotional intelligence; the remaining one third that really matter relate to raw intelligence and technical expertise. That is, without emotional intelligence, a person can possess outstanding education and training, superior analytical skills, and necessary experience, but he or she still will not make a great or effective leader (Goleman, 2004).

Boyatzis (2008, 2009) studied and found that research published over the last 30 years has shown that leaders, managers, and advanced professionals who possess cognitive competencies, emotional intelligence, and social intelligence distinguish themselves and outperform others. Furthermore, Lam, and O’Higgins (2012) discovered that past research indicates intelligence quotient alone only explains 4-10 percent of accomplishment at work. Emotional intelligence, on the other hand, is twice as important as one’s technical skills and intelligence for jobs at all levels. Additionally, Lam, and O’Higgins (2012) found from their
research and previous studies that intellectual intelligence contributes about 20 percent of the factors that determine life success, leaving 80 percent to emotional intelligence and other factors.

Therefore, emotional intelligence was selected as the theoretical framework to form and examine the research questions, relating to emotional intelligence and leadership effectiveness, critically and analytically. The framework also helped connect the researcher to existing bodies of knowledge regarding leadership and guided the study for appropriate hypotheses and a valid choice of research methodology. Emotional intelligence was used to view leadership phenomenon and outcomes of perceived leadership effectiveness that could be very difficult to observe, identify, and understand. Lastly, this framework helped make sense of the research problem and provided a lens to view the phenomenon more objectively and systematically.

**Effective leadership overview.** Similar to emotional intelligence, leadership effectiveness is a confusing term. It has been defined by various leadership scholars and numerous studies at different times. There is no one universal, agreed-upon definition or theory that could describe the term fully (Cooper & Nirenberg, 2004; Yukl, 2011, 2013). The criteria to evaluate leadership effectiveness in research also depend largely on researchers’ explicit or implicit conception of leadership (Yukl, 2013). Most researchers assess and define leadership effectiveness in terms of the consequences of influence on individuals, groups, or organizations (Cooper & Nirenberg, 2004; Yukl, 2013). The controversial nature of this term is probably due to the fact that “leadership” in itself is complex and is not one-size-fits-all (Grimm, 2010). Therefore, for clarity, this study used this definition: leadership as the management of social relationships where the leaders’ ability to influence such relationships can affect performance outcomes (Kerr et al., 2006; Kilduff & Balkundi, 2011). Accordingly, leadership effectiveness was defined and viewed in this study as the successful exercise of personal influence that results
in accomplishing shared objectives in a way that is personally satisfying to those involved (Cooper & Nirenberg, 2004).

One inclusive statement in current literature about leadership effectiveness has been that more often than not, leadership effectiveness is in the eye of the beholder (Cooper & Nirenberg, 2004). Various organizations and entities set different goals and priorities to meet the needs of their serving stakeholders. Accordingly, their stakeholders define and assess leadership effectiveness differently and with varying degrees of importance. Examples of objective criteria used to measure leaders’ effectiveness include sales, net profits, profit margin, market share, return on investment, return on assets, productivity, advancement and innovation, credit ratings, customer survey results, and safety records. Subjective criteria of leadership effectiveness, on the other hand, include ratings obtained from the leaders’ supervisors, peers, or subordinates (Yukl, 2013). Attitudes or perceptions of leadership effectiveness are usually measured with questionnaires or interviews. These measures address, for example, how well leaders meet the needs and expectation of others such as their supervisors, followers, and peers, and how much they like, respect, and admire their leaders, or how strongly they are committed to carrying out their leaders’ visions and directions (Yukl, 2013).

According to the definition and framework mentioned above, this research studied leadership effectiveness based on how others perceived their leaders’ abilities and performances at the ABC Electric Company. Since 2013, the company has worked with an external vendor by the name of Development Dimension International (DDI), Inc. to identify what the company’s constituents value most in its leaders. Seven performance areas were then established from the DDI’s competency library and have been used since as criteria in the company’s 360-degree leadership assessment survey. This assessment survey measures how leaders and others perceive
the leaders’ effectiveness in: 1) safety leadership, 2) organization values, 3) change and innovation, 4) talent management, 5) communication with impact, 6) leadership with vision, and 7) sound decision making (see Figure 2 below for more details).

![Figure 2. Perceived Leadership Effectiveness in Seven Performance Areas. Depicted “the 360-degree Leadership Assessment Program Survey” process at the ABC Electric Company, by Development Dimensions International, Inc., n.d.

Emotional intelligence and effective leadership. This research took the framework for understanding the emotional intelligence skills that underlie personal and social competencies and then applied it to leadership processes and outcomes, leaders’ abilities and performances. Further, the research propositions were to examine how direct supervisors, followers, and peers perceived leadership ability and performance, and whether these variables should play an important part in effective leadership measurement. This line of thought formed and shaped the research questions and associated hypotheses to understand the relationship, if any, between two key variables in the research study: 1) emotional intelligence and 2) perceived leadership effectiveness (see Figure 3 for more details).
Emotional Intelligence signifies varying characteristics, or attributes, of leaders that were assessed in this research via the Emotional Intelligence Appraisal or EIA (self-assessment) instrument. The EIA scores reflect the leaders’ self-evaluation of what they see, self-awareness and social awareness, and what they do, self-management and relationship management, assisting them to recognize and regulate their emotions and actions. Leadership effectiveness represents varying characteristics, or attributes, of leaders that were measured here via the 360-degree Leadership Assessment Program or LAP (multi-rater) instrument. The LAP ratings suggest how others, direct supervisors, followers, and peers, perceived the participating leaders’ effectiveness based on certain performance criteria. In this study, the researcher elected to use the ABC Electric Company’s seven performance criteria to assess the participants’ perceived leadership effectiveness including: 1) safety leadership, 2) organization values, 3) change and

innovation, 4) talent management, 5) communication with impact, 6) leadership with vision, and 7) sound decision making.

**Positionality Statement**

I was born and raised in Thailand. My view of leadership practices has been shaped by how most Thai organizations are structured and led. That is, most Thai organizations are very much a rigid hierarchy system. Power is distributed unevenly and often centralized at the top. Employees rarely participate in the decision-making processes. Moreover, Thai organizations often have many rules and regulations, allowing little uncertainty, flexibility, or innovation. Leaders and employees work hard to maintain their relationship and status quo. Furthermore, Thai organizations are generally characterized as a collectivism entity. This indicates a tight social framework, which emphasizes the value of harmony and unity of team members. As such, individuals’ needs and feelings, are not normally considered as determining factors in organizations or in most decision-making processes.

From my upbringing, I viewed transactional leadership as the most effective leadership style. Transactional leaders promote compliance through contingent positive or negative reinforcement. These leaders reinforce rules and regulations to achieve goals, structure, and culture of organizations (Odumeru & Ogbonna, 2013). Through education and work experience in the U.S. for over twenty years, I now recognize the value of other leadership styles in various organizations and situations. For example, the transformational leadership style works best when there is a need to challenge status quo or to introduce unprecedented changes in organizations. That is, followers need to be understood, inspired, and led by effective leaders to achieve desired or extraordinary outcomes.
This positionality statement offers an explanation of how my cultural upbringing, educational background, and work experience have shaped my view of the emotional intelligence construct and its relation to leadership practices. It describes the lens through which I see the world and interpret meanings of my interactions with internal and external stimuli. This positionality statement attempts to clarify my identity, specific position, and any potential bias, of which I should be fully aware as a researcher, as it could potentially influence the study, research methodology, data analysis, and findings.

Summary

It was important that the relationship between emotional intelligence and perceived leadership effectiveness was examined here. Even though this subject matter has been studied previously, findings have still been widely debated and questioned. The researcher anticipated that, through empirical efforts, this study could provide valuable insights related to both emotional intelligence and leadership practices. The results should be analyzed and added to the current leadership literature for future emotional intelligence theory development, if warranted. Moreover, the clarity in the relationship between emotional intelligence and leadership outcomes can benefit many organizations like the ABC Electric Company and their leaders in the recruitment, talent management, and leadership development practices. As a result, the research findings could help improve the organizations’ internal productivity, employees’ job satisfaction, and the financial bottom line, so that the organizations can remain relevant and competitive in today’s fast changing environment.

Key Terms and Definitions

A competency is defined in this study as a set of related but different behaviors, organized around an underlying construct, called the “talent” (Boyatzis, 2008). In this research,
it will be viewed as a capability or ability that is displayed appropriately in various situations or times (Boyatzis, 2008, 2009).

**Emotions** are defined for this research as “internal events that coordinate many psychological subsystems including physiological responses, cognitions, and conscious awareness” (Mayer et al., 1999, p. 267). Emotions are high intensity feelings that are unorganized mental responses to an event, crossing the boundaries of many psychological systems, for example physiological, cognitive, motivational, and experimental systems. Emotions are typically triggered by an individual’s specific internal or external stimuli (George, 2000; Gooty, Connelly, Griffith, & Gupta, 2010; Salovey & Mayer, 1989). Emotions demand attention and can greatly interrupt cognitive processes and human behaviors. Compared to moods, emotions tend to be shorter, target-centered and more intense (Gooty et al., 2010). Moreover, emotions often feed into moods once the intensity of a feeling subsides. In other words, emotions linger on in the form of less intense feelings or moods (George, 2000; Salovey & Mayer, 1989).

**Emotional intelligence** (or called “emotional quotient”) is defined as “an ability to recognize the meanings of emotions and their relationships, and to reason and problem-solve on the basis of them” (Mayer et al., 1999, p. 267).

**Feelings** refer to different states of being such as happiness, sadness, affection, or anger. In fact, feelings are human responses or reactions often triggered by specific stimuli, either internal or external, to an individual (George, 2000). Feelings could be either moods or emotions based on the intensity and duration. Moods are generalized feelings with relatively low intensity. They last longer and typically do not interrupt on-going activities. Emotions, on the other hand,
are shorter, target-centered, and more intense than moods are (George, 2000; Gooty et al., 2010; Salovey & Mayer, 1989).

**Individualized consideration** is defined in the context of this study as: 1) leader’s personal attention given to followers, 2) a considerate relationship built with each follower, and 3) attention to each person’s peculiar needs (Nwokah & Ahiauzu, 2010).

**Intelligence quotient** (or IQ) is a score resulting from one of the standardized tests designed to assess human intelligence. IQ scores have been used as predictors of one’s educational achievement, job performance, and success in his or her adulthood. They have also been shown to be associated with certain factors as morbidity and mortality, parental social status, and biological parental IQ’s (Intelligence Quotient, n.d.).

**Inspirational motivation** is defined as leaders’ efforts to create a clear picture of the future that is optimistic and attainable (Nwokah & Ahiauzu, 2010).

**Leadership** is a process of social influence in which one person (called a leader) enlist the support of others (called followers) to accomplish a common or shared goal (Leadership, n.d.). To the laypersons, “leadership is something a person has, an inherited or acquired trait which, therefore, remains with the person” (Fiedler, 1981, p. 619).

**Leadership effectiveness** is defined in this study as “the successful exercise of personal influence attempts by one or more peoples that results in accomplishing organizational objectives congruent with a mission while earning the general approval of their constituencies (in the case of political leadership) or stakeholders (in the case of business and civil society organizations)” (Cooper & Nirenberg, 2004, p. 845).

**Organizational climate** is a set of characteristics that describes the organization and its culture. The organizational climate of one organization is typically different from the
organizational climates of other organizations. The climate is relatively enduring over time and can affect the attitudes, perceptions, and behaviors of people in the organizations at a given point in time (Momeni, 2009).

Organizational culture (or simply “culture”) is “a pattern of shared basic assumptions learned by a group as it solved its problems of external adaptation and internal integration, which has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems” (Schein, 2010, p. 18).

Social intelligence is defined by E. L. Thorndike as “the ability to perceive one’s own and others’ internal states, motives, and behaviors, and to act toward them optimally on the basis of that information” (Salovey & Mayer, 1989, p. 187). Simply put, it is the ability to think and take appropriate actions in social situations. Social skills are key components of social intelligence. Some of social skills include “the ability to express oneself in social interactions, the ability to read and understand different social situations, knowledge of social roles, norms, and scripts, interpersonal problem-solving skills, and social role-playing skills” (Riggio & Reichard, 2008, p. 171).
Chapter 2: Literature Review

In order to study the relationship between leaders’ emotional intelligence and their perceived leadership effectiveness, a review of the past and existing state of information on the related topics was necessary. The goal for this chapter is to review the scholarly literature and to position the current research within the existing body of knowledge. The literature review also provides context for intended audiences, and accordingly, documents the need for the proposed study (Creswell, 2012). This review was carried out systematically with a focus on the research questions and hypotheses. That is, this reviewer identified, selected, organized, and critically evaluated high quality research materials relevant to the research questions. Then, the review resulted in a summary and synopsis of the literature to explain why the current study could potentially add to the existing body of knowledge (Creswell, 2012). This review also assisted with the research design and the methodology selection as well as any interpretation of the study results and findings.

This chapter is divided into five main sections. The first section discusses the roles of feelings such as moods and emotions in human affairs, especially pertaining to organizations and leadership. This section summarizes what has been known and discussed regarding human feelings. It also provides basic definitions and foundations of how feelings are viewed in organizations and leadership practices. The second section considers the emotional intelligence construct. It offers the definitions, the background, and various well-documented models of the construct in the current literature. The third section explores the role and impacts of emotional intelligence in the leadership process. It further discusses the relevance of emotions to other leadership theories and concepts. The fourth section documents the terminology and concept of leadership effectiveness. It recognizes and describes how this term could be perceived and
understood differently by different stakeholders in various situations and frames of reference.

The fifth and last section of this chapter summarizes existing empirical research that discusses the possible relationship between emotional intelligence and leadership outcomes. It also addresses the gap in the literature with evidence that is critical to justify the need for this proposed study.

Section 1: Roles of Feelings in Human Affairs

**Feelings and human affairs.** Feelings have been known to impact human judgment, memory, creativity, and inductive and deductive reasoning (George, 2000). Research also shows that feelings play an important part in humans’ cognitive processes and behaviors (George, 2000). In day-to-day social interactions, people face the challenge of effectively managing feelings. In general, people who feel positive, constructive, and happy tend to function better, make more informed choices, and live more productive lives. On the other hand, people with negative moods or emotions may be less self-assured, less creative and flexible, and less helpful to others (Amabile, Barsade, Mueller, & Staw, 2005; Isen, Shalker, Clark, & Karp, 1978). And while a stereotype of a rational person is someone who can make decisions without any interference from his or her feelings, neurological findings suggest that feelings are essential in the decision making process (Goleman, 1995). That is, feelings help us decide among options, calculate the best course of action, and make informed choices. As stated earlier, intense emotions can also interfere with human’s cognitive processes (George, 2000; Gooty et al., 2010). Lack of emotions, on the other hand, may result in irrational behaviors or decisions. That is why having abilities or skills to deal proactively and successfully with feelings is critical in human affairs (George, 2000; Ingram & Cangemi, 2012).
Feelings in organizations. Besides daily social interactions, exchanges in the workplace can be influenced by human feelings (McColl-Kennedy & Anderson, 2002; Rajah, Song, & Arvey, 2011). Within organizations, emotions serve as the social glue and can greatly influence numerous aspects of employees’ relations. This ranges from individual-level performance, perceptions of authority, and feelings about career paths within organizations (Ozcelik et al., 2008). Despite the fact that organizational behavior has been managed mainly by the rational-cognitive approach for years, studies have shown that the right amount of emotions in organizations can contribute to employees’ increased levels of creativity, productivity, and cognitive flexibility (Amabile et al., 2005; Ashkanasy, Hartel, & Daus, 2002; Isen et al., 1978).

For example, positive moods generally lead to more desirable outcomes, such as greater job satisfaction and less turnover or absenteeism. People in positive moods typically will avoid stimuli that may detract from their positive moods or frame of mind. Conversely, an appropriate amount of negative moods could potentially force people to process cognitive information more analytically, systematically, and realistically. That is, people in negative moods tend to engage in activities with caution and with more cognitive efforts, which could distract them from their negative frame of mind (Ashkanasy et al., 2002).

Feelings and leadership. As previously discussed, current literature suggests that feelings play key roles in the workplace (Rajah et al., 2011). It is also likely that feelings could potentially influence the organizational climate and leadership outcomes. And since leaders are human beings, they are subject to a full range of moods and emotions, both positive and negative (George, 2000). Researchers have been interested in emotionality in leadership for years due to its influence on practical outcomes for organizations. Some suggest that emotions can and do affect leadership styles and effectiveness (George, 2000; Rajah et al., 2011). For example, when
leaders face emotional and stressful situations, their reactions and their capability to regulate emotions are vital to improved or impaired effectiveness. In addition, due to the nature of their responsibilities, leaders are often put in situations to recognize, understand, and manage their followers’ emotions. Accordingly, recent research has started to explore further whether leaders could manage employees’ emotions for desired individual- and group-level performance and how to do so (Ozcelik et al., 2008). For instance, McColly-Kennedy and Anderson (2002) found that transformational leadership increases optimism and reduces frustration among subordinates. This could result in an increase in individual-level performance and enthusiasm (McColl-Kennedy & Anderson, 2002). Hakonsson, Obel, and Burton (2008) also found that leaders, who are fully aware of emotions, could manage organizational climates well in both the short run and the long run. The effective management of organizational climates can affect and enhance employees’ shared emotional reactions and their consequent information processing behaviors. This could potentially result in an optimum group-level performance (Hakonsson et al., 2008).

Section 2: Emotional Intelligence as a Construct

During the first half of the 20th century, intelligence quotient (IQ) was considered a primary indicator of one’s intelligence and potential success in life. Current research has suggested otherwise, or at least IQ scores are not the only measurement of intelligence (Mandell & Pherwani, 2003). That is, true intelligence is comprised of academic and emotional components, among others. While today’s society continues to place a great deal of weight on academic excellence, emotional intelligence has been argued to be a better indicator of an individual’s success in adulthood (Mandell & Pherwani, 2003). Previous research also indicates that employees’ emotional intelligence is positively associated with job satisfaction and those
employees, both leaders and followers, with higher emotional intelligence have higher job performance (Sy et al., 2006)

Emotional intelligence is a relatively recent but a well-known concept among academics and practitioners. The construct is based on the idea that traditional types of intelligence, such as intelligence quotient, fail to fully explain cognitive or intellectual ability (Lam & O’Higgins, 2012). Additionally, more prominent theorists, such as Gardner (1983) and Sternberg (1985), have suggested a more comprehensive approach to conceptualizing intelligence and that there are other dimensions of intelligence, for example social or practical intelligence, which explains that an individual’s potential is not limited simply due to their IQ scores (Mandell & Pherwani, 2003; Polychroniou, 2009).

Emotional intelligence has its origin within the concept of “social intelligence,” a term first introduced by E. L. Thorndike in 1920. Social intelligence was defined initially as an ability to understand and manage people and to act wisely in human relations (Wong & Law, 2002). Gardner (1983) expanded the term later to include a person’s interpersonal and intrapersonal intelligence. Intrapersonal intelligence describes one’s intelligence in managing his or her own feelings. In contrast, interpersonal intelligence relates to one’s intelligence in dealing with others’ moods, temperaments, motivations, and intentions (Polychroniou, 2009; Wong & Law, 2002).

