

**THE EFFECT OF EMOTIONAL INTELLIGENCE ON  
EMOTIONAL COMPETENCE AND TRANSFORMATIONAL LEADERSHIP**

by

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**Approval Page**

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**Abstract****THE EFFECT OF EMOTIONAL INTELLIGENCE ON  
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by

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Transformational leadership is often characterized as a form of leadership that is based on trust, admiration, and an emotional connection between the leader and the followers.

Therefore, it is not surprising that many researchers have examined and expected to find a positive relationship between emotional intelligence and transformational leadership.

However, the results of that research have revealed inconsistent findings. Several researchers have suggested that the inconsistencies are due to problems with the definition of emotional intelligence and a lack of clear mediating variables between emotional intelligence and transformational leadership. One potential mediating variable that has been suggested, but never tested, is that of emotional competence. Therefore, the current studies examined the effect of emotional intelligence on emotional competence and transformational leadership. In two studies, participants completed measures of emotional intelligence, emotional competence, and transformational leadership. It was predicted that higher levels of emotional intelligence predict emotional competence, which in turn predict transformational leadership. The data did not provide support for emotional competence as a mediator, and there was mixed support for the predicted relationships between emotional intelligence and emotional competence and between emotional competence and transformational leadership. In addition to the hypothesis

testing, factor structure support was obtained for the newly developed emotional, intellectual, and managerial competence measures. However, the factor structures of the new behavioral measures of transformational leadership were not supported. Future research suggestions, limitations of the current studies, and applied implications are discussed.

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## **Chapter 1**

### **Introduction**

Emotional intelligence has received a great deal of attention in both the academic and popular press literatures over the last 10 years. In fact, Daniel Goleman, the leading popular press author of emotional intelligence books, has gone so far to say that emotional intelligence is twice as important as technical skills, more important than IQ for jobs at all levels, and the distinguishing factor between great and average leaders (Goleman, 1995). It is the proposed link between emotional intelligence and leadership that sparked the interest of researchers as well as the corporate world (Mayer, Salovey, & Caruso, 2008; Goleman & Boyatzis, 2008; Caruso & Salovey, 2004).

In particular, research on the link between emotional intelligence and transformational leadership has begun to emerge (Barling, Slater & Kelloway, 2000; Gardner & Stough, 2002; Mandell & Pherwani, 2003; Beshears, 2004; Brown & Moshavi, 2005; Barbuto & Burbach, 2006; Brown, Bryant, & Reilly, 2006; Hoffman & Frost, 2006). Transformational leadership theory has received more attention in the last 20 years than any other leadership theory. However, the predominant focus has been on outcomes rather than antecedents (Barbuto & Burbach, 2006). The limited amount of research that has been conducted on the antecedents of transformational leadership has included the role of personality traits (Beshears, 2004; Bono & Judge, 2004), cognitive ability (Nguyen, 2002; Beshears, 2004), and affect (Beshears, 2004). Such variables have been found to only explain a moderate amount of variance. However there may be more promise for emotional intelligence as a potential antecedent given that a basic tenet of transformational leadership is that these types of leaders influence subordinates not only

through the use of logic and reasoning but also through the use of emotion (Bass, 1985). The goal of the current studies is to investigate whether emotional intelligence predicts transformational leadership and if this relationship is mediated by emotional competence. Two studies were conducted to test these predictions.

Researchers have suggested that not only is emotional intelligence important for the success of an individual in an organizational setting in general, but that emotional intelligence becomes more important as individuals rise into leadership positions (e.g. Dulewicz & Higgs, 2000, 2003; Goleman, Boyatzis, & McKee, 2002). A number of researchers have found positive relationships between emotional intelligence and effective leadership (e.g., Higgs & Aitken, 2003; Sosik & Megerian, 1999; Kerr, Garvin, Heaton, & Boyle, 2006). As a result, there has been an assumption that emotional intelligence also predicts transformational leadership (Abraham, 2004).

The assumed relationship between emotional intelligence and transformational leadership makes sense when examining the definitions of each construct. Emotional intelligence has been defined by Salovey and Mayer (1990), the researchers who first established the term, as a group of related mental abilities that include the ability to monitor one's own and others' feelings and emotions, to discriminate among them, to use this information to guide one's thinking and actions, and to manage the emotions of others. Transformational leadership consists of factors that arguably have an emotional component such as idealized influence, inspirational motivation, and individualized consideration and