Salovey and Mayer (1989) were among the earliest to introduce the term “emotional intelligence” describing it as one’s ability to recognize the meaning of emotions and their relationships. The term reflects the accurate appraisal and expression of emotions in oneself and others as well as the resulting constructive regulation of emotions (Mayer et al., 1999; Mayer, DiPaolo, & Salovey, 1990). In recent years, Goleman has popularized the term emotional
intelligence and lured appeal from academics and practitioners around the globe (Bratton, Dodd, & Brown, 2011; Nwokah & Ahiauzu, 2010; Rajah et al., 2011). Similar to Salovey and Mayer (1989), he describes emotional intelligence as the capacity for recognizing one’s own feelings and those of others and for managing oneself and the relationship with others (Nwokah & Ahiauzu, 2010).

In all of the recent research on emotions in organizations, emotional intelligence is arguably one of the most controversial constructs. There are non-believers who have pointed out that many of the dramatic claims for emotional intelligence lack theoretical and empirical grounding. In actuality, no consensus has been reached as to the definition and breadth of the emotional intelligence concept (Antonakis et al., 2009; Ashkanasy et al., 2002). Due to its recency, emotional intelligence is still in the midst of empirical and theoretical debates about its dimension, competencies, assessment, and relationship with work attitudes and performance results. Moreover, the construct is in a stage of active development in regards to its relationship to leadership outcomes, work climate, and team-level performance (Ashkanasy et al., 2002; Fambrough & Hart, 2008).

Regardless of current debates in various aspects of the construct, emotional intelligence has been broadly agreed, theorized, and described in either one of the four main models: 1) Salovey-Mayer’s model (Mayer et al., 1999; Mayer et al., 2001; Salovey & Mayer, 1989); 2) Goleman’s model (Goleman, 2000); 3) Bar-On’s model (Bar-On, 2006); and 4) Dulewicz and Higgs’ model (Dulewicz & Higgs, 2000; Dulewicz et al., 2005). In addition, all emotional intelligence models are generally described and classified either as an ability-based or mixed model (Cote et al., 2010). Ability-based models define emotional intelligence as a set of abilities relating to emotions and emotional informational processing (Cote et al., 2010). The ability-
based emotional intelligence concept concerns actual abilities and should be measured through performance assessment instruments. Mixed or trait-based models, on the other hand, lump together competencies pertaining to emotions, personality traits, motivational factors, and other emotional intelligence concepts (Cote et al., 2010). This model often describes non-cognitive skills and personal factors such as motivation, optimism, adaptability, and warmth (Day & Carroll, 2004). Below briefly describes four well-documented models of the emotional intelligence construct in the current literature:

**Salovey-Mayer’s model.** Salovey-Mayer’s model is the ability-based emotional intelligence model that is defined as the subset of social intelligence (Salovey & Mayer, 1989) and is an empirically derived combination of emotion and intelligence (Bratton et al., 2011). This model describes emotional intelligence as an ability to monitor one’s own and others’ feelings, to recognize the meaning of them and their relationships, and to reason and problem solve based on the basis of them (Mayer et al., 1999; Salovey & Mayer, 1989). Suggested by Mayer, Caruso, and Salovey, the abilities model consists of four general emotional abilities, referred to as “branches” (Mayer et al., 1999; Mayer et al., 2001; Momeni, 2009; Riggio & Reichard, 2008):

1. *Emotional perception and expression* branch, which involves the ability to accurately identify and recognize emotions in oneself and others, as well as the ability to express emotions accurately, for example reading emotions in faces and detecting emotions in music, designs, and stories;

2. *Emotional facilitation of thought* branch, which involves the ability to assimilate emotions into perceptual and cognitive processes;
3. *Emotional understanding* branch, which involves the ability to reason about and understand emotions, including the complexities and delicacies of emotions as well as their interrelationships; and

4. *Emotional management* branch, which involves the ability to manage, regulate, and control, felt emotions in a positive fashion.


This four-branch structure of emotional intelligence could also be viewed as a hierarchical structure, with emotional perception and expression at the bottom and emotional management at the top (Mayer et al., 1999; Mayer et al., 2001). That is, the lowest level emotional intelligence skills involve the ability to perceive and express emotions through facial expressions, emotional reactions, or other body language. The next level up involves “assimilating basic emotional experiences into mental life, including weighing emotions against one another and against other sensations and thoughts, and allowing emotions to direct attention”
The third level involves reasoning about emotions. Each emotion typically follows and moves according to its unique characteristics and specific rules (Mayer et al., 1999). Emotional intelligence skills simply equates to the ability to understand these rules and know how to take advantage of them tactically and accordingly. The fourth and highest level involves the management of one’s own emotions as well as the regulation of other’s emotions. This includes knowing how to calm yourself and others down or alleviating anxiety when deemed necessary (Mayer et al., 1999).

The Salovey-Mayer’s emotional intelligence competencies are typically measured with the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) (Chopra & Kanji, 2010; Fambrough & Hart, 2008; Follesdal & Hagtvet, 2013; Riggio & Reichard, 2008). The MSCEIT test is considered an ability-based measure that meets the three criteria for intelligence tests: 1) conceptual (more or less there are correct answers); 2) correlational (correlations can be shown to related abilities that are similar to, but different from, mental abilities); and 3) developmental (emotional intelligence can be developed over time) (Fambrough & Hart, 2008). This testing instrument includes a series of one hundred forty-one emotion-based problem-solving questions that evaluate a person’s abilities on each of the four emotional intelligence branches (Bradberry & Su, 2006; Chopra & Kanji, 2010; Fambrough & Hart, 2008; Riggio & Reichard, 2008). While the instrument was developed based on a decade of theoretical and empirical work, it has been widely criticized and questioned by researchers that the test may have been measuring conformity but not necessarily one’s ability to perform his or her tasks. Additionally, the test may lack predictive validity and a significant relationship with job performance (Chopra & Kanji, 2010) and provides scores that are low in reliability and are somewhat difficult to interpret (Follesdal & Hagtvet, 2013).
**Goleman’s model.** In recent years, Daniel Goleman has popularized the term emotional intelligence. He introduced his own similarly construed emotional intelligence model to the mainstream public and forever changed the landscape of public awareness of the construct, especially in the area of leadership development (Bradberry & Su, 2006). His model outlines the term emotional intelligence via four key emotional intelligence dimensions, which will be adopted and used as the research theoretical framework of this doctoral study. The four emotional intelligence dimensions include: 1) self-awareness, 2) self-management, 3) social awareness, and 4) relationship management. Each emotional intelligence dimension is composed of specific sets of competencies as described below:

1. **Self-awareness** dimension is one’s ability to read and understand his or her emotion as well as recognize the impact on work performance and relationship. Self-awareness is composed of two personal competencies: self-confidence and self-control. According to Goleman (2000), people who have superior and accurate self-assessment skills tend to be realistic with a strong and positive sense of self-worth. As leaders with high self-awareness, they tend to have a deep understanding of their emotions, as well as their strengths and weaknesses, and their values and motives. They are honest but not overly self-critical or naively hopeful about themselves and with themselves and others (Goleman, 2000; Nwokah & Ahiauzu, 2010).

2. **Self-management** dimension is one’s ability to manage and express disruptive emotions and impulses constructively to his or her advantage. Self-management is composed of six personal competencies: self-control, trustworthiness, conscientiousness, adaptability, achievement orientation, and initiative. People with strong self-management skills can stay calm and be clear-headed in highly stressful situations. They also appear authentic
and are open to others about their feelings, beliefs, and actions. As leaders with high self-management skills, they are transparent, live their values, admit their own mistakes, and have the courage to confront unethical behaviors. Accordingly, they are comfortable with ambiguities and are flexible with new challenges and with changing or demanding priorities (Goleman, 2000; Nwokah & Ahiauzu, 2010).

3. **Social awareness** dimension is one’s ability at sensing other peoples’ emotions, understanding their perspectives, and taking active interests in their concerns. Social awareness is composed of three social competencies: empathy, organizational awareness, and service orientation. People with a strong sense of social awareness are more attuned to a wide range of emotional signals in a person or group than people who lack these skills. Leaders with a high empathy competence exercise patience to listen attentively and understand their followers’ perspectives on issues. This makes leaders get along well with their followers of diverse backgrounds. Similarly, leaders with high organizational awareness can be politically astute, sense crucial social networks, and understand key power relationships in organizations. In addition, leaders who have a high service orientation competence usually foster a constructive emotional work climate that enhances the relationship between them and their stakeholders, customers, and clients, to ensure that they achieve their goals and priorities (Goleman, 2000; Nwokah & Ahiauzu, 2010).

4. **Relationship management**, sometimes called the social skills dimension, is one’s ability to take charge, inspire, and influence others with compelling visions. Relationship management is composed of eight social competencies: visionary leadership, influence, development of others, communication, being a catalyst for change, conflict
management, bond building, and teamwork and collaboration. In regards to the competencies of visionary leadership, leaders with these social skills can create resonance and move followers with a compelling vision or common goals. Leaders that are influential can persuade and engage others to build a network of support for their causes. Leaders who are skilled in cultivating other’s abilities are natural mentors to followers at the workplace. Moreover, leaders with high communication and change catalyst competencies are generally able to lead successfully when there is a need to change or challenge the status quo. Such leaders can champion a new order even in the face of strong opposition. They can become strong advocates to overcome barriers. Similarly, leaders who are proficient with conflict management skills are able to manage conflicts for win-win solutions effectively and constructively. These leaders are able to engage all parties, understand differing views, and find common ground that everyone can and will endorse. Finally, leaders who are effective team members always create a safe, productive, and rewarding work environment that builds bonds and fosters productive collaboration across organizations. They themselves are role models of the company’s values, such as integrity, respect, excellence, teamwork, or continuous improvement, as they invest their time and resources in forging and cementing relationships among team members beyond mere work obligations (Goleman, 2000; Nwokah & Ahiauzu, 2010). Goleman’s (2000) four emotional intelligence dimensions can be measured by the Emotional Intelligence Appraisal questionnaire, which can be taken as a self-report or 360-degree assessment (Chopra & Kanji, 2010). The EIA is a 28-question performance-based assessment, written with behavioral impact statements. It was designed to measure the impact of specific behaviors on an individual’s environment and those around them (Bradberry & Su,
Regardless of its popularity, Goleman’s model has been criticized in the research literature as mere “pop psychology” (Chopra & Kanji, 2010). Yet a study by Bradberry and Su (2006) suggested that the Emotional Intelligence Appraisal provides more tightly linked results to job performance than those on the MSCEIT. The entire EIA test only takes one-fifth of the time to administer (Bradberry & Su, 2006).

Figure 5. Goleman’s Emotional Intelligence Model. Reproduced from “Emotional Intelligence Goleman Model,” by M. Bertolini, 2012. Copyright © 2012 Marco Bertolini. All Right Reserved. Reproduced with permission from Marco Bertolini.

Bar-On’s model. Bar-On describes emotional intelligence as “a cross-section of interrelated emotional and social competencies, skills, and facilitators that impact intelligence behavior” (Bar-On, 2006, p. 14). The Bar-On’s emotional intelligence construct is a mixed model, largely “concern[ed] with effectively understanding oneself and others, relating well to people, and adapting to and coping with the immediate surroundings to be more successful in dealing with environmental demands” (Chopra & Kanji, 2010, p. 976). Bar-On supports the construct as an array of non-cognitive abilities, knowledge, and competencies that help one cope with a variety of situations, demands, and pressures encountered in life (Chopra & Kanji, 2010; Fambrough & Hart, 2008). His model is broken down into five key areas or competencies
including self-perception, self-expression, stress management, interpersonal skills, and decision-making. These competencies can be measured by the Bar-On’s Emotional Quotient Inventory (EQ-i). The EQ-i is a 133-item self-assessment measure that provides an estimate of emotional-social intelligence. It was written in the form of short sentences with a 5-point response scale, ranging from “very seldom or not true to me” to “very often true of me or true of me.” The assessment typically takes approximately forty minutes to complete (Bar-On, 2006).

Figure 6. Bar-On’s Emotional Intelligence Model. Copyright © 2011 Multi-Health Systems Inc. All Right Reserved. Reproduced with permission from MHS.

**Dulewicz and Higgs’ model.** Dulewicz and Higgs (2000) describe the nature and definition of emotional intelligence as a construct that addresses individual traits, values, and behaviors. They describe emotional intelligence as being concerned with one’s awareness and management of his or her own feelings. This includes being sensitive to one’s own feelings and influencing others to sustain their motivation and drive with intuitive, conscientious, and ethical behaviors (Dulewicz, Higgs, & Slaski, 2003). Dulewicz and Higgs’ model is developed based on personality factors within seven emotional intelligence elements or scales including self-
awareness, emotional resilience, motivation, inter-personal, influence, intuitiveness, and conscientiousness, as described below (Dulewicz & Higgs, 1999; Dulewicz et al., 2003):

1. **Scale a: self-awareness** describes the awareness of one’s own feelings and his or her ability to recognize, manage, and control these feelings constructively. This includes a degree of self-belief in his or her ability to manage feelings that could affect the work environment.

2. **Scale b: emotional resilience** describes one’s ability to perform consistently in a range of situations and adapt his or her behaviors appropriately. This includes abilities to balance the needs of the situations with the needs of the individuals involved. Additionally, emotional resilience includes one’s ability to retain focus on a course of action in the face of personal challenge or criticism.

3. **Scale c: motivation** describes the drive and energy to achieve results (both short- and long-term outcomes) under pressure or in the face of possible rejection or questioning.

4. **Scale d: interpersonal sensitivity** describes one’s ability to be aware of and take into consideration others’ needs and perceptions used to arrive at decisions. This emotional intelligence scale covers one’s willingness to actively listen to and be open-minded to any reactions, inputs, or ideas.

5. **Scale e: influence** describes the ability to persuade others by recognizing and understanding their positions and needs.

6. **Scale f: decisiveness** describes the ability to arrive at clear decisions on key issues using both rational and emotional insights even if (or when) presented with incomplete information.
7. *Scale g: conscientiousness and integrity* describes the ability to show personal commitment to a course of action and to pursue an ethical decision under extreme pressure or in the face of challenge.

These seven scales can be measured by the Dulewicz and Higgs Emotional Intelligence Questionnaire (the EIQ). The EIQ instrument is based on an extensive literature review of nine leading authors on emotional intelligence (Dulewicz et al., 2003). It was designed to capture the meaning of the behaviors and personal competencies shown to be good predictors of success (Dulewicz & Higgs, 1999). The questionnaire can be conducted via a self-report or 360-degree assessment (Dulewicz et al., 2003). According to Dulewicz et al. (2003), the EIQ has shown an acceptable level of validity and reliability, especially as an appropriate instrument for assessing emotional intelligence at work.

**Section 3: Emotional Intelligence and Leadership Process**

Emotional intelligence and leadership have received much attention in organizations in recent years (Dulewicz et al., 2005). A growing body of research has also recognized the need and importance of studying the role of emotional intelligence in successful leadership practices. This includes the central and underlying notion that “people with high emotional intelligence competencies are more likely than less emotionally intelligent people to display leadership success in the workplace” (Bailie & Ekermans, 2006, p. 4). Moreover, Higgs and Aiken (2003) found that there is indicative evidence supporting the relationship between emotional intelligence and leadership potential asserted from both a theoretical standpoint and from other research of leadership performance. That is, leaders within organizations use their behaviors to communicate messages and expectations to their followers regarding their performance and associated contextual events. They do so by sending clear messages to the followers regarding
appropriate emotional reactions to the events or occasions. As a result, the followers take cues and craft emotional interpretations of the situations to help guide their own reactions and behaviors accordingly. This construct suggests that leaders could affect their followers’ behaviors and group performance through their management of the group’s emotional state (Pescosolido, 2002).

Furthermore, Bailie and Ekermans (2006) provided arguments in their research in support of the relationship between emotional intelligence and leadership practice. From their study, they found that there were significant relations between various emotional intelligence dimensions and the customer focus, building working relationships, gaining commitment, developing others, problem-solving, and stress tolerance leadership competencies (Bailie & Ekermans, 2006). In addition, Zhou and George (2003) propose in their research that emotional intelligence leaders also play a critical role in enabling and supporting the awakening of employees’ creativity. That is, leaders high on emotional intelligence can create favorable conditions to channel employees’ emotions into creative problem solving. Leaders must be able to understand how followers feel and take necessary steps to give them the courage, optimism, and enthusiasm to creativity. Leaders must also be attuned to the signaling function of any negative affect, such as confusion, frustration, and disappointment, and be able to channel it to mobilize followers to solve problems and continuously improve less than desirable conditions. Moreover, leaders should be able to help their followers, individually and collectively, seek out and seize opportunities and manage their emotional swings appropriately and constructively (Zhou & George, 2003).

Lastly, regardless of the leadership lens, effect and emotions have been shown to be deeply intertwined with the process of leading (Gooty et al., 2010). Many experts have studied
the relationship between emotional intelligence and organizational leadership in terms of different leadership styles under the Multifactor Leadership Theory. The theory posits three major styles of leading (to be discussed further below), including the laissez-faire, transactional, and transformational leadership styles (Bailie & Ekermans, 2006).

**Laissez-faire leadership style.** Laissez-faire leaders are passive leaders who are reluctant to influence followers and, to a large extent, abandon their leadership roles (Bass, 1990; Deluga, 1990). Followers under this leadership style are, by default, given considerable freedom to act or behave as they see fit. They typically maintain a strong power position, make demands, and employ their emotions (and the use of assertiveness) to hold the advantage over their leaders (Deluga, 1990). As a result, laissez-faire leadership can create an uncomfortable organizational atmosphere as followers may compete for their relinquished power and influence (Deluga, 1990). As such, laissez-faire leaders are found to be less effective than transactional and transformational leadership leaders (Sivanathan & Fekken, 2002).

**Transactional leadership style.** Transactional leadership is considered an exchange-based relationship between leaders and followers (Bass, 1990; Sivanathan & Fekken, 2002). “Leaders and followers are viewed as bargaining agents where relative power regulates an exchange process as benefits are issued and received” (Deluga, 1990, p. 192). Described by Bass (1990), two important characteristics constituting transactional leadership include contingent reward and management by exception. Contingent reward describes an explicit or implicit agreement on the goals for the desired rewards. Management by exception characterizes how leaders actively search for deviations from rules and standards and exert appropriate corrective actions if followers fail to meet the predetermined goals or objectives (Bass, 1990; Deluga, 1990). To illustrate, transactional leaders understand what actions followers must take
to achieve desired outcomes. They clarify what is required of their followers and what rewards or penalties, such as compensation, recognitions, or disciplinary actions, the followers will receive if these requirements are met or conversely not met (Bass, 1985, 1990).

That said, transactional leadership suggests that leaders can exercise considerable power and influence by engaging in a mutually beneficial exchange process with their followers. Transactional leadership style is known to be moderately effective when practiced well (Deluga, 1990). But despite its wide acceptance, transactional leadership style has numerous shortcomings. For example, some transactional leaders are not well prepared or do not feel comfortable giving negative, honest feedback to their followers in a timely and constructive manner. Others will intervene only when things are already going wrong. Another common problem happens when transactional leaders believe they are giving feedback to their subordinates who feel they are not receiving it or agreeing to it. Moreover, there are no one-size-fits-all rewards or penalties for all followers. People differ considerably in their responses to or preferences for contingent rewards and penalties. Lastly, transactional leadership often fails due to poor appraisal systems or methods (Bass, 1985). This includes the fact that some leaders are not skilled or properly trained to provide meaningful feedback or they are unable to enforce performance standards or deliver rewards within the confines of the existing pay-for-performance system.

**Transformational leadership style.** Transformational leadership, in contrast to transactional leadership, is a leadership style that recognizes the importance of power and influences processes. The leader-follower relationship is based on an intense emotion where followers place a great deal of trust and confidence in their leaders (Deluga, 1990). Bass (1990) suggests that transformational leadership is a superior leadership style that occurs “when leaders
broaden and elevate the interests of their employees, when they generate awareness and acceptance of the purposes and missions of the group, and when they stir their employees to look beyond their own self-interest for the good of the group” (p. 21). He also cited idealized influence or charisma, inspirational motivation, intellectual stimulation, and individualized consideration as four key characteristics (referred to “four I’s”), comprising transformational leadership (Deluga, 1990).

Charisma is the leader’s perceived God-like characteristic that creates referent power and influence. Followers idealize their leaders, develop a strong need for their leaders’ approvals, and emulate the behaviors of their trusted leaders (Deluga, 1990; Sivanathan & Fekken, 2002). Inspirational motivation is the leaders’ ability to engage and emotionally communicate a future idealistic state (Deluga, 1990). Accordingly, followers are influenced through visionary means and motivated by the attainment of common visions or goals (Deluga, 1990; Sivanathan & Fekken, 2002). Intellectual stimulation is the leaders’ ability to encourage followers to break away from the status quo and old ways of thinking. Employees are motivated to question their and others’ values, beliefs, and expectations (Deluga, 1990; Sivanathan & Fekken, 2002). Finally, individualized consideration describes the leaders’ ability to derive power by serving as a mentor and by employing a developmental orientation with followers (Deluga, 1990).

A growing body of research also suggests that emotional intelligence is inherently and positively associated with transformational leadership (Barbuto Jr. & Burbach, 2006; Cavazotte, Moreno, & Hickmann, 2012; Leban & Zulauf, 2004; Mandell & Pherwani, 2003; Polychroniou, 2009; Sivanathan & Fekken, 2002; Wang & Huang, 2009). To illustrate, transformational leaders achieve results by being charismatic with their followers. They inspire and intellectually stimulate their subordinates when they meet the emotional needs of each follower. Followers
have a high degree of trust and confidence in their leaders and in turn want to identify with them (Bass, 1990). Current literature also shows that transformational leadership has a strong association and is a predictor of followers’ loyalty and motivation, resulting in positive impacts on performance and bottom lines of organizations (Sivanathan & Fekken, 2002). Because of the positive organizational outcomes associated with transformational leadership, many studies show that transformational leadership is positively associated with perceived leader effectiveness (Bass, 1990; Cavazotte et al., 2012; Hur et al., 2011; Mandell & Pherwani, 2003; Sivanathan & Fekken, 2002).

**Section 4: Leadership Effectiveness**

As discussed in Chapter 1, one of the major problems in leadership research has been the identification of effective leadership behaviors that are applicable and meaningful for all leaders and organizations. Various studies in leadership behaviors produced different and at times conflicting results, making it difficult to compare and integrate the results across studies to arrive at meaningful applications (Yukl, 2013). This is because leadership behaviors are perceived subjectively by various stakeholders and often differently at various places, times, and frames of references. In short, no absolute correct leadership behaviors have been established or accepted amongst theorists (Yukl, 2013).

According to recent syntheses of the leadership research, effective leadership in general possesses certain essential elements including (George, 2000):

- Development of a collective sense of goals (or vision) and how to achieve them;
- Fostering an organizational climate that promotes excitement, enthusiasm, confidence, optimism, cooperation, and trust;
- Stimulating flexibility in decision making and changes; and
• Establishing and nourishing a meaningful identity for a group or an organization.

**Vision.** According to George (2000), emotional intelligence could contribute to a leader’s developing a compelling vision in many ways. For example, leaders can use their emotions to maximize how they process information from challenges, threats, and opportunities currently facing their organizations. Leaders are often faced with uncertainty and ambiguity. They likely engage in substantive processing of information to determine the appropriate direction for their organizations. As such, leaders, who can manage and channel their emotions and judgments toward realistic problem solving and creativity can effectively create compelling visions that contrast with and improve existing conditions (George, 2000). Importantly, leaders with high emotional intelligence competence can communicate their visions in a manner that followers buy into. This can be done by leaders’ accurately appraising how their subordinates currently feel. Relying on the knowledge of the followers’ emotional states, emotional leaders can influence followers in such a way that they are receptive and supportive of the visions and approaches to achieve them together (George, 2000).

**Organizational climate.** Leaders play an important role in enhancing organizational climates, which affect workforces’ attitudes, perceptions, and behaviors (Momeni, 2009). To influence the work climate to generate and maintain excitement and enthusiasm, leaders must be able to assess how their followers feel in different circumstances and situations. Leaders must manage the emotions of others and proactively influence and channel these emotions to improve undesirable conditions constructively and with optimism (George, 2000). Moreover, effective leaders must be able to distinguish between “real” and “expressed” emotions. Since people often deliberately control their expressed emotions in a given social context, leaders must be skilled or trained to differentiate genuine from fake emotions. They can sense why these emotions are
controlled and influence followers to experience sincere excitement, enthusiasm, and optimism (George, 2000). Lastly, leaders who are high on emotional intelligence typically develop high quality interpersonal relationships with their followers (George, 2000). They often recognize and appropriately respond to their followers’ emotional needs. They instill a sense of enthusiasm, excitement, and optimism by recognizing the meaning of emotions and their relationships. This emotion-and-behavior chain reaction creates an atmosphere of cooperation and trust between leaders and followers (George, 2000), potentially affecting the bottom-line performance and organizational profit or loss (Momeni, 2009).

**Decision-making and changes.** In regards to decision-making and change, George (2000) states that leaders with knowledge about emotions can better use these emotions to improve their decision-making and adaptability to changes in organizations. First, they can use emotions as signals to focus their attention on pressing matters that need immediate attention. They use emotions effectively to help prioritize demands or activities, to facilitate effective decision-making, or to assess the causes that are linked to emotions (George, 2000). Second, emotions can provide leaders insights into problems and opportunities. That is, leaders who accurately perceive emotions and determine their causes can develop informed courses of action. They can effectively use emotional input to make decisions or manage emotions that interfere with effective decision-making (George, 2000). Third, leaders who know and manage their emotions effectively can be more flexible to change. They recognize that different moods and emotions cause them to look at problems and solutions differently. As a result, they are often open to different approaches to problem solving and consider alternative scenarios or various point of views (George, 2000). Lastly, emotional intelligence may contribute to leaders’ ability to effectively implement changes in organizations. That is, when leaders can anticipate their
followers’ emotions as a result of organizational changes, leaders can respond appropriately and proactively to these emotions and reactions. For example, they can develop and propose alternative views of the present situation to their followers, along with sets of alternative emotions more suitable to overcoming emotional difficulty and achieving desired outcomes (George, 2000).

**Organizational identity.** Through an organization’s culture, members develop a collective identity. This organization’s identity represents who the organization and its members are. The identity and its culture are embodied with shared meaning and ideologies containing important beliefs, norms, and values (George, 2000). According to George (2000), values, beliefs, and to a lesser extent, norms, are considered emotion-laden. They respond to emotional, rather than rational, needs and are intimately connected to emotions. Firmly held values, norms, and beliefs are often adhered to because of their emotional content and appeal, which often times is shared and relatively coherently interrelated. They bind groups of people together and help them make sense of their worlds. Violation of values, norms, and beliefs can result in strong emotional reactions (George, 2000).

As a result, management of organizational cultures could be seen as management of emotions (George, 2000). Effective leaders must be able to instill in followers a collective sense of meaningful identity. This means leaders must attend to their own and others’ feelings and understand the causes of those feelings (which could change over time). They must recognize, express, and embrace shared norms, values, and beliefs in a way that appeals to their followers. This includes efforts to foster ethical and productive culture effectively through cultural forms such as symbols, language, narratives, and practices. Leaders can be instrumental in the process of infusing values, norms, and beliefs strategically with feelings that support them. This process
could create a sense of community with shared purposes to build and maintain their collective identity for the organizations (George, 2000).

**Section 5: Emotional Intelligence and Leadership Outcomes**

As discussed previously, leadership theorists and researchers take opposing stands when it comes to the study of emotional intelligence and leadership (Antonakis et al., 2009). Many acknowledge that emotional intelligence is a key ingredient to effective leadership practices (Antonakis et al., 2009; Brown et al., 2006; Lindebaum & Cartwright, 2010; Walter et al., 2012; Weinberger, 2009). Others continue to show skepticism (Antonakis et al., 2009; Brown et al., 2006; Lindebaum & Cartwright, 2010; Walter et al., 2012; Weinberger, 2009) and suggest that emotional intelligence is simply another fad that develops among leaders and is collectively followed enthusiastically by organizations for a finite period of time. This lack of agreement results in a gap in literature (Weinberger, 2009). The main reason for the doctoral thesis research is to address said gap with evidence and to better understand and validate if there is any relationship between these two important concepts. Especially, the research could help answer the question asked by many, “Can emotional intelligence really predict desirable leadership outcomes?” Or, the research could potentially side with various other claims that relationship between emotional intelligence and leadership are merely speculative in nature and that there is no significant relationship between leaders’ emotional intelligence and leadership. Table 1 below summarizes some of the discussions among theorists and researchers in the last decade regarding the findings on the topic of emotional intelligence and leadership outcomes.
Table 1

**Empirical Studies on Emotional Intelligence and Leadership Outcomes**

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Leban &amp; Zulaf, 2004</th>
<th>Brown, Bryant, &amp; Reilly, 2005</th>
<th>Dulewicz, Young, &amp; Dulewicz, 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of research</strong></td>
<td>Quantitative Survey</td>
<td>Quantitative Survey</td>
<td>Quantitative Survey</td>
</tr>
<tr>
<td><strong>Subjects</strong></td>
<td>24 project managers (18 males and 6 females)</td>
<td>161 managers and supervisors and 2,411 workers, engineers, and professional staff (116 male managers and 45 female managers)</td>
<td>261 navy officers (238 males and 23 females)</td>
</tr>
<tr>
<td><strong>Research site</strong></td>
<td>Six organizations in various industries in the United States</td>
<td>A large manufacturing facility, a part of an international technology company in the United States</td>
<td>Maritime Warfare School in England</td>
</tr>
<tr>
<td><strong>Summary of Key Finding(s)</strong></td>
<td>Emotional intelligence ability contributes to transformational project manager/leader behaviors and subsequent project performance. Project managers who are result-focused rather than activity-focused like transactional project managers achieve transformational project management success.</td>
<td>The extraordinary effectiveness power of transformational leadership predicts organizational outcomes. No support was found for hypothesized relations between emotional intelligence and desirable outcomes, or between emotional intelligence and transformational leadership.</td>
<td>Intellectual, emotional, and managerial competencies are all related to overall performance. Emotional intelligence makes a greater contribution to overall performance, officer leadership appraisal, and leadership styles than intellectual and managerial competencies.</td>
</tr>
</tbody>
</table>

* 1. Emotional Intelligence Assessment and 2. Leadership Outcome Evaluation Instruments
Table 1

*Empirical Studies on Emotional Intelligence and Leadership Outcomes (Continued)*

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Kerr, Garvin, Heaton, &amp; Boyle, 2005</th>
<th>Barbuto Jr. &amp; Burbach, 2006</th>
<th>Polychroniou, 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of research</td>
<td>Quantitative Survey</td>
<td>Quantitative Survey</td>
<td>Quantitative Survey</td>
</tr>
<tr>
<td>Subjects</td>
<td>38 supervisors (37 males and 1 female) and 1,258 employees</td>
<td>80 elected community leaders and 388 direct-report staffers</td>
<td>267 managers and supervisors (124 males and 143 females)</td>
</tr>
<tr>
<td>Research site</td>
<td>A large manufacturing organization (Country: unknown)</td>
<td>The Midwest of the United States</td>
<td>Service, merchandising, financial services, and manufacturing organizations in Greek</td>
</tr>
<tr>
<td>Summary of Key Finding(s)</td>
<td>Half of emotional intelligence scores may act as a strong predictor of leadership effectiveness:  ▪ Experiential emotional intelligence scores, such as perceiving and using emotions, displayed a strong positive correlation with supervisors’ ratings.  ▪ Reasoning emotional intelligence scores, such as understanding and managing emotions, displayed no significant correlation with supervisors’ ratings.</td>
<td>Emotional intelligence shares a positive relationship with each self-reported subscale of transformational leadership: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration.</td>
<td>Supervisors’ emotional intelligence competencies, for example social skills, motivation, and empathy, are positively associated with transformational leadership increasing team effectiveness with followers.</td>
</tr>
</tbody>
</table>

*1. Emotional Intelligence Assessment and 2. Leadership Outcome Evaluation Instruments*
Table 1

Empirical Studies on Emotional Intelligence and Leadership Outcomes (Continued)

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Type of research</th>
<th>Subjects</th>
<th>Research site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wang &amp; Huang, 2009</td>
<td>Quantitative</td>
<td>51 department managers and 252 employees</td>
<td>23 small-medium textile business firms in Taiwan</td>
</tr>
<tr>
<td></td>
<td>Survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weinberger, 2009</td>
<td>Quantitative</td>
<td>151 managers (124 males and 27 females)</td>
<td>A Midwestern-based manufacturing organization in the United States</td>
</tr>
<tr>
<td></td>
<td>Survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harms &amp; Crede, 2010</td>
<td>Meta-Analysis</td>
<td>62 independent samples representing data from 7,145 leaders</td>
<td>Various</td>
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</table>

<table>
<thead>
<tr>
<th>Instruments*</th>
<th>Summary of Key Finding(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Wong and Law’s Emotional Intelligence Test 2. Transformational Leadership Questionnaire</td>
<td>1. Transformational leadership is positively linked to emotional intelligence.</td>
</tr>
<tr>
<td></td>
<td>2. Leaders’ emotional intelligence is related to group cohesiveness through transformational leadership.</td>
</tr>
<tr>
<td>1. Mayer Salovey Caruso Emotional Intelligence Test 2. Multifactor Leadership Questionnaire</td>
<td>1. There is no relationship between managers’ emotional intelligence and leadership style.</td>
</tr>
<tr>
<td></td>
<td>2. There is no relationship between managers’ emotional intelligence and their perceived leadership effectiveness.</td>
</tr>
<tr>
<td>1. Mayer Salovey Caruso Emotional Intelligence Test, Wong and Law’s Emotional Intelligence Scale and others 2. Multifactor Leadership Questionnaire and Leadership Practices Inventory</td>
<td>1. The results linking emotional intelligence with transformational leadership are not as strong as advocates of emotional intelligence testing predicted.</td>
</tr>
<tr>
<td></td>
<td>2. Trait-based measures of emotional intelligence are more strongly related to transformational leadership than were ability-based measures of emotional intelligence.</td>
</tr>
<tr>
<td></td>
<td>3. Even though the results failed to support the relationship between emotional intelligence and effective leadership, they did not rule out the possibility that emotional intelligence may play a major role.</td>
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</table>

* 1. Emotional Intelligence Assessment and 2. Leadership Outcome Evaluation Instruments
### Table 1

*Empirical Studies on Emotional Intelligence and Leadership Outcomes (Continued)*

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Type of research</th>
<th>Subjects</th>
<th>Research site</th>
<th>Instruments*</th>
<th>Summary of Key Finding(s)</th>
</tr>
</thead>
</table>
2. Transformational Leadership Questionnaire | Same-source results of correlational and multiple regression analysis strongly show significant correlations between trait emotional intelligence and transformational leadership.  
Non-same-source (or multi-raters) results of correlational and multiple regression analyses show no significant correlations between trait emotional intelligence and transformational leadership. |
| Tang, Yin, & Nelson, 2010              | Survey          | 50 academic leaders from Taiwan  
52 academic leaders from the U.S. (56 males and 46 females) | Schools in Taiwan and the United States            | 1. Nelson and Low’s Emotional Skills Assessment Process  
2. Kouzes and Posner’s Leadership Practice Inventory-Self | Taiwanese participants’ overall emotional intelligence is positively correlated with all five leadership areas studied.  
American participants’ overall emotional intelligence is positively correlated with only three leadership areas: model the way, enable others to act, and encourage the heart.  
Significant differences exist in distinct areas of emotional intelligence and leadership practice as a function of cultural differences. |
| Bratton, Dodd, & Brown, 2011           | Quantitative    | 146 managers and supervisors and 1,314 individuals (107 manager males and 39 manager females) | A large international technology company in the North America | 1. Bar-On’s Emotional Quotient Inventory Test  
2. Multifactor Leadership Questionnaire | There is a positive relationship between leaders’ emotional intelligence and follower ratings of transformational leadership for leaders who underestimate their abilities.  
There appears to be a negative relationship between emotional intelligence and leader performance for managers who overestimate their abilities. |

*1. Emotional Intelligence Assessment and 2. Leadership Outcome Evaluation Instruments*
### Table 1

*Empirical Studies on Emotional Intelligence and Leadership Outcomes (Continued)*

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<tbody>
<tr>
<td>Type of research</td>
<td>Quantitative Survey</td>
<td>Quantitative Survey</td>
<td>Quantitative Survey</td>
</tr>
<tr>
<td>Subjects</td>
<td>859 full-time employees in 55 teams (636 males and 223 females)</td>
<td>134 mid-level managers (85 males and 49 females)</td>
<td>111 executives and 459 subordinates (73 male and 38 female leaders)</td>
</tr>
<tr>
<td>Research site</td>
<td>A South Korean public-sector organization</td>
<td>A large Brazilian company that operates in the energy sector</td>
<td>Norwegian School of Economics and Administration and Norwegian municipality in Norway</td>
</tr>
</tbody>
</table>
| Summary of Key Finding(s) | - Emotionally intelligent team leaders were rated as more effective by their followers.  
- Emotionally intelligent team leaders were more effective in developing better service climates.  
- Emotionally intelligent team leaders were more effective because they exhibit more transformational leadership behaviors. | - Leadership effectiveness is a direct function of a leader’s transformational behavior and is an indirect function of individual differences (experience, intelligence, and conscientiousness) working through transformational behaviors.  
- When considered alone, emotional intelligence seemed to be statistically related to transformational leadership. However, when ability and personality were controlled for, the effect was non-significant. | Neither the total emotional, nor the four branch emotional intelligence scores (i.e., perceive, use, understand, and manage emotions) predicted transformational leadership. |

*1. Emotional Intelligence Assessment and 2. Leadership Outcome Evaluation Instruments*
**Positive findings.** Various research suggests that emotional intelligence may underlie leaders’ exhibition of transformational leadership (Barbuto Jr. & Burbach, 2006; Cavazotte et al., 2012; Leban & Zulauf, 2004; Mandell & Pherwani, 2003; Polychroniou, 2009; Sivanathan & Fekken, 2002; Wang & Huang, 2009). Specifically, their subordinates positively perceive leaders categorized as self-aware in their personal efficacy, interpersonal control, and social self-confidence (Sosik & Megerian, 1999). The studies by Sosik and Megerian (1999) and later confirmed by Bratton et al. (2011) also support a positive relationship between emotional intelligence and effective leader behaviors. As expected, the results of their studies show that skilled leaders are highly self-aware and responsive to their followers’ sentiments. Thus, good leaders know when they need to improve and adapt their behaviors to make these improvements. These leaders exhibit high levels of intrapersonal and interpersonal awareness. They are also able to leverage their emotional intelligence skills effectively in order to demonstrate strong transformational leadership (Bratton et al., 2011).

Another important empirical research by Polychroniou (2009) provides similar support for the relationship. It suggests that leaders’ emotional intelligence competencies, such as social skills, motivation, and empathy, are positively associated with transformational leadership and do increase team effectiveness. In addition, his study shows that transformational leaders have an emotional impact on their followers. For example, transformational leaders create a work environment that excites, stimulates, and drives others to work hard. They have the capacity to motivate their followers to do more than what is normally expected. Moreover, these leaders handle conflicts with tact and diplomacy, manage negative feelings effectively, and create team consensus when needed (Polychroniou, 2009).
Research by Palmer et al. (2001) and Kerr et al. (2006) further indicates that leaders’ emotional intelligence may indeed be a key determinant of effective leadership. From their study, Palmer et al. (2001) suggest that effective leaders are those who display a transformational leadership style. They found that the inspirational motivation and individualized consideration components of effective transformational leadership significantly correlated with the leaders’ ability to monitor and manage emotions in themselves and others. Their findings indicate effective leaders pay special attention to the achievement and development needs of their followers. They can sense when subordinates need more or less challenging assignments. They are also skilled at detecting the existence of emotions that suggest when their followers require feedback, assurance, or recognition (Palmer et al., 2001). Similarly, Kerr et al. (2006) investigated the relationship between supervisory emotional intelligence (as measured by the MSCEIT) and a rating of supervisor effectiveness (from subordinates’ evaluations). Their overall results indicate that the total emotional intelligence score displayed a strong positive correlation with supervisor effectiveness ratings. Specifically, “perceiving emotions” and “using emotions” branch scores showed a high positive correlation with supervisor effectiveness ratings. In other words, the finding suggests that supervisors who are adept at recognizing emotions and using emotions to enhance reasoning are perceived as more effective in their supervisory role (Kerr et al., 2006).

**Negative or inconclusive findings.** Given the widespread interest surrounding emotional intelligence, leadership researchers have not been able to agree that leaders’ emotional intelligence influences their effectiveness as leaders. In fact, Weinberger (2009) studied the relationships between emotional intelligence (using the MSCEIT questionnaire), leadership style, and leadership effectiveness (using the MLQ5x survey). The results of her study show that there
is no relationship between leaders’ emotional intelligence abilities and leadership styles or leaders’ perceived effectiveness. In other words, a leader’s emotional intelligence has no significant correlation to the perception of extra effort of followers, satisfaction with leaders, or the perceived effectiveness of a leader and his or her perceived performance (Weinberger, 2009).

Another empirical study by Harms and Crede (2010) attempted to evaluate claims that emotional intelligence is significantly related to transformational and other leadership behaviors. Overall, their results linking emotional intelligence with transformational leadership style were not as strong or compelling as many advocates of emotional intelligence predicted. To illustrate, the results showed a moderate relationship when using same-source raters and small or non-significant effects when using multiple raters (Harms & Crede, 2010). It is also important to note here that even though the results at the time fail to support the notion of emotional intelligence as a predictor of desirable leadership outcomes, Harms and Crede (2010) did not rule out the possibility that emotional intelligence may play an important role in leadership practices.

Similarly, research by Brown et al. (2006) aims to examine the possibility of relationships among emotional intelligence, leadership, and desirable outcomes in organizations utilizing Bar-On’s Emotional Quotient Inventory. Their results confirm previous studies in various settings that the extraordinary effectiveness of transformational leaders does predict desired organizational outcomes. However, their study fails to support hypothesized relationships between emotional intelligence and desirable leadership outcomes or between emotional intelligence and transformational leadership (Brown et al., 2006).

**Summary**

Extensive research to date shows feelings, both moods and emotions, play an important role in human affairs (George, 2000). Feelings impact humans’ cognitive processes, behaviors,
and their social and professional interactions with others (George, 2000; McColl-Kennedy & Anderson, 2002; Rajah et al., 2011). Feelings also serve as the social glue that can greatly affect various aspects of humans’ relations within organizations (Ozcelik et al., 2008). Moreover, existing literature recognizes and emphasizes the fact that leaders are also human beings. They are subject to a full range of their own feelings (George, 2000). In addition, leaders are often put in circumstances to have to manage others’ moods and emotions and effectively maintain individual and group level performance (Ozcelik et al., 2008). As such, some prominent researchers suggest that effective leaders must be technically, cognitively, and emotionally competent (Boyatzis, 2008, 2009). Empirical studies further propose that emotional intelligence, or effective management of feelings, might just be the key to leadership effectiveness (George, 2000; Momeni, 2009). However, some theorists disagree, at least at the current state of research, that leaders’ emotional intelligence predicts desirable leadership outcomes (Harms & Crede, 2010). This conflict results in a gap in literature today (Weinberger, 2009). This deficiency justifies the immediate need for this doctoral research study, to further examine and confirm if the relationship exists between leaders’ emotional intelligence and their perceived leadership effectiveness.
Chapter 3: Research Design

The goal of this chapter is to discuss the research design that examines the relationship between leaders’ emotional intelligence and their perceived leadership effectiveness. First, the chapter touches briefly upon the research questions and associated hypotheses. It describes the study of two important variables, leaders’ emotional intelligence and their perceived leadership effectiveness, and posits whether these two factors could co-vary in an organizational setting.

Next, the chapter discusses the research design details, including the study method chosen specifically for this research. The research design describes a viable approach to obtain evidence that enables the study to answer the research questions critically and systematically. This includes efforts to specify the research site and participants, to design specific research procedures, and to quantify the research validity, reliability, and generalizability. Finally, this chapter stipulates the general procedures used to comply with the basic ethical guidelines of respect for persons, beneficence, and justice set forth to protect the rights, welfare, and well-being of the subjects involved. This section includes the necessary reviews and approvals by the ABC Electric Company and the Northeastern University Institutional Review Board (IRB) that were completed before any activities involving human subjects were undertaken.

Research Question and Hypotheses

The overall purpose of this doctoral thesis study was to investigate the relationship, if any, between leaders’ emotional intelligence and their perceived leadership effectiveness. It also explored the relationship further to understand the extent to which leaders’ emotional intelligence dimensions, such as self-awareness, self-management, social awareness, and relationship management, predicted their perceived leadership effectiveness. The research intended to resolve confusion in literature and to provide a foundation for future research around
the emotional intelligence construct and its relationship to leadership outcomes. Based on current research, the following research questions and hypotheses are:

**Research Question 1 (RQ1):** What is the relationship between leaders’ emotional intelligence and their perceived leadership effectiveness?

**Hypothesis 1 (H1):** Leaders’ self-assessed emotional intelligence scores are significantly and positively related to their leadership effectiveness ratings provided by others.

**Research Question 2 (RQ2):** To what extent do the four emotional intelligence dimensions predict the perceived level of leadership effectiveness?

**Hypothesis 2 (H2):** Leaders’ self-assessed emotional intelligence dimension scores significantly predict leadership effectiveness ratings provided by others.

**Research Design**

This quantitative doctoral thesis utilized correlational designs to investigate the probable relationship between leaders’ emotional intelligence and their perceived leadership effectiveness. The explanatory and prediction correlational designs were selected for and well suited to this study because they enabled the researcher to: 1) explain the relationship between variables in question; and 2) anticipate outcomes, like the perceived level of leadership effectiveness, by using certain variables, such as emotional intelligence dimensions, as predictors (Creswell, 2012).

**Research Site and Participants**

**Research site.** This research was conducted at the ABC Electric Company (a pseudonym of the research site), one of the largest investor-owned electric utility companies in America. This company is a public-sector corporation whose ownership is dispersed among the general public and its shares of stock are freely traded on the U.S. stock exchange. The company
operates its utility business under regulation and oversight by both the California Public Utility Commission (CPUC) and the Federal Energy Regulatory Commission (FERC). Its goals, priorities, and business practices, including the sale of electricity, energy purchase, capital structure, rate of return, issuance of securities, certain accounting practices, and disposition of utility assets, are governed by the CPUC and the FERC. And quite often, the company’s critical decisions and directions are greatly influenced by federal or local regulatory bodies and other interest groups in addition to its customers and shareholders.

At the time of the study, the ABC Electric Company had been in business for over 125 years. The company serviced over 14 million residents over 50,000 square-miles in California. As of the fiscal year-end of December 2013, the company’s operating revenue and total assets comprised over $12 billion dollars and $46 billion dollars, respectively. It employed approximately 13,600 full-time employees and approximately 4,000 of those employees were covered by a collective bargaining agreement. Currently, the company’s organizational structure is hierarchical. Decision-making authority is usually centralized at the top. The company, in general, has extensive rules, policies, and guidelines due to the nature of the business. Employees are often expected to perform to certain standards, ensure strict compliance, and follow top-down orders mainly for public trust, public safety, and service reliability. This allows little flexibility, creativity, or innovation in certain areas of the business.

Furthermore, the ABC Electric Company is generally characterized as a collectivism institution. The company possesses a tight social network that emphasizes the importance of integrity, respect, excellence, teamwork, and continuous improvement. In addition, the company has a strong union presence. The employees work hard to maintain their relationships and the unity of team members, yet pay somewhat less attention to individuals’ needs and feelings.
Lastly, it was apparent at the time of research that various leadership styles also existed at the research site. For example, the transactional leadership style was prevalent in the areas of safety, reliability, and compliance. Transformational leadership, on the other hand, was more visible and desirable in other organizational units or departments that required employees to pursue innovation and operational and service excellence.

In recent years, the company has benchmarked many areas of its business against the practices of other best-in-class organizations in various industries. It has adopted and executed many unprecedented changes to maintain its competitive edge and to lead the way in electricity. This was done to respond to fast-changing market conditions and increased competition, especially since business and residential consumers now have more energy choices than they have ever had in the past. In addition, regulations and many interest groups have demanded that the utility company become more innovative, environmentally conscious, and sensitive to costs while it faces other radical and frequent shifts in the local economy as well as political and social conditions. Having said that, the company has been investing more and more in people initiatives to continuously recruit, retain, and develop effective leaders and a productive workforce. This includes on-going employee training and development, particularly in technical, interpersonal, and leadership skills. For example, between 2012 and 2014, the company required all managers and supervisors to complete a series of leadership development courses in an effort to align the company’s vision and its leaders’ expectations and to improve its leaders’ performances and effectiveness in an ever-changing work environment.

**Participants.** The participants for this study comprised: 1) 96 active full-time senior management employees who enrolled in the mandatory leadership development programs and were asked to complete the Emotional Intelligence Appraisal questionnaires and the 360-degree
Leadership Assessment Program surveys from 2013 to 2014; and 2) over 1,000 employees who were selected as the participants’ raters and completed the 360-degree Leadership Assessment Program surveys on their leaders’ behalf. The participants and their raters represented exempt and non-exempt employees from various operating units including Transmission and Distribution, Customer Service, Finance, Human Resources, Power Supply, Supply Chain Management, Regulatory Affairs, Audit Services, and Legal, as well as other operating units. The participants were located at 25 work sites throughout the company territory in Southern California with the majority of participants in Rosemead, Pomona, Irwindale, Long Beach, and Santa Ana. Lastly, it is important to note that no participating subjects were included or excluded from this study due to their resulting emotional intelligence scores or leadership effectiveness ratings. In order words, neither emotional intelligence scores nor leadership effectiveness ratings were used as the study’s criteria to include or exclude any subjects from participating in this research.

**Research Procedures**

**Instruments.** Two commercial off-the-shelf measurement instruments were used for this research study: 1) the Emotional Intelligence Appraisal (Me Edition) questionnaire by TalentSmart Inc.; and 2) the 360-degree Leadership Assessment Program survey by Development Dimension International (DDI), Inc. The leaders’ emotional intelligence competencies were measured by the EIA questionnaires and their leadership effectiveness was measured by the 360-degree LAP surveys.

1. The Emotional Intelligence Appraisal: The EIA questionnaire was selected for this study because it is a performance-based self-assessment survey of emotional intelligence specifically designed for Goleman’s model, which was the research’s theoretical
framework. The founders of TalentSmart, Dr. Travis Bradberry and Dr. Jean Greaves, developed the survey around four emotional intelligence dimensions, self-assessment, self-management, social awareness, and relationship management (Bradberry & Su, 2006). It evaluates emotional intelligence competencies as it connects emotional intelligence dimensions (both personal and social competencies) to what one sees and does with emotions personally and in the presence of others (see Figure 7 below) (TalentSmart, n.d.).

![Figure 7. Goleman’s Four Core Emotional Intelligence Dimensions. Reproduced from “The Emotional Intelligence Appraisal – ME Edition [Product fact sheet],” by TalentSmart, n.d. Copyright © 2013 TalentSmart, Inc. All Right Reserved. Reproduced with permission from TalentSmart, Inc.](image)

The Emotional Intelligence Appraisal questionnaire consists of 28 assessment questions written with behavioral impact statements to accurately assess behavior demonstrative of emotional intelligence skills (Bradberry & Su, 2006). The questionnaire is made up of six self-awareness questions, nine self-management questions, five social awareness questions, and eight relationship management questions.
The questions are based on a six-point Likert-type scale as follows: “1 - Never,” “2 - Rarely,” “3 - Sometimes,” “4 - Usually,” “5 - Almost Always,” and “6 - Always,” measuring level of frequency with the statements describing on-the-job behaviors (Bradberry & Su, 2006; TalentSmart Inc., 2010). The appraisal can be completed entirely on-line in approximately five to seven minutes though there is no time limit.

1. Are confident in your abilities (Self-Awareness)
   o Never
   o Rarely
   o Sometimes
   o Usually
   o Almost Always
   o Always

2. Can be counted on (Self-Management)
   o Never
   o Rarely
   o Sometimes
   o Usually
   o Almost Always
   o Always

3. Are open to feedback (Social Awareness)
   o Never
   o Rarely
   o Sometimes
   o Usually
   o Almost Always
   o Always

4. Directly address people in difficult situations (Relationship Management)
   o Never
   o Rarely
   o Sometimes
   o Usually
   o Almost Always
   o Always


In general, participants are required to have their own TalentSmart accounts and individual passwords to complete the self-assessment questionnaires. Since the EIA is a web-based survey that can be accessed through the internet, the participants can complete the assessments at a time and place most convenient to them. Once completed, responses are stored and evaluated on a secure server hosted by TalentSmart. Participants also receive instant online access to their results including: 1) an overall emotional intelligence (composite) score, 2) a personal competence score, 3) a social competence score, and 4) a score in each of the four emotional intelligence dimensions. An overall
emotional intelligence score is an average between personal and social competence scores. A personal competence score is an average between self-awareness and self-management scores. A social competence score is an average between social awareness and relationship management scores.

According to TalentSmart, the Emotional Intelligence Appraisal is held to the strictest research standards in both its design and validation. Over the last decade, hundreds of thousands of responses have been compiled and analyzed with the following results. The EIA’s reliabilities for the four emotional intelligence skills are very strong, yielding Cronbach’s alpha coefficient values ranging from 0.79 to 0.92. Additionally, the emotional intelligence skills measured using the EIA show significant indicators of job performance, with regression analysis yielding significant results at the 0.001 level. Lastly, studies across industries and the globe support the instrument’s validity and ability to measure emotional intelligence accurately (TalentSmart, n.d.).

2. The 360-degree Leadership Assessment Program: The LAP survey is an automated 360-degree feedback system that helps organizations better evaluate leaders’ competencies critical to successful performance (http://www.ddiworld.com/). According to the Development Dimensions International, Inc., the LAP is one of the market’s most flexible, web-based multi-rater feedback systems. This survey was customized specifically for the ABC Electric Company. It was developed through extensive job analyses by selecting specific leadership competencies or performance areas appropriate for the leader population. The 360-degree survey was then designed to obtain a clear picture of individual leaders’ strengths and their development needs based on the company’s pre-determined set of leadership competencies (see Table 2 for more details).
Table 2

**Performance Areas in the 360-Degree Leadership Assessment Program**

<table>
<thead>
<tr>
<th>Performance Area</th>
<th>Performance Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Creates a Safety Culture</td>
<td>1. Embraces and supports safety program</td>
</tr>
<tr>
<td></td>
<td>2. Effectively leads, promotes, and influences own work group to create a safe work environment and achieve improved safety results</td>
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<td></td>
<td>3. Actively holds themselves and those working with them accountable to follow safety rules, policies, and guidelines</td>
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<td></td>
<td>4. Acts as a safety role model consistent with the company’s Safety Commitment Statement</td>
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<td></td>
<td>5. Proactively and consistently pursues safety improvement opportunities</td>
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<tr>
<td></td>
<td>6. Enthusiastically recognizes co-workers of all levels for their efforts to model and improve our safety performance and culture</td>
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<tr>
<td>2. Values</td>
<td>1. Models work behaviors that reinforce our company values</td>
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<tr>
<td></td>
<td>2. Treats people with respect and assume positive intentions</td>
</tr>
<tr>
<td></td>
<td>3. Creates an environment where employees feel supported and can learn from mistakes</td>
</tr>
<tr>
<td>3. Advances Innovative Solutions</td>
<td>1. Encourages continued learning</td>
</tr>
<tr>
<td></td>
<td>2. Rewards innovative thinking</td>
</tr>
<tr>
<td></td>
<td>3. Supports the exploration of new ideas</td>
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<tr>
<td></td>
<td>4. Shapes new ideas into realistic business solutions</td>
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<td></td>
<td>5. Builds on others’ ideas</td>
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<td></td>
<td>6. Uses resources to support the development of new ideas</td>
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<tr>
<td></td>
<td>7. Implements ideas that support company’s direction</td>
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<tr>
<td></td>
<td>8. Implements ideas that are efficient</td>
</tr>
<tr>
<td>Performance Area</td>
<td>Performance Items</td>
</tr>
<tr>
<td>------------------------</td>
<td>------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>9. Implements ideas that are effective</td>
<td></td>
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<tr>
<td>10. Challenges the status quo</td>
<td></td>
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<tr>
<td>4. Manages Talent</td>
<td>1. Hires Top Talent</td>
</tr>
<tr>
<td></td>
<td>2. Provides constructive coaching and feedback on a regular basis</td>
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<tr>
<td></td>
<td>3. Promotes top talent</td>
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<td></td>
<td>4. Provides direct reports with development opportunities</td>
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<td></td>
<td>5. Rewards teamwork</td>
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<td></td>
<td>6. Rewards individual performance</td>
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<td></td>
<td>7. Provides direct reports with resources to develop their capabilities</td>
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<td></td>
<td>8. Evaluates direct reports against realistic expectations</td>
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<td></td>
<td>9. Motivates direct reports</td>
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<td></td>
<td>10. Shapes the roles of direct reports to utilize their strengths</td>
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<tr>
<td></td>
<td>11. Shapes the roles of direct reports to develop their capabilities</td>
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<tr>
<td>5. Communicates with Impact</td>
<td>1. Communicates honestly</td>
</tr>
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<td></td>
<td>2. Listens actively</td>
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<td></td>
<td>3. Communicates relevant information</td>
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<td>4. Considers the perspectives of others when communicating</td>
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<td></td>
<td>5. Uses communication to maintain effective relationship</td>
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<td></td>
<td>6. Ensures that communicated expectation are carried out</td>
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<tr>
<td></td>
<td>7. Communicates information in a timely manner</td>
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<tr>
<td>Performance Area</td>
<td>Performance Items</td>
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<td>------------------</td>
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<tr>
<td></td>
<td>8. Takes the needs of the audience into account when communicating information</td>
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<td></td>
<td>9. Communicates directly</td>
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<td></td>
<td>10. Ensures that communication is understood by all</td>
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<tr>
<td></td>
<td>11. Adjusts communication style to the audience</td>
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<tr>
<td></td>
<td>1. Supports others in developing strategic ideas</td>
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<tr>
<td>6. Lead with Vision</td>
<td>2. Keeps others focused on the future</td>
</tr>
<tr>
<td></td>
<td>3. Takes short and long-term needs into account when setting goals</td>
</tr>
<tr>
<td></td>
<td>4. Aligns his/her vision to achieve business outcomes</td>
</tr>
<tr>
<td></td>
<td>5. Communicates a strategic direction for the future</td>
</tr>
<tr>
<td></td>
<td>1. Respects those involved in the decision-making process</td>
</tr>
<tr>
<td>7. Makes sound decisions</td>
<td>2. Takes accountability for making decisions</td>
</tr>
<tr>
<td></td>
<td>3. Takes accountability for acting on decisions made</td>
</tr>
<tr>
<td></td>
<td>4. Makes timely decisions</td>
</tr>
<tr>
<td></td>
<td>5. Analyzes problems adequately before making decisions</td>
</tr>
<tr>
<td></td>
<td>6. Incudes the right people in the decision-making process</td>
</tr>
<tr>
<td></td>
<td>7. Makes difficult decisions when they are in company’s best interest.</td>
</tr>
<tr>
<td></td>
<td>8. Takes appropriate risks</td>
</tr>
<tr>
<td></td>
<td>9. Encourages others to take appropriate risks</td>
</tr>
</tbody>
</table>

The 360-degree Leadership Assessment Program survey consists of 56 survey questions categorized in seven performance areas: 1) Creates a safety culture (6 items); 2) values (3 items); 3) advances innovative solutions (10 items); 4) manages talent (12 items); 5) communicates with impact (11 items); 6) leads with vision (5 items); and 7) makes sound decisions (9 items). The questions are based on a six-point Likert-type scale as follows: “1 - Not at all Effective,” “2 - Somewhat Effective,” “3 - Effective,” “4 - Very Effective,” “5 - Extremely Effective,” and “N - Unable to Rate”, measuring perceived leadership effectiveness in each performance area. The survey can be completed entirely on-line in approximately twenty to thirty minutes, though there is no time limit. In general, each participant and their identified raters are provided with their user names and access codes to complete the assessment surveys within approximately four to six weeks or so after receiving the requests. Since the LAP is a web-based survey that can be accessed through the internet, it can be completed at a time and place most convenient to the participants. Once completed, responses are stored and evaluated on a secure server hosted by Development Dimensions International, Inc. Participants then receive online access to their results including a summary and detailed reports of their perceived effectiveness ratings in all performance areas. Participants also receive easy-to-follow instructions on how to review and interpret the results.

According to Developmental Dimensions International, Inc., the LAP multi-rater feedback system is a breakthrough alternative approach designed to overcome common barriers to traditional 360-degree assessments. It comprises selected competency models in the DDI’s competency library that are appropriate for the senior management population at the ABC Electric Company. The competency library is based on over 40 years of extensive academic research and practical job analyses from thousands of organizations across the globe. The data to
develop the library and the survey were collected from interviews, questionnaires, work samples, and focus groups from tens of thousands of people across a wide variety of industries, job classifications, and levels. Moreover, the library was built and is continually refined so that its competency models: 1) are clearly defined with limited use of jargon or unambiguous language; 2) provide high level of independence with limited overlap or redundancy; 3) are usable in numerous human resource systems; 4) are relatively easy to learn and apply; and 5) are appropriately specific and objectively measurable. This ongoing research and analysis effort is to ensure that that organizations and participants at all levels can utilize and apply the competencies from the DDI’s competency library in a consistent and reliable manner (Development Dimensions International, Inc. [DDI], n.d.).

In addition to extensive competency modeling and job analysis research, Developmental Dimensions International, Inc. states that it also pays close attention on validating the use of competencies in its assessment instruments. For example, it utilized its DDI competencies in various human resource applications across thousands of organizations with research showing that a wide audience can use the competencies reliably. Moreover, DDI follows strict processes to develop and validate its assessment tools consistent with major professional and legal guidelines for selection systems (Development Dimensions International, Inc. [DDI], n.d.). Lastly, DDI conducted its internal consistency studies of the competencies used in the 360-degree assessment surveys. The result showed a Cronbach’s alpha coefficient value ranging from 0.85 to 0.95 with other studies indicating that the 360-degree assessment measures are predictive of on the job performance.

**Data collection.** Data for the current study were collected entirely by the ABC Electric Company as a part of its leadership assessment and development program occurring between
2013 and 2014. The company selected and utilized the TalentSmart Emotional Intelligence Appraisal self-assessment questionnaire and the DDI 360-degree Leadership Assessment Program multi-rater survey as the leadership assessment instruments. Target employees who were senior managers, chiefs, at the time were identified and contacted to participate in both assessments. Initially, all identified chiefs were informed via individual emails, live webinars, and the company newsletter that their participation was mandatory. Additionally, the participants were made aware that their assessment results would be kept confidential and their results would be used solely for their leadership development. The results would not feed into any formal appraisals or be used to determine any performance-related pay awards for participating individuals.

For the EIA, Human Resource representatives contacted participants via emails and follow-up phone calls to complete the prerequisite assessments within approximately four to six weeks or so prior to attending their required leadership development classes. These classes included emotional intelligence as one of the main topics of learning objectives. In the emails, the participants received easy-to-follow EIA access instructions and user accounts to complete the self-assessment questionnaires on-line. After completing the questionnaires, the participants immediately received assessment reports for their review and were asked to bring them to their classes to complete follow-up in-class learning activities. Each report included an overall emotional intelligence score, personal and social competency scores, and four emotional intelligence dimension scores.

To participate in the 360-degree LAP, the participants first met with their direct supervisors to identify the appropriate individuals or raters. The people identified as raters worked with the participants in their current roles for at least ninety days and could provide
honest or unbiased ratings and feedback. The list of raters and their contact email addresses were reviewed and approved by the participants’ supervisors before being submitted to the Leadership Assessment Program Office. The participants were also encouraged to reach out to their raters to discuss the program purpose and the requests for their responses. This effort was to increase the response rate and ensure that a minimum number of responses, three responses per rater group, were received in a timely manner.

Shortly after the submission, the participants and their raters received emails to submit the 360-degree surveys on-line. The emails provided the participants and the raters easy-to-follow instructions and passcodes to access and complete the surveys. After the LAP assessment was complete, the participants received their assessment reports with instructions on how to interpret the results from the Leadership Assessment Program office. Additionally, the participants were invited to meet with trained Human Resources professionals to review the assessment results and later develop their individualized leadership development plans with their direct supervisors. It is also important to note here that the Human Resources professionals followed up with participants if they had not received enough responses. The participants were then requested to reach out to their raters again to complete the surveys or the participants would be requested to provide additional raters who were willing and available to complete the assessment surveys on their behalf.

Finally, to obtain the EIA and 360-degree LAP data for this study, the researcher contacted the ABC Electric Company’s Human Resources Department in December 2014. The researcher met with a responsible senior Human Resources manager to discuss the purpose of the study, the need and timeline for data collection, and the approval requirements to conduct the research at the ABC Electric Company. Since this study could provide insights on how the
company should invest in its future leadership development programs, the company concurred and later granted the researcher the approval necessary to proceed with the research. The company agreed to provide the previously collected EIA and 360-degree LAP data without any employees’ identifiable characteristics meaning that it would be impossible to trace any responses to participants. Moreover, the company assigned a Human Resources project manager who acted as a point of contact for the researcher to further discuss the types and details of the data request(s) without the researcher’s having direct access to the participants, their demographic information, or the raw responses. Hence, the researcher received the anonymous data that was reviewed and cleared by the Human Resources Department prior to it being sent to the researcher. Lastly, the company stipulated a confidentiality condition as part of the agreement that the researcher will not use, disclose, or reference the name of the company in any part of the research study and its future publication. This is to in no way impose on the rights of any individuals (or the organization) who knowingly or unknowingly participated in this study.

**Data analysis.**

**Data preparation.** Before analyzing the data, the researcher took needed steps to prepare the data file in a form that could be used to conduct analyses and test the proposed hypotheses. This includes the effort to upload the previously-collected EIA and 360-degree LAP data received from the ABC Electric Company in both electronic and paper formats into the IBM’s statistical analysis software SPSS (the SPSS). That is, the researcher transferred participants’ unique sequential identification numbers, as determined by the Human Resources Department, along with their overall emotional intelligence and dimension scores from the EIA questionnaires and their summary leadership effective ratings based on seven performance areas from the 360-degree LAP surveys in the SPSS.
After all data were uploaded into the SPSS, the researcher reviewed and verified that the data values were complete and accurate and that they conformed to acceptable values for each variable. For example, the participants with incomplete or missing data were removed from the study. Moreover, the participants’ identification numbers ranged from 1 to 96. The emotional intelligence scores were between 0 and 100. The 360-degree LAP rating for each performance area was between 0 and 5 with a total possible combined rating between 0 and 35 for all seven performance areas. It is important to note here again that the Human Resources Department at the ABC Electric Company took all necessary steps and precautions according to its internal guidelines to review and remove any employees’ identifiable references from the EIA and the 360-degree LAP data prior to releasing the information to the researcher.

Lastly, the data file was saved electronically without any data manipulation. That is, the file was not transformed, recoded, or altered in any shape or form unless the Human Resources Department requested any data from the EIA questionnaire or the 360-degree LAP survey be updated, corrected, or removed from the study. The electronic data files received for this study were always kept password-protected for future reference or data validation for the entire research process. The paper records were stored in a locked cabinet. All data files and records were later destroyed promptly after thirty calendar days when this research was completed.

Choice of statistical tests. This research utilized two statistical tests to investigate the relationship between leaders’ emotional intelligence and their perceived leadership effectiveness. The choice of statistical tests was based on the research questions being examined. For the RQ1, the study used the Pearson Product-Moment Correlation Coefficient, or simply Pearson’s correlation, to quantitatively measure the strength and direction of association that might exist between two variables on an interval scale. To illustrate, this study used a Pearson’s correlation
to understand whether or not there was an association between leaders’ emotional intelligence and their perceived leadership effectiveness. The Pearson’s correlation attempted to draw a best-fit line through the data set of two said variables. The Pearson’s correlation coefficient was then calculated to describe how far away these data points were to the line of best fit. In other words, this correlation study addressed the main objective of this research to explain the association between the two variables. The researcher was interested in the extent to which the variables co-vary; that is, “where changes in one variable are reflected in changes in the other [variables]” (Creswell, 2012, p. 340).

When choosing to analyze the data using Pearson’s correlation, the researcher followed the following process to check that the data could actually be analyzed using this statistical test. That is, the data must meet the following four assumptions that are generally required for Pearson’s correlation in order for this study to give a valid result (Pearson’s Product-Moment Correlation, 2013):

**Assumption #1:** Two variables are to be measured on a continuous scale; both are either interval or ratio variables.

**Assumption #2:** There must be a linear relationship between the two variables. The researcher utilized the SPSS to create a scatterplot to check whether a linear relationship existed between leaders’ emotional intelligence and their perceived leadership effectiveness. It is important to note here that if the relationship between the two variables in the scatterplot were not linear, the researcher would be required to run a non-parametric equivalent to Pearson’s correlation or transform data using the SPSS.

**Assumption #3:** There should be no significant outliers. Pearson’s correlation is somewhat sensitive to outliers. That is, outliers can have a large effect on the best-fit line
and the correlation coefficient. This can lead to inconclusive conclusions regarding the relationship between the two variables. To validate this assumption, the researcher performed a visual inspection of the scatterplot created in the SPSS from Assumption #2 to identify and deal with possible outliers.

**Assumption #4:** Both variables should be approximately normally distributed. The researcher used the SPSS to validate this assumption by assessing the statistical significance of Pearson’s correlation via the Shapiro-Wilk test of normality.

(Note: The study tested the above assumptions in the order presented here because it represented an order where, if a violation to the assumption was not correctable, the study would no longer be able to utilize Pearson’s correlation to measure the strength and direction of association that might exist between two variables or the results from the Pearson’s statistical test might not be valid.)

For the RQ2, the study used the multiple regression analysis test to predict a value of a dependent variable based on the value of two or more other independent variables. In this study, the dependent variable (the outcome) was the perceived leadership effectiveness and the independent variables (the predictors) were the four emotional intelligence dimensions. In other words, this research used multiple regressions to understand whether the perceived leadership effectiveness could be predicted based on leaders’ self-awareness, self-management, social awareness, and relationship management skills. Additionally, multiple regressions also allowed the study to determine the overall fit of the model on the relative contribution of each predictor to the total variance explained (Multiple Regression Analysis, 2013). To be specific, the researcher wanted to know how much of the variation in the perceived leadership effectiveness
could be explained by leaders’ four emotional intelligence dimensions as a whole and as the relative contribution of each emotional intelligence dimension.

When choosing to analyze the data using multiple regressions, the researcher followed the following process to check that the data could actually be analyzed using this statistical test. That is, the data must meet the following eight assumptions that are generally required for multiple regressions in order for this study to give a valid result (Multiple Regression Analysis, 2013):

**Assumption #1:** The dependent variable must be measured on a continuous scale using either an interval or ratio variable.

**Assumption #2:** The independent variables can be either continuous or categorical; they can be ordinal or nominal variables.

**Assumption #3:** The study has independence of observations, meaning that the observations are not affected by an outside influence common to several of the observations or are not influenced by each other. The researcher validated this assumption by using the SPSS to assess the independence of residuals.

**Assumption #4:** There must be a linear relationship between the dependent variable and each of the independent variables and the dependent and independent variables collectively. The researcher validated this assumption by creating scatterplots and partial regression plots using the SPSS software.

**Assumption #5:** The data must show homoscedasticity. Homoscedasticity occurs when all random variable in the sequence have the same finite variance (Homoscedasticity, 2015), or “the variances along the line of best fit remain similar as you move along the line” (Multiple Regression Analysis, 2013). The researcher used the SPSS to plot the
studentized residuals against the unstandardized predicted values and determine the homoscedasticity of the data.

**Assumption #6:** The data must not show multi-collinearity. This occurs when two or more independent variables are highly correlated with each other. Multi-collinearity can potentially lead to problems with identifying which independent variable contributes to the variance explained in the dependent variable, together with technical issues in calculating a multiple regression model (Multiple Regression Analysis, 2013). The researcher verified this assumption by using the SPSS software to detect multi-collinearity through an inspection of correlation coefficient and tolerance/VIF (variance inflation factor) value.

**Assumption #7:** There are no significant outliers (high leverage or highly influential points). Significant outliers can negatively impact the regression analysis and any resulting prediction of the value, such predictive amount and accuracy, of the dependent variable based on the independent variables. The researcher utilized the SPSS for multiple regressions to detect and deal with any possible outliers.

**Assumption #8:** The residuals (errors) are approximately normally distributed. The researcher used the SPSS software to create histograms and Normal P-P Plots to validate this last assumption.

(Note: Assumptions #1 and #2 were checked first. The remaining assumptions were subsequently checked using the SPSS. The order of the tests was crucial because if they were not run accurately, the results from the statistical test might not be valid.)
Reliability, Validity, and Generalizability

Threats to reliability. Threats to validity refer to factors that can result in unreliable data including: 1) questions on instruments are ambiguous, 2) procedures of test administration are not standardized, and 3) participants are fatigued, nervous, or confused on tests (Creswell, 2012). These threats were mitigated greatly by selecting reliable test instruments, the TalentSmart Emotional Intelligence Appraisal questionnaire and the DDI 360-degree Leadership Assessment Program survey. Both test instruments and their procedures have been well documented and tested repeatedly and widely in various organizations, populations, and industries and at different times by their developers. This is to ensure both instruments provide reliable and valid data for further review and analysis (also refer to Chapter 3 Research Procedures for more details about the instruments).

Threats to validity and generalizability. Threats to validity refer to “reasons for why we can be wrong when we make an inference in an experiment …” (Creswell, 2012, p. 303). Two primary threats to consider in this study include threats to internal validity and threats to external validity. Threats to internal validity are problems in drawing correct inferences or interpretations about cause-and-effect or causal relationship (Creswell, 2012). Since this doctoral thesis is a research that does not seek to anticipate a “cause-and-effect” relationship between variables, threats to internal validity are not relevant.

Threats to external validity refer to problems that threaten the researcher’s ability to make accurate claims about the generalizability of the results. In other words, threats to external validity threaten the researcher’s ability to draw correct inferences or interpretations from the sample data to other population, environments or settings, treatment, and measures (Creswell,
There are three threats to external validity that may affect the generalizability in this research:

- **Interaction of selection and treatment:** This threat to external validity refers to “the inability to generalize beyond the groups in the experiment” (Creswell, 2012, p. 306). The research studied a group of senior managers in a public-sector corporation. This group of employees possesses a unique mixture of racial, social, geographical, age, gender, and personality characteristics. The researcher attempted to describe the group’s characteristics to the best of his knowledge. It is important that the characteristics, the findings, and the limitations are well understood by the researcher (and others) before applying them beyond this group of employees or to other population with vastly different characteristics.

- **Interaction of setting and treatment:** This threat to external validity refers to “the inability to generalize from the setting where the experiment occurred to another setting” (Creswell, 2012, p. 306). This research was conducted at an electric company in Southern California. Unlike other privately owned organizations, the company operates its business under strict regulations and oversight by the state and federal public utility commissions. Moreover, the company has a strong union presence. It has also been in business for over 125 years. These facts make the company rather unique and could result in limitations to oversimplify the findings to other organizations without caution.

- **Interaction of history and treatment:** This threat to external validity refers to the inability to generalize findings at a specific time to past and future situations (Creswell, 2012). To minimize this threat, the researcher disclosed earlier on that this study was conducted based on the data collected throughout the years 2013 and 2014. That is, this research
was carried out at a point in time where the social, political, and economic conditions in the U.S. were greatly different from the past or, potentially, in the future. Therefore, the findings should again be analyzed with great care before applying them to similar population and settings far in the past or far in the future.

Protection of Human Subjects

This research went through the Institutional Review Board (IRB) at Northeastern University to ensure that the study and its methodology met the ethical guidelines and did not in any way impose on the rights of any individuals participating in the effort or in any way harm them as a result. The research procedures recognized and prevented human subjects from potential risks including, but not limited to, physical, psychological, legal, social, and economic hazards (Butin, 2010). This included, for example, the types of data to be collected, the method or approach for gathering data, and the questions to be used. In addition, the data gathering protocol did maintain confidentiality and anonymity of the human subjects being studied. That is, the researcher and the ABC Electric Company made sure that the data collected would not inadvertently be made public without proper, informed consent from the individuals. And the research procedure would always discuss or present the data and findings in a manner that safeguards individuals’ identity and privacy (Butin, 2010).

To achieve this, all survey data received was kept in locked file cabinets or password-protected at all times. The survey data was to be destroyed thirty calendar days after the completion of the research. The research data was also collected, analyzed, and disseminated with no participants’ identifiable characteristics or in no way would it be possible to trace any responses to participants. Moreover, the ABC Electric Company could contact the researcher to opt out of the study at any time before the completion of the research study. Lastly, the
researcher agreed not to use, disclose, or reference the name of the company in any part of the research study and its future publication.

Summary

This chapter addressed the recipe and necessary ingredients to successfully conduct this doctoral thesis research. It discussed the specific research design and procedures to quantitatively and effectively explore the potential correlation between two important variables: leaders’ emotional intelligence scores and their perceived leadership effectiveness ratings. Moreover, it properly described the research site and the 96 senior manager participants at one of the largest investor-owned electric utility companies in the United States. The study also utilized two valid and reliable commercial off-the-shelf measurement instruments, the Emotional Intelligence Appraisal and the 360-degree Leadership Assessment Program surveys, to collect the emotional intelligence scores and the perceived leadership effectiveness ratings. Lastly, the chapter specified the details of the data analysis approach. This comprised the general guidelines used to mitigate threats to the research reliability, validity, and generalizability and the procedures utilized to generalize knowledge that involves human beings as research subjects. Therefore, the research complied with the basic ethical guidelines of respect for persons, beneficence, and justice set forth to protect the rights, welfare, and wellbeing of subjects involved. This included the need for the reviews and approvals by both the ABC Electric Company and the Northeastern University Institutional Review Board before any activities involving human subjects were undertaken.
Chapter 4: Research Findings

The purpose of this study was to determine the relationship between leaders’ emotional intelligence and their perceived leadership effectiveness as stated in RQ1. In addition, the study sought to understand the extent to which leaders’ emotional intelligence dimensions, self-awareness, self-management, social awareness, and relationship management, could predict the perceived level of leadership effectiveness as stated in RQ2. To answer these two research questions, two years of archival data was utilized and Pearson’s correlation and multiple regression analysis tests were carried out. This chapter discusses the analysis associated with both research questions and any subsequent findings resulting from the study.

Chapter 4 is broken into five main sections. The first section provides details regarding the data cleansing and validation. This section discusses the researcher’s efforts to ensure that the data received was complete and accurate and that the data conformed to acceptable values for each variable. The second section describes a demographic profile of the participants being studied. The demographics, such as age, gender, and ethnicity, are discussed in this section in terms of their frequencies, means, and distributions as deemed appropriate. The third section provides pertinent descriptive statistics. This includes the central tendency and spread of each survey or questionnaire instrument item(s). The forth section discusses how emotional intelligence scores and leadership effectiveness ratings met all assumptions required for Pearson’s correlation and multiple regression analysis tests giving validity to this research study. The fifth and final section reports the findings from the Pearson’s correlation and multiple regression analysis tests. These findings will be organized and discussed here relative to the research questions and their associated hypotheses.
Data Cleansing and Validation

Necessary steps were taken in this research to properly review and cleanse the data files received from the ABC Electric Company both before and after it was uploaded in the SPSS software. This effort was to ensure that the data values were complete and accurate and that the data conformed to acceptable values for each variable, including:

- The participants with incomplete or missing data were removed from the study. Out of 96 active full-time senior management employees, only 91 sets of emotional intelligence scores and 360-degree leadership effectiveness ratings were complete and classified as acceptable. The other five data sets were excluded from the study because they did not have either emotional intelligence scores or 360-degree leadership effectiveness ratings available or turned in to the Leadership Assessment Program Office. It is important to note that no participating subjects were added to or removed from this study due to their emotional intelligence scores or leadership effectiveness ratings.

- The participants’ identification numbers (now from 1 to 91), emotional intelligence scores (between 0 and 100), and 360-degree LAP ratings (between 0 and 5 for each performance area and between 0 and 35 for a composite rating) were also validated and considered complete for each of the 91 participants.

Participant Demographics

The research participants comprised senior managers (N = 91) who were enrolled in the mandatory leadership development programs at the ABC Electric Company and completed the Emotional Intelligence Appraisal questionnaires and the 360-degree Leadership Assessment Program surveys between 2013 and 2014. All demographic data of the participants is outlined in Table 3 to Table 6 below. In summary, this research studied a group of participants (58.2%
males; 41.8% females) from 25 work locations throughout the company territories in Southern California. The participants were between 34.0 and 66.3 years old, with a mean age of 49.4 years old (S.D. = 7.5). Thirty-six participants (39.6%) were classified as Generation Xers; the remaining fifty-five participants (60.4%) were Baby Boomers. Moreover, the participants were comprised of approximately 50.5% Caucasians, 24.2% Hispanics, 18.7% Asians and Pacific Islanders, 4.4% African Americans, 1.1% Native Americans, and 1.1% others. Of the participants studied, their years of service ranged from 1.2 to 40.0 years, with a mean years of service of 18.0 years (S.D. = 11.1). Their time in current management roles ranged from 0.1 to 11.0 years, with a mean time in title of 2.9 years (S.D. = 2.4). Lastly, the participating managers were working in Transmission and Distribution (26.4%), Customer Service (15.4%), Finance (15.4%), Human Resources (9.9%), Power Supply (9.9%), Supply Chain Management (8.8%), Regulatory Affairs (4.4%), Audit Services (3.3%), Legal (2.2%), and others operating units (4.4 %) as of December 2014.

Table 3

Research Participants Demographic Profile (Age and Gender)

<table>
<thead>
<tr>
<th>Age (between)</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 - 40</td>
<td>4 (4.4%)</td>
<td>8 (8.8%)</td>
<td>12 (13.2%)</td>
</tr>
<tr>
<td>41 – 50</td>
<td>16 (17.6%)</td>
<td>14 (15.4%)</td>
<td>30 (33.0%)</td>
</tr>
<tr>
<td>51 – 60</td>
<td>16 (17.6%)</td>
<td>25 (27.5%)</td>
<td>41 (45.1%)</td>
</tr>
<tr>
<td>61 – 70</td>
<td>2 (2.2%)</td>
<td>6 (6.6%)</td>
<td>8 (8.8%)</td>
</tr>
<tr>
<td>Total</td>
<td>38 (41.8%)</td>
<td>53 (58.2%)</td>
<td>91 (100%)</td>
</tr>
</tbody>
</table>
Table 4

*Research Participants Demographic Profile (Age and Ethnicity)*

<table>
<thead>
<tr>
<th>Age (between)/Ethnicity</th>
<th>Frequency (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>31 - 40</td>
</tr>
<tr>
<td>Asian and Pacific</td>
<td>3 (3.3%)</td>
</tr>
<tr>
<td>African American</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Caucasian</td>
<td>6 (6.6%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>3 (3.3%)</td>
</tr>
<tr>
<td>Native American</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Others</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>12 (13.2%)</td>
</tr>
</tbody>
</table>

Table 5

*Research Participants Operating Unit and Years of Service*

<table>
<thead>
<tr>
<th>Years of Service Operating Unit</th>
<th>Less than 10</th>
<th>10 and Over Less than 20</th>
<th>20 and Over Less than 30</th>
<th>30 and Over</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit Services</td>
<td>1 (1.1%)</td>
<td>1 (1.1%)</td>
<td>0 (0.0%)</td>
<td>1 (1.1%)</td>
<td>3 (3.3%)</td>
</tr>
<tr>
<td>Customer Service</td>
<td>3 (3.3%)</td>
<td>6 (6.6%)</td>
<td>2 (2.2%)</td>
<td>3 (3.3%)</td>
<td>14 (15.4%)</td>
</tr>
<tr>
<td>Finance</td>
<td>7 (7.7%)</td>
<td>2 (2.2%)</td>
<td>1 (1.1%)</td>
<td>4 (4.4%)</td>
<td>14 (15.4%)</td>
</tr>
<tr>
<td>Human Resources</td>
<td>4 (4.4%)</td>
<td>3 (3.3%)</td>
<td>1 (1.1%)</td>
<td>1 (1.1%)</td>
<td>9 (9.9%)</td>
</tr>
<tr>
<td>Legal</td>
<td>0 (0.0%)</td>
<td>1 (1.1%)</td>
<td>1 (1.1%)</td>
<td>0 (0.0%)</td>
<td>2 (2.2%)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>4 (4.4%)</td>
<td>1 (1.1%)</td>
<td>2 (2.2%)</td>
<td>2 (2.2%)</td>
<td>9 (9.9%)</td>
</tr>
<tr>
<td>Regulatory Affairs</td>
<td>2 (2.2%)</td>
<td>0 (0.0%)</td>
<td>2 (2.2%)</td>
<td>0 (0.0%)</td>
<td>4 (4.4%)</td>
</tr>
<tr>
<td>Supply Chain</td>
<td>5 (5.5%)</td>
<td>3 (3.3%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>8 (8.8%)</td>
</tr>
<tr>
<td>Trans &amp; Dist</td>
<td>2 (2.2%)</td>
<td>7 (7.7%)</td>
<td>9 (9.9%)</td>
<td>6 (6.6%)</td>
<td>24 (26.4%)</td>
</tr>
<tr>
<td>Others</td>
<td>2 (2.2%)</td>
<td>1 (1.1%)</td>
<td>0 (0.0%)</td>
<td>1 (1.1%)</td>
<td>4 (4.4%)</td>
</tr>
<tr>
<td>Total</td>
<td>30 (33.0%)</td>
<td>25 (27.5%)</td>
<td>18 (19.8%)</td>
<td>18 (19.8%)</td>
<td>91 (100%)</td>
</tr>
</tbody>
</table>
Table 6

*Research Participants Time in Title*

<table>
<thead>
<tr>
<th>Time in Title</th>
<th>Frequency (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less than 5 yrs</td>
</tr>
<tr>
<td>Total</td>
<td>73 (80.2%)</td>
</tr>
</tbody>
</table>

**Descriptive Statistics**

*Emotional intelligence scores.* Table 7 below shows descriptive statistics calculated from leaders’ emotional intelligence scores on the Emotional Intelligence Appraisal. As shown, central tendency and spread were computed for each of the emotional intelligence categories, personal and social competence, as well as their emotional intelligence dimensions of self-awareness, self-management, social awareness, and relationship management. From this group of 91 participants, descriptive statistics for emotional intelligence composite scores reflect leaders’ self-assessed results with a mean emotional intelligence score of 76.31 (S.D. = 7.81), from a scale 0 to 100. The leaders’ personal and social competencies show nearly the same mean values of 76.71 (S.D. = 7.93) and 76.35 (S.D. = 8.95), respectively. Moreover, the emotional intelligence scores among four dimensions form a narrow range between 75.08 and 77.78. However, the ranges for the composite and individual scores are rather wide with values between 34 and 52, due to a large difference between the high, maximum, and low, minimum, emotional intelligence scores in each of emotional intelligence category and dimension.
Table 7

*Descriptive Statistics for Emotional Intelligence Scores*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Raters</th>
<th>Mean</th>
<th>SD</th>
<th>Max</th>
<th>Min</th>
<th>Range</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Intelligence</td>
<td>Self</td>
<td>76.31</td>
<td>7.81</td>
<td>95.00</td>
<td>57.00</td>
<td>38.00</td>
<td>91</td>
</tr>
<tr>
<td>(Composite)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal Competence</td>
<td>Self</td>
<td>76.71</td>
<td>7.93</td>
<td>96.00</td>
<td>62.00</td>
<td>34.00</td>
<td>91</td>
</tr>
<tr>
<td>Self-Awareness</td>
<td>Self</td>
<td>75.08</td>
<td>8.92</td>
<td>97.00</td>
<td>54.00</td>
<td>43.00</td>
<td>91</td>
</tr>
<tr>
<td>Self-Management</td>
<td>Self</td>
<td>77.78</td>
<td>8.72</td>
<td>98.00</td>
<td>59.00</td>
<td>39.00</td>
<td>91</td>
</tr>
<tr>
<td>Social Competence</td>
<td>Self</td>
<td>76.35</td>
<td>8.95</td>
<td>95.00</td>
<td>49.00</td>
<td>46.00</td>
<td>91</td>
</tr>
<tr>
<td>Social Awareness</td>
<td>Self</td>
<td>76.35</td>
<td>10.21</td>
<td>100.00</td>
<td>48.00</td>
<td>52.00</td>
<td>91</td>
</tr>
<tr>
<td>Relationship Mgmt</td>
<td>Self</td>
<td>75.69</td>
<td>9.23</td>
<td>100.00</td>
<td>49.00</td>
<td>51.00</td>
<td>91</td>
</tr>
</tbody>
</table>

*Note.* An emotional intelligence composite score is an average between personal and social competence scores. Personal competence score is an average between self-awareness and self-management scores. Social competence score is an average between social awareness and relationship management scores.

**Leadership effectiveness ratings.** Table 8 below shows descriptive statistics calculated from leaders’ perceived leadership effectiveness ratings on the 360-degree Leadership Assessment Program assessment. As shown, central tendency and spread were computed for each of the seven leadership effectiveness performance areas. From the review of the descriptive statistics, participating managers at the ABC Electric Company, on average, were rated between “Effective” and “Very Effective” in all performance areas of their leadership effectiveness assessment with means between 3.75 and 4.22 and a mean leadership effectiveness, composite, rating of 27.65 (S.D. = 1.77). It is also important to note here that the “Manages Talent” performance area has the lowest mean and minimum (Mean = 3.75 and Min = 2.81) among all seven leadership effectiveness performance areas.
Table 8

Descriptive Statistics for Leadership Effectiveness Ratings

<table>
<thead>
<tr>
<th>Variables</th>
<th>Raters</th>
<th>Mean</th>
<th>SD</th>
<th>Max</th>
<th>Min</th>
<th>Range</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership Effectiveness (Composite)</td>
<td>Others</td>
<td>27.65</td>
<td>1.77</td>
<td>32.00</td>
<td>22.80</td>
<td>9.20</td>
<td>91</td>
</tr>
<tr>
<td>Creates a Safety Culture</td>
<td>Others</td>
<td>4.04</td>
<td>0.32</td>
<td>4.81</td>
<td>3.38</td>
<td>1.43</td>
<td>1,167</td>
</tr>
<tr>
<td>Values</td>
<td>Others</td>
<td>4.22</td>
<td>0.31</td>
<td>4.76</td>
<td>3.18</td>
<td>1.58</td>
<td>1,361</td>
</tr>
<tr>
<td>Advances Innovative Solutions</td>
<td>Others</td>
<td>3.95</td>
<td>0.27</td>
<td>4.61</td>
<td>3.26</td>
<td>1.35</td>
<td>1,321</td>
</tr>
<tr>
<td>Manages Talent</td>
<td>Others</td>
<td>3.75</td>
<td>0.37</td>
<td>4.56</td>
<td>2.81</td>
<td>1.75</td>
<td>1,026</td>
</tr>
<tr>
<td>Communicates with Impact</td>
<td>Others</td>
<td>3.92</td>
<td>0.29</td>
<td>4.55</td>
<td>3.02</td>
<td>1.53</td>
<td>1,377</td>
</tr>
<tr>
<td>Leads with Vision</td>
<td>Others</td>
<td>3.81</td>
<td>0.31</td>
<td>4.57</td>
<td>3.03</td>
<td>1.54</td>
<td>1,298</td>
</tr>
<tr>
<td>Makes Sound Decisions</td>
<td>Others</td>
<td>3.95</td>
<td>0.27</td>
<td>4.43</td>
<td>3.23</td>
<td>1.20</td>
<td>1,328</td>
</tr>
</tbody>
</table>

Note. Each leader’s leadership effectiveness, composite, rating was calculated by adding his or her ratings from all seven performance areas together. Each participant received one mean score per variable and rater type. Raw scores from raters for each participant were not available or disclosed by the ABC Electric Company.

Assumption Checking

As discussed in detail in Chapter 3, the researcher followed the necessary steps to check that the data could actually be analyzed using Pearson’s correlation and multiple regression analysis tests. That is, the data met all assumptions that are generally required for both statistical tests in order for this study to give valid results (Multiple Regression Analysis, 2013; Pearson’s Product-Moment Correlation, 2013). The results of the assumption checking are discussed below and in detail in Appendix E.

Pearson’s correlation. First, two main variables, emotional intelligence scores and leadership effectiveness ratings, were measured on a continuous scale. Second, from inspection
of the scatterplot diagram (see Appendix E, Figure E1), there was a linear relationship between
the two variables and there were no significant outliers in the data set being studied. Lastly, the
assumption of normality was not violated because the significant values of both variables under
the Shapiro-Wilk were greater than 0.05 (see Appendix E, Figure E2).

Multiple regression analysis. The dependent variable, leadership effectiveness ratings,
and the independent variables, self-awareness, self-management, social awareness, and
relationship management scores, were measured on a continuous scale. The study had
independence of observations, as assessed by a Durbin-Watson statistic of 1.911 (see Appendix
E, Figure E3). This means that the data were not affected by an outside influence common to
several of the observations or were not influenced by each other. Moreover, from inspection of
the scatterplots and the partial regression plots between dependent and independent variables
(see Appendix E, Figures E4 to E8), there appeared to be a linear relationship between: 1) the
dependent variable and each of the independent variables, and 2) the dependent and independent
variables collectively. The data also showed homoscedasticity based on the review of the
scatterplot diagrams between the studentized residuals and the unstandardized predicted values
(see Appendix E, Figure E4 for more details). That is, the studentized residuals were equally
spread over the unstandardized predicted values of the dependent variable.

Furthermore, none of the independent variables have correlations greater than or equal to
0.95 (see Appendix E, Figure E9). When performing collinearity diagnostics for each
independent variable, the results showed there were no multi-collinearity issues (Tolerance >
0.20 and VIF < 10.0) (see Appendix E, Figures E10 – E13 for more details). The researcher also
confirmed that there were no significant outliers via the Casewise diagnostics and that there were
no unacceptably high leverage or influential points (No residuals SDR > ± 3SDs and no leverage
values LEV > 0.2). Lastly, to check normality, both the histogram and the P-P plot (see Appendix E, Figures E14 and E15) were created. The histogram shows that the standardized residuals appear to be normally distributed. Additionally, the P-P plot confirms that the residuals are normally distributed as the points are aligned along the diagonal line.

**Inferential Data Analysis**

**Research Question 1 (RQ1).** Pearson’s correlation ($r$) was applied to Research Question 1 (RQ1) and Hypothesis 1 (H1) to investigate the relationship between leaders’ emotional intelligence and their perceived leadership effectiveness (as restated again below):

**RQ1:** What is the relationship between leaders’ emotional intelligence and their perceived leadership effectiveness?

**H1:** Leaders’ self-assessed emotional intelligence scores are significantly and positively related to their leadership effectiveness ratings provided by others.

Table 9 below represents Pearson’s correlation results between the two variables in this study: Emotional Intelligence Appraisal scores and 360-degree Leadership Assessment Program ratings.

Table 9  

*Pearson’s Correlation between EIA Score and LAP Rating*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Leadership Assessment Program (LAP) Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Intelligence Appraisal (EIA) Score</td>
<td>Pearson Correlation 0.157</td>
</tr>
<tr>
<td></td>
<td>Sig. (1-tailed) 0.069</td>
</tr>
<tr>
<td></td>
<td>N 91</td>
</tr>
</tbody>
</table>

Inspection of Table 9 reveals a disappointing result pertaining to the relationship between the two important variables. According to Muijs (2011), the correlation between leaders’
emotional intelligence score and their perceived leadership effectiveness rating appeared weak to modest in strength and was not statistically significant \( (r = 0.157, p = 0.069) \). Having said that, Hypothesis 1 (H1) was determined as “not supported” because the correlation between leaders’ emotional intelligence scores and their perceived leadership effectiveness ratings did not reach the level of statistical and practical significance typically desired.

**Research Question 2 (RQ2).** Multiple regression analysis was applied to Research Question 2 (RQ2) and Hypothesis 2 (H2) to examine the extent to which the four emotional intelligence dimensions could predict the perceived level of leadership effectiveness (as restated again below):

**RQ2:** To what extent do the four emotional intelligence dimensions predict the perceived level of leadership effectiveness?

**H2:** Leaders’ self-assessed emotional intelligence dimension scores significantly predict leadership effectiveness ratings provided by others.

Table 10 below shows the SPSS results from the multiple regression analysis test. Adjusted R square values (for population) were less than 0.1 (Adjusted R square = 0.014). This means only 1.4\% of the variability of the dependent variable, leadership effectiveness rating, can be explained by the independent variables, self-awareness, self-management, social awareness, and relationship management scores. According to Muijs (2011), Adjusted R square of 0.014 does not suggest that emotional intelligence dimensions (or the predictors) are particularly good at predicting leadership effectiveness (or the outcome).
Table 10

_Correlation Coefficients between EIA Dimension Scores and LAP Rating_

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.241</td>
<td>0.058</td>
<td>0.014</td>
<td>1.75623</td>
</tr>
</tbody>
</table>

_Note_. Independent variables (or predictors): Self-awareness, self-management, social awareness, and relationship management scores. Dependent variable: Leadership effectiveness rating

Furthermore, the _F_-ratios were calculated and shown in Table 11 for the mean sum of squares for regression and for the residuals. It attempted to test if the regression model was a good fit for the data. However, the results did not confirm that leaders’ emotional intelligence dimension scores could significantly predict the dependent variable, _F_ (4, 86) = 1.325, _p_ = 0.267. In other words, the regression model was not a good fit of the data.

Table 11

_Statistical Significance between EIA Dimension Scores and LAP Rating_

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Square</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>16.351</td>
<td>4</td>
<td>4.088</td>
<td>1.325</td>
<td>0.267</td>
</tr>
<tr>
<td>Residual</td>
<td>265.255</td>
<td>86</td>
<td>3.084</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>281.606</td>
<td>90</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_Note_. Independent variables (or predictors): Self-awareness, self-management, social awareness, and relationship management scores. Dependent variable: Leadership effectiveness rating

Lastly, Table 12 discusses the statistical significance (or Sig.) of the relationship between each predictor and the dependent variable (if Sig or _p_-value < 0.05 cut-off value). The analysis shows another disappointing result in that it did not find a statistically significant relationship (_p_-values > 0.05) between the independent variables and the dependent variable.
Table 12

*Statistical Significance between Each EIA Dimension Score and LAP Rating*

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients B</th>
<th>Std. Error</th>
<th>Standard Coefficients Beta</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Constant)</td>
<td>25.102</td>
<td>1.880</td>
<td></td>
<td>13.353</td>
<td>0.000</td>
</tr>
<tr>
<td>Self-Awareness</td>
<td>-0.038</td>
<td>0.028</td>
<td>-0.190</td>
<td>-1.344</td>
<td>0.182</td>
</tr>
<tr>
<td>Self-Management</td>
<td>0.022</td>
<td>0.029</td>
<td>0.107</td>
<td>0.748</td>
<td>0.457</td>
</tr>
<tr>
<td>Social Awareness</td>
<td>0.015</td>
<td>0.028</td>
<td>0.088</td>
<td>0.546</td>
<td>0.586</td>
</tr>
<tr>
<td>Relationship Mgmt</td>
<td>0.033</td>
<td>0.030</td>
<td>0.174</td>
<td>1.116</td>
<td>0.267</td>
</tr>
</tbody>
</table>

*Note.* Independent variables (or predictors): Self-awareness, self-management, social awareness, and relationship management scores. Dependent variable: Leadership effectiveness rating

**Summary**

The researcher reviewed and analyzed two years of archival data received from the ABC Electric Company to examine the relationship between leaders’ emotional intelligence and their perceived leadership effectiveness. A Pearson’s correlation was run to investigate the said relationship and test whether or not there was a significant and positive association between the two important variables (as described in Research Question 1 and Hypothesis 1). The assumptions of linearity, significant outliers, and normality were tested and met. However, the results failed to support Hypothesis 1 because the correlations between leaders’ emotional intelligence scores and their perceived leadership effectiveness ratings did not reach the level of statistical and practical significance typically desired. Furthermore, a multiple regression was run to assess the extent to which emotional intelligence dimensions could predict the perceived level of leadership effectiveness (as stated in Research Question 2 and Hypothesis 2). The assumptions of linearity, independence of errors, homoscedasticity, unusual points, and normality of residuals were studied and met. However, the results failed to support Hypothesis 2
because emotional intelligence dimension scores (the predictors) are not conclusive indicators of leadership effectiveness ratings (the desired leadership outcome). In other words, no statistically significant predictive relationship was found between leaders’ self-awareness, self-management, social awareness, and relationship management scores and their perceived leadership effectiveness ratings.
Chapter 5: Discussion of Research Findings

The overriding aim of this study was to investigate the relationship, if any, between leaders’ emotional intelligence and their perceived leadership effectiveness. The research further determined any predictive association between multiple independent or predictor variables, emotional intelligence dimensions, and the dependent or outcome variable, perceived leadership effectiveness. This chapter is broken down into four main sections to discuss the findings to achieve the said purpose. The first section provides the results and examines them associated with each research question. The second and third sections discuss the implications and limitations for theory, research, and practice. The last section provides recommendations on areas of further research based on the research findings.

Results and Discussion of Research Questions

Research Question 1 (RQ1) and Hypothesis 1 (H1). Based on the Pearson’s correlation analysis, no significant relationship was found between leaders’ emotional intelligence and their perceived leadership effectiveness. This led to the conclusion that Hypothesis 1 was not supported by this study. The results of this research confirmed previous studies by Brown et al. (2006), Harms and Crede (2010), and Weinberger (2009). They evaluated the relationship of emotional intelligence, leadership styles, and perceived leadership effectiveness and found that leaders’ emotional intelligence has no significant correlation to the perception of extra effort of followers’ satisfaction with leaders or perceived effectiveness of those leaders and their perceived performances (Weinberger, 2009). In other words, their studies failed to support hypothesized relationships between emotional intelligence and the desirable leadership outcomes (Brown et al., 2006; Harms & Crede, 2010). The results of this research, on the other hand, disagreed with findings by Hur et al. (2011), who stated that emotionally
intelligent team leaders were rated as more effective. They were more effective in developing better service climates because they exhibited more transformational leadership behaviors (Hur et al., 2011). One important explanation to this disagreement could potentially be that emotional intelligence has been defined, studied, and measured by various researchers differently. For example, this doctoral research used the Emotional Intelligence Appraisal questionnaire based on Goleman’s model to define and measure leaders’ emotional intelligence abilities including self-awareness, self-management, social awareness, and relationship management. Hur et al. (2011), on the other hand, used the Wong and Law’s Emotional Intelligence test. This test is based on four different emotional intelligence ability dimensions: 1) appraisal and expression of emotion in the self, 2) appraisal and expression of emotion in others, 3) regulation of emotion in the self, and 4) use of emotion to facilitate performance (Libbrecht, Lievens, & Schollaert, 2010).

Another explanation to the conflicting findings between the current and prior studies could be that there is seldom agreement on the definitions of leadership effectiveness and that different raters (or researchers) utilized different criteria to assess leaders’ effectiveness (Cooper & Nirenberg, 2004; Yukl, 2011, 2013). For example, this doctoral research used the 360-degree Leadership Assessment Program survey based on the ABC Electric Company’s seven performance areas including safety leadership, organization values, change and innovation, talent management, communication with impact, leadership with vision, and sound decision making, to define and assess leadership effectiveness. Hur et al. (2011), on the other hand, utilized the Multifactor Leadership Questionnaire based on four assessment areas, such as transformational leadership, transactional leadership, passive or avoidant leadership, and outcomes of leadership, to quantitatively measure perceived leadership effectiveness, with questions such as “Is effective in meeting my job related needs” (p. 596).
The lack of support for hypothesized relational association between leaders’ emotional intelligence and their perceived leadership effectiveness in this research does not necessarily indicate that the said relationship does not exist. Rather, the more appropriate interpretation of the results is that this research does not support the relationship between leaders’ emotional intelligence scores as measured by the Emotional Intelligence Appraisal and their perceived leadership effectiveness ratings as measured by the 360-degree Leadership Assessment Program. A further explanation for the findings could also be that the 360-degree LAP assessment instrument was designed specifically to evaluate certain leadership competencies considered critical to management positions at the ABC Electric Company. While the notion that the EIA scores might correlate with the LAP ratings appeared logical and intuitively satisfying when designing this research initially, it is important to recognize that the LAP instrument was not designed or developed specifically for or with that requirement in mind.

**Research Question 2 (RQ2) and Hypothesis 2 (H2).** Based on the multiple regression analysis test, the results suggested that the leaders’ emotional intelligence dimensions or subscales of self-awareness, self-management, social awareness, and relationship management, were not particularly good at predicting leadership effectiveness (Adj R square = 0.014). In other words, leaders’ emotional intelligence dimensions could not significantly predict their perceived leadership effectiveness \(F (4, 86) = 1.325, p = 0.267\). This led to a conclusion that Hypothesis 2 was not supported. Having said that, the results from the multiple regression analysis test appear to agree with Antonakis’ (2004, 2009) past research who did not find any study that was well designed or showed that emotional intelligence could predict leadership to a practically useful extent. Antonakis (2009) also stated that the emotional intelligence product, at its current state, is badly designed. Its basis currently lacks empirical support because of the
infancy of emotional intelligence research. And given the sparse supporting empirical evidence with defensible scientific criteria in research, he suggests that “it is unethical and unconscionable to use these [emotional intelligence] measures in applied settings (i.e., for hiring, promotion, or retention …)” (Antonakis et al., 2009, p. 248).

**Research Implications**

The researcher aimed to examine the relationship between leaders’ emotional intelligence and their leadership effectiveness. Additionally, he carried out this research to confirm the extent to which emotional intelligence dimensions could predict the perceived level of leadership effectiveness. The following section discusses the implications for theory, research, and practice in light of the researcher’s original motivation for beginning the research as stated above.

**Implications for theory.** The research findings gave a rather disappointing conclusion. Overall, the results were more aligned with various opposing views, to claims by Goleman (1998, 2000, 2004), that emotional intelligence may not be theoretically needed for leadership. Also, at this stage of science, emotional intelligence cannot be proven to be useful or at the least has yet to show much utility for leadership (Antonakis, 2004; Antonakis et al., 2009).

**Implications for research.** Although these research results failed to support the promising claims by emotional intelligence proponents regarding the potential role of emotional intelligence in effective leadership, they do not rule out the possibility that emotional intelligence could play a critical role. As the definitions of emotional intelligence and leadership effectiveness are better defined and well accepted, future research should be conducted to assess if a relationship between both can be established and further explored. Similarly, as newer emotional intelligence measures are developed and older tools are refined with better criteria prediction in mind, it could be expected that validities in future studies will improve accordingly.
It may be unfair to judge the current state of research in emotional intelligence and leadership effectiveness using findings from earlier or outdated measuring instruments (Harms & Crede, 2010). Nonetheless, these results do reflect the current state of research aimed at correlating emotional intelligence to leadership effectiveness.

**Implications for practice.** The ABC Electric Company identified emotional intelligence as an important leadership competency for assessing its leaders and professional employees. Within this standpoint, the absence of significant relationships between leaders’ emotional intelligence and their perceived leadership effectiveness is important to the company and potentially other organizations, wanting to improve their organization and leadership performance outcomes. From this research, it appears that organizational efforts may have potentially been wasted in regard to their efforts to assess and improve leaders’ emotional intelligence using the Emotional Intelligence Appraisal. The company could have redirected their resources and their time to other leadership development or performance areas that have been known and validated from research to provide more significant returns on investment to the organization and its leaders.

Furthermore, an area of particular interest in the findings was the descriptive statistics of each leadership effectiveness survey item. The results show that the participating managers at ABC Electric Company, on average, were rated between “Effective” and “Very Effective” in all performance areas of their leadership effectiveness assessment. According to the Development Dimensions International, Inc., these managers have demonstrated the leadership behaviors effectively and at times with a high level of effectiveness. The participating managers, however, could have demonstrated the behaviors in these performance areas with superior effectiveness (or become a role model to others in the behaviors being evaluated). With some training,
development, and mentorship in these performance areas, the managers could see a big improvement in their leadership effectiveness.

It is also important to point out that the “Manages Talent” performance area yielded the lowest mean and minimum ratings among seven leadership effectiveness performance areas. This performance area needed a special and immediate attention because it showed that some leaders were perceived by others as “Somewhat Effective,” meaning that they demonstrated leadership behaviors with marginal effectiveness. The company needs to investigate further on how their leaders can improve their talent management skills, for example recruitment, employee development, recognitions, or performance management. Accordingly, the company should consider investing its time and resources in the development of their leaders in the talent management performance area to help enhance the leaders’ overall leadership effectiveness.

Lastly, even though the study’s findings could not be broadly generalized due to certain limitations, they are still important to consider for researchers and practitioners. It appears that many promising claims espoused regarding emotional intelligence for desired leadership outcomes, such as leadership effectiveness and performance, still need to be empirically confirmed. Again, this research showed that the relationship between emotional intelligence and leadership effectiveness does not exist. Therefore, additional studies are needed in this area of the construct including its measurement instruments before such claims could be accepted and applied in practice.

**Research Limitations**

Although this research is based on well-recognized theoretical perspectives and the use of a multi-source, diverse group of participants, some limitations need to be considered and discussed here. First, the research is limited in conclusions to the available data from a group of
specific participants, a particular setting and treatment of the study, and a specific time period when the study was carried out. That is, the research involved a group of 91 senior managers and over 1000 employees in a large public-sector (utility) corporation in Southern California. This group of participants and their raters possessed a certain mixture of racial, social, geographical, age, gender, and personality characteristics. Moreover, the research was conducted at a point in time between 2013 and 2014 when the social, political, and economic conditions in the United States were unique and somewhat different from the past and, potentially, from the future. Therefore, the research findings should be analyzed carefully and responsibly before applying them to other populations, locations, or time periods that differ substantially from the study’s population, location, and time period. Further replication of the type of study and additional empirical verification could help confirm the findings and their significance beyond the boundaries of this research.

Secondly, this research defined the terms “emotional intelligence” and “leadership effectiveness” in a specific manner in Chapter 1 under Theoretical Frameworks. Emotional intelligence was defined in this research as “an ability to recognize the meanings of emotions and their relationships, and to reason and problem-solve on the basis of them” (Mayer et al., 1999, p. 267). The term leadership effectiveness was described as the successful exercise of personal influence that results in accomplishing shared objectives in a way that is personally satisfying to those involved (Cooper & Nirenberg, 2004). Furthermore, the research studied emotional intelligence and leadership effectiveness based on how leaders were perceived and evaluated in their Emotional Intelligence Appraisal and the 360-degree Leadership Assessment Program, respectively by themselves and others. The research findings, therefore, may not be generalized or oversimplified beyond the said definitions of emotional intelligence and leadership
effectiveness. In order words, the researcher’s ability to draw correct inferences from this study is limited to a specific interpretation of both terms as stated in Chapter 1.

Another important limitation of this research includes the possibility of: 1) systematic bias due to participants’ self-report data and 2) response effect bias where raters respond or modify their answers in more socially and culturally acceptable manners (Butin, 2010; Tang et al., 2010). To illustrate, the Emotional Intelligence Appraisal scores were self-reported data, solely reflecting leaders’ perceptions of their own emotional intelligence competencies. The self-reported data could be highly biased and may limit the researcher’s ability to compare how leaders perceived their own emotional intelligence abilities to the perceptions of others, such as direct supervisors, followers, and peers. In addition, the raters who evaluated their leaders might not provide accurate or truthful responses in the 360-degree Leadership Assessment Program surveys. Or, they might reply to the surveys in such a way that conforms to existing norms or their personal beliefs regarding effective leadership behaviors at a point in time. This could have a direct impact on the validity of the research findings and greatly limit the researcher’s ability to draw accurate or practical conclusions from the study.

Lastly, further limitations of this research relate to the measuring instruments and the methodology used. The current instruments, EIA and 360-degree EAP surveys, and the data collection and analysis procedures examined the relationship between the leaders’ emotional intelligence and their perceived leadership effectiveness. They did not intend to explore other competing constructs, such as IQ and personality, which could be present and potentially affect the relationship. Additionally, there was no attempt to control other variables, such as age, gender, years of service, and time in title, when measuring emotional intelligence and leadership effectiveness and validate the probable relationship between them. These weaknesses could
result in limited conclusions and applications due to lack of discriminant and incremental validities. As newer emotional intelligence and leadership effectiveness measuring instruments and methods are developed and become available, it could be expected that validities in these areas will improve in future studies.

**Areas of Further Research**

Additional research is needed to confirm and advance the understanding of emotional intelligence and its role in leadership practice. Most importantly, the definitions of emotional intelligence and leadership effectiveness require further development, clarification, and socialization. Currently, both terms and their underlying assumptions are defined, viewed, and utilized by various scholars and practitioners somewhat differently and to varying degrees. There are no single, agreed-upon definitions, models, or instruments that accurately or completely describe and measure their competencies and effectiveness. A careful review and consideration of both terms is often required to understand and compare among researchers’ perspectives to their conclusions. With the universal (or more closely aligned) definitions of the terms, future studies can be carried out to test the theoretical frameworks properly and to determine whether or not emotional intelligence matters for leadership. Also, their findings could potentially be generalized and applied more broadly and consistently across various populations, settings or treatments, and time periods than the present research findings could.

Furthermore, how to measure emotional intelligence is one of the controversial topics in the current literature. Various researchers often question the validity of available measurement instruments and past research designs (Antonakis, 2004; Antonakis et al., 2009; Weinberger, 2009). One reason is that emotional intelligence measures are often self-reported or single-source assessments. The data from these types of assessments can often be highly biased and is
often contested (Antonakis et al., 2009). In addition, the ability to test emotional intelligence is often limited. Most, if not all, tests and their procedures typically access abilities long after real-time emotional events. As such, this increases the probability of retrospective biases considerably. That is, individuals tend to report, or alter their responses, with what they should have felt rather than what they actually experienced at the time (Cote et al., 2010; Gooty et al., 2010). Moreover, only on rare occasions, emotional intelligence instruments test for incremental validity above and beyond measures of intelligence and personality. This means the emotional intelligence instruments could potentially measure something different from the competing constructs (Antonakis, 2004; Antonakis et al., 2009; Harms & Crede, 2010). Having mentioned these weaknesses, additional research is necessary to improve and standardize emotional intelligence measuring instruments and research designs. This is to ensure that the emotional intelligence theoretical framework is properly tested and, thus, yields valid and reliable results in future studies.

The last area for future research is to explore the emotional intelligence and leadership constructs from a qualitative perspective. According to Weinberger (2009), this methodology should be considered and is recommended here because both theoretical concepts can often be difficult, if not impossible, to observe, measure, and understand at times. Also, the emotional intelligence assessments could be very time-consuming and sometimes costly to gather, store, and analyze quantitatively. A better and more in-depth understanding may be gained possibly via a different research approach. That is, leaders’ emotional intelligence and behaviors could be further explored objectively and systematically through a qualitative lens. The qualitative research design can potentially confirm the findings of this research. It may also result in
additional knowledge that could be gained solely by this approach and, accordingly, advance the understanding of emotional intelligence and leadership in future studies.

Conclusion

In recent years, the emotional intelligence construct has gained much attention as a potential and important underlying attribute of effective leadership (Goleman, 1998, 2000, 2004). There are various viewpoints (both for and against) regarding whether or not the relationship between emotional intelligence and leadership effectiveness exists. The purpose of this doctoral study was to examine the said relationship and explore the extent to which emotional intelligence dimensions could predict the perceived level of leadership effectiveness. Two years of quantitative survey data was collected from 91 senior managers and over 1,000 employees in one of America’s largest investor-owned utility companies in Southern California. The findings for Research Question 1 suggest that leaders’ emotional intelligence has no significant relationship with the perceived level of leadership effectiveness. Moreover, the findings for Research Question 2 show emotional intelligence dimensions could not statistically and significantly predict the perceived level of leadership effectiveness.

In conclusion, the findings did not support the hypothesized relationships (Hypotheses 1 and 2) between leaders’ emotional intelligence and their perceived leadership effectiveness. It is important to note that the lack of support from this study does not necessarily mean that the relationships do not exist or that emotional intelligence does not play a critical role in leadership practice. The findings simply reflect the current state of science and the fact that this research failed to support the hypotheses using the Emotional Intelligence Appraisal and the 360-degree Leadership Assessment Program surveys. Therefore, the findings should be analyzed carefully and responsibly before applying them in future research and practice. Further replication of this
type of study and additional empirical verification is highly recommended to confirm the results and their significance beyond the boundaries of this research.

Lastly, additional research is needed to clarify and advance the understanding of the emotional intelligence construct in the field of leadership. Most importantly, the definitions of emotional intelligence and leadership effectiveness should possibly be studied, viewed, and utilized widely in a similar manner. Furthermore, the measuring instruments and procedures should continue the development and refinement to improve their validity and reliability and, accordingly, the results of future studies. It is also recommended here in this research that the relationship between emotional intelligence and leadership should be explored further from a qualitative lens. This approach may result in additional knowledge or a more in-depth understanding of emotional intelligence. It could also advance the understanding of leadership related to emotional intelligence.
References


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Appendix A – Emotional Intelligence Appraisal (EIA) Sample

Emotional Intelligence Appraisal Sample Questions:

For each question, select one box according to how often you …

1. Are confident in your abilities (Self-Awareness)
   - o Never
   - o Usually
   - o Rarely
   - o Almost Always
   - o Sometimes
   - o Always

2. Can be counted on (Self-Management)
   - o Never
   - o Usually
   - o Rarely
   - o Almost Always
   - o Sometimes
   - o Always

3. Are open to feedback (Social Awareness)
   - o Never
   - o Usually
   - o Rarely
   - o Almost Always
   - o Sometimes
   - o Always

4. Directly address people in difficult situations (Relationship Management)
   - o Never
   - o Usually
   - o Rarely
   - o Almost Always
   - o Sometimes
   - o Always
Appendix B – 360-Degree Leadership Assessment Program (LAP)

**Creates a Safety Culture**

1. Embraces and supports safety programs
   - Not at all Effective
   - Somewhat Effective
   - Very Effective
   - Extremely Effective
   - Effective
   - Unable to Rate

2. Effectively leads, promotes, and influences own work group to create a safe work environment and achieve improved safety results
   - Not at all Effective
   - Somewhat Effective
   - Very Effective
   - Extremely Effective
   - Effective
   - Unable to Rate

3. Actively holds themselves and those working with them accountable to follow safety rules, policies, and guidelines
   - Not at all Effective
   - Somewhat Effective
   - Very Effective
   - Extremely Effective
   - Effective
   - Unable to Rate

4. Acts as a safety role model consistent with the company’s Safety Commitment Statement
   - Not at all Effective
   - Somewhat Effective
   - Very Effective
   - Extremely Effective
   - Effective
   - Unable to Rate

5. Proactively and consistently pursues safety improvement opportunities
   - Not at all Effective
   - Somewhat Effective
   - Very Effective
   - Extremely Effective
   - Effective
   - Unable to Rate

6. Enthusiastically recognizes co-workers of all levels for their efforts to model and improve our safety performance and culture
   - Not at all Effective
   - Somewhat Effective
   - Very Effective
   - Extremely Effective
   - Effective
   - Unable to Rate

**Values**

1. Models work behaviors that reinforce our company values
   - Not at all Effective
   - Somewhat Effective
   - Very Effective
   - Extremely Effective
   - Effective
   - Unable to Rate

2. Treats people with respect and assumes positive intentions
   - Not at all Effective
   - Somewhat Effective
   - Very Effective
   - Extremely Effective
   - Effective
   - Unable to Rate

3. Creates an environment where employees feel supported and can learn from mistakes
   - Not at all Effective
   - Somewhat Effective
   - Very Effective
   - Extremely Effective
   - Effective
   - Unable to Rate
**Advances Innovative Solutions**

1. Encourages continued learning
   - Not at all Effective
   - Somewhat Effective
   - Effective
   - Very Effective
   - Extremely Effective
   - Unable to Rate

2. Rewards innovative thinking
   - Not at all Effective
   - Somewhat Effective
   - Effective
   - Very Effective
   - Extremely Effective
   - Unable to Rate

3. Supports the exploration of new ideas
   - Not at all Effective
   - Somewhat Effective
   - Effective
   - Very Effective
   - Extremely Effective
   - Unable to Rate

4. Shapes new ideas into realistic business solutions
   - Not at all Effective
   - Somewhat Effective
   - Effective
   - Very Effective
   - Extremely Effective
   - Unable to Rate

5. Builds on others’ ideas
   - Not at all Effective
   - Somewhat Effective
   - Effective
   - Very Effective
   - Extremely Effective
   - Unable to Rate

6. Uses resources to support the development of new ideas
   - Not at all Effective
   - Somewhat Effective
   - Effective
   - Very Effective
   - Extremely Effective
   - Unable to Rate

7. Implements ideas that support company’s direction
   - Not at all Effective
   - Somewhat Effective
   - Effective
   - Very Effective
   - Extremely Effective
   - Unable to Rate

8. Implements ideas that are efficient
   - Not at all Effective
   - Somewhat Effective
   - Effective
   - Very Effective
   - Extremely Effective
   - Unable to Rate

9. Implements ideas that are effective
   - Not at all Effective
   - Somewhat Effective
   - Effective
   - Very Effective
   - Extremely Effective
   - Unable to Rate

10. Challenges the status quo
    - Not at all Effective
    - Somewhat Effective
    - Effective
    - Very Effective
    - Extremely Effective
    - Unable to Rate
Manages Talent

1. Hires Top Talent
   - Not at all Effective
   - Somewhat Effective
   - Very Effective
   - Extremely Effective
   - Effective
   - Unable to Rate

2. Provides constructive coaching and feedback on a regular basis
   - Not at all Effective
   - Somewhat Effective
   - Very Effective
   - Extremely Effective
   - Effective
   - Unable to Rate

3. Promotes top talent
   - Not at all Effective
   - Somewhat Effective
   - Very Effective
   - Extremely Effective
   - Effective
   - Unable to Rate

4. Provides direct reports with development opportunities
   - Not at all Effective
   - Somewhat Effective
   - Very Effective
   - Extremely Effective
   - Effective
   - Unable to Rate

5. Rewards teamwork
   - Not at all Effective
   - Somewhat Effective
   - Very Effective
   - Extremely Effective
   - Effective
   - Unable to Rate

6. Rewards individual performance
   - Not at all Effective
   - Somewhat Effective
   - Very Effective
   - Extremely Effective
   - Effective
   - Unable to Rate

7. Provides direct reports with resources to develop their capabilities
   - Not at all Effective
   - Somewhat Effective
   - Very Effective
   - Extremely Effective
   - Effective
   - Unable to Rate

8. Evaluates direct reports against realistic expectations
   - Not at all Effective
   - Somewhat Effective
   - Very Effective
   - Extremely Effective
   - Effective
   - Unable to Rate

9. Motivates direct reports
   - Not at all Effective
   - Somewhat Effective
   - Very Effective
   - Extremely Effective
   - Effective
   - Unable to Rate

10. Shapes the roles of direct reports to utilize their strengths
    - Not at all Effective
    - Somewhat Effective
    - Very Effective
    - Extremely Effective
    - Effective
    - Unable to Rate

11. Shapes the roles of direct reports to develop their capabilities
    - Not at all Effective
    - Somewhat Effective
    - Very Effective
    - Extremely Effective
    - Effective
    - Unable to Rate
   o Not at all Effective
   o Somewhat Effective
   o Effective
   o Very Effective
   o Extremely Effective
   o Unable to Rate

Communicates with Impact

1. Communicates honestly
   o Not at all Effective
   o Somewhat Effective
   o Effective
   o Very Effective
   o Extremely Effective
   o Unable to Rate

2. Listens actively
   o Not at all Effective
   o Somewhat Effective
   o Effective
   o Very Effective
   o Extremely Effective
   o Unable to Rate

3. Communicates relevant information
   o Not at all Effective
   o Somewhat Effective
   o Effective
   o Very Effective
   o Extremely Effective
   o Unable to Rate

4. Considers the perspectives of others when communicating
   o Not at all Effective
   o Somewhat Effective
   o Effective
   o Very Effective
   o Extremely Effective
   o Unable to Rate

5. Uses communication to maintain effective relationship
   o Not at all Effective
   o Somewhat Effective
   o Effective
   o Very Effective
   o Extremely Effective
   o Unable to Rate

6. Ensures that communicated expectation are carried out
   o Not at all Effective
   o Somewhat Effective
   o Effective
   o Very Effective
   o Extremely Effective
   o Unable to Rate

7. Communicates information in a timely manner
   o Not at all Effective
   o Somewhat Effective
   o Effective
   o Very Effective
   o Extremely Effective
   o Unable to Rate

8. Takes the needs of the audience into account when communicating information
   o Not at all Effective
   o Somewhat Effective
   o Effective
   o Very Effective
   o Extremely Effective
   o Unable to Rate

9. Communicates directly
   o Not at all Effective
   o Somewhat Effective
   o Effective
   o Very Effective
   o Extremely Effective
   o Unable to Rate

10. Ensures that communication is understood by all
    o Not at all Effective
    o Somewhat Effective
    o Effective
    o Very Effective
    o Extremely Effective
    o Unable to Rate
11. Adjusts communication style to the audience
   o  Not at all Effective  o  Somewhat Effective  o  Effective
   o  Very Effective  o  Extremely Effective  o  Unable to Rate

**Leads with Vision**

1. Supports others in developing strategic ideas
   o  Not at all Effective  o  Somewhat Effective  o  Effective
   o  Very Effective  o  Extremely Effective  o  Unable to Rate

2. Keeps others focused on the future
   o  Not at all Effective  o  Somewhat Effective  o  Effective
   o  Very Effective  o  Extremely Effective  o  Unable to Rate

3. Takes short and long-term needs into account when setting goals
   o  Not at all Effective  o  Somewhat Effective  o  Effective
   o  Very Effective  o  Extremely Effective  o  Unable to Rate

4. Aligns his/her vision to achieve business outcomes
   o  Not at all Effective  o  Somewhat Effective  o  Effective
   o  Very Effective  o  Extremely Effective  o  Unable to Rate

5. Communicates a strategic direction for the future
   o  Not at all Effective  o  Somewhat Effective  o  Effective
   o  Very Effective  o  Extremely Effective  o  Unable to Rate

**Makes Sound Decisions**

1. Respects those involved in the decision-making process
   o  Not at all Effective  o  Somewhat Effective  o  Effective
   o  Very Effective  o  Extremely Effective  o  Unable to Rate

2. Takes accountability for making decisions
   o  Not at all Effective  o  Somewhat Effective  o  Effective
   o  Very Effective  o  Extremely Effective  o  Unable to Rate

3. Takes accountability for acting on decisions made
   o  Not at all Effective  o  Somewhat Effective  o  Effective
   o  Very Effective  o  Extremely Effective  o  Unable to Rate

4. Makes timely decisions
   o  Not at all Effective  o  Somewhat Effective  o  Effective
   o  Very Effective  o  Extremely Effective  o  Unable to Rate
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<td>5. Analyzes problems adequately before making decisions</td>
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<td>o Not at all Effective</td>
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<td>o Very Effective</td>
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<td>6. Incudes the right people in the decision-making process</td>
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<td>o Very Effective</td>
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<td>7. Makes difficult decisions when they are in company’s best interest</td>
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<td>o Not at all Effective</td>
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<td>8. Takes appropriate risks</td>
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<td>9. Encourages others to take appropriate risks</td>
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<td>o Unable to Rate</td>
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</table>
Appendix C – Approval Letter to Conduct Research

May 27th, 2015

Human Resources (HR) Organizational Unit
Rosemead, California 91770

Re: Letter of Authorization to Conduct Research at [redacted]

To Whom It May Concern:

This letter will serve as authorization for Mr. David Narong, a doctoral student at Northeastern University, to conduct a research study at [redacted] (“Company”) on “The Relationship between Leaders’ Emotional Intelligence and Their Perceived Leadership Effectiveness.”

The data for the said study is existing and was collected entirely by the Company. The data will be provided to Mr. Narong in such a way that the subjects cannot be identified either directly or indirectly through identifiers linked to the subjects. Moreover, Mr. Narong will work with our HR representative(s) who act(s) as his point of contact to obtain and review the data without him having any access to the subjects. All data will be reviewed and cleared by our representative(s) prior to making it available to Mr. Narong.

Lastly, the Company stipulates a confidentiality condition as part of this authorization that Mr. Narong will not use the name of company in any part of the research study and its future publication.

Should there be any questions or concerns, please contact me at [redacted] or (XXX) XXX-XXXX.

Sincerely,

Signature on file

Jeffrey Thrift, Ed.D.
Principal Manager, Leadership Development
Appendix D – NU Institutional Review Board Approval

NOTIFICATION OF IRB ACTION

Date: July 22, 2015
IRB #: CPS15-06-08

Principal Investigator: Yufeng ‘Jennifer’ Qian
David Narong

Department: Doctor of Education
College of Professional Studies

Address: 20 Belvidere
Northeastern University

Title of Project: The Relationship Between Leaders’ Emotional Intelligence and their Perceived Leadership Effectiveness

Participating Sites: Data agreement on file

Approval Status: Approved

DHHS Review Category: EXEMPT, CATEGORY #4

C. Randall Colvin, Ph.D., Chair
Northeastern University Institutional Review Board

Nan C. Regina, Director
Human Subject Research Protection

This approval applies to the protection of human subjects only. It does not apply to any other university approvals that may be necessary.

No further action or IRB oversight is required, as long as the project remains the same. However, you must inform this office of any changes in procedures involving human subjects. Changes to the current research protocol could result in a reclassification of the study and further review by the IRB.

Northeastern University FWA #4630
Appendix E – Assumption Checking Results

I. Pearson’s correlation assumption test: As shown below, the data were validated and met all four assumptions required for Pearson’s correlation test:

Assumption #1: Two variables were measured on a continuous scale. Emotional intelligence scores (measured from 0 to 100) and 360-degree leadership effectiveness ratings (between 0 and 5 for each performance area and between 0 and 35 for a composite rating) met this assumption.

Assumption #2: There was a linear relationship between the two variables, emotional intelligence scores and leadership effectiveness ratings, from inspection of the scatterplot diagram below.

![Figure E1. SPSS scatterplot diagram output (Pearson's correlation assumption test)](image)

Figure E1. SPSS scatterplot diagram output (Pearson’s correlation assumption test)

Assumption #3: From inspection of the scatterplots created in Assumption #2, it was concluded that there were no significant outliers in the data set being studied.

Assumption #4: The assumption of normality was not violated as the “Sig.” values under the “Shapiro-Wilk” are greater than 0.05 \( (p > 0.05) \). This is because the Shapiro-Wilk test tested the
null hypothesis that the data’s distribution is equal to a normal distribution. Therefore, the variables, emotional intelligence and leadership effectiveness, are normally distributed.

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<tr>
<th>Tests of Normality</th>
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* This is a lower bound of the true significance.

<sup>a</sup> Lilliefors Significance Correction

Figure E2. SPSS tests of normality output (Pearson’s correlation assumption test)

II. Multiple regression analysis assumption test: As shown below, the data were validated and met all eight assumptions required for the multiple regression analysis test:

Assumption #1: The dependent variable was measured on a continuous scale. The level of perceived leadership effectiveness (between 0 and 5 for each performance area and between 0 and 35 for a composite rating) was continuous and met this assumption.

Assumption #2: The independent variables were continuous. Four emotional intelligence dimension scores (measured from 0 to 100) were continuous and met this assumption.

Assumption #3: There was independence of residuals as assessed by a Durbin-Watson statistic of 1.911 (a value of approximately 2 indicates that there is no correlation between residuals).

<table>
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<tr>
<th>Model Summary&lt;sup&gt;b&lt;/sup&gt;</th>
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<td>.241&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>.014</td>
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<sup>a</sup> Predictors: (Constant), Relationship_Mgmt, Self_Management, Self_Awareness, Social_Awareness

<sup>b</sup> Dependent Variable: Effective_Rating_Others

Figure E3. SPSS Durbin-Watson output (multiple regression assumption test)
**Assumption #4:** There appeared to be a linear relationship between the dependent variable and each of the independent variables and the dependent and independent variables collectively. This assumption was validated by scatterplots and partial regression plots using the SPSS software. See Figures E4 to E8 for more details.

*Figure E4.* SPSS scatterplot diagram output (multiple regression assumption test)

*Figure E5.* SPSS partial regression diagram output between self-awareness and leadership effectiveness (multiple regression assumption test)
**Figure E6.** SPSS partial regression diagram output between self-management and leadership effectiveness (multiple regression assumption test)

**Figure E7.** SPSS partial regression diagram output between social awareness and leadership effectiveness (multiple regression assumption test)
Assumption #5: The data showed homoscedasticity based on the review of the scatterplot diagrams between the studentized residuals and the unstandardized predicted values (refer to Figure E4 for more details). That is, the studentized residuals were equally spread over the unstandardized predicted values of the dependent variable. In other words, the spread of the residuals did not increase or decrease as you move across the predicted values.

Assumption #6: None of the independent variables have correlations greater than or equal to 0.95 (see Figure E9 for more details). In addition, when performing collinearity diagnostics for each independent variable, the results show that there were no multi-collinearity issues (Tolerance > 0.20 and VIF < 10.0) (see Figures E10 – E13 for more details). Therefore, the researcher was fairly confident that there was no problem with multi-collinearity in the particular data set.
**Figure E9.** SPSS correlations output (multiple regression assumption test)

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<tr>
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<th>Effective_Rating_Others</th>
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**Coefficients**

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- Dependent Variable: Self_Awareness

**Figure E10.** SPSS collinearity analysis output (self-awareness)

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- Dependent Variable: Self_Management

**Figure E11.** SPSS collinearity analysis output (self-management)
### Assumption #7

There were no significant outliers. The SPSS did not produce the Casewise Diagnostics table. Note there were no unacceptably high leverage or influential points (No residuals SDR > ± 3SDs and no leverage values LEV > 0.2).

### Assumption #8

The residuals (errors) were approximately normally distributed. This assumption was met by creating the histogram and the Normal P-P plot in the SPSS software. Figure E14 shows that the standardized residuals appear to be approximately normally distributed. In addition, Figure E15 confirms that the residuals are normally distributed as the points are aligned along the diagonal line.
Figure E14. SPSS histogram output (multiple regression assumption test)

Figure E15. SPSS normal P-P plot output (multiple regression assumption test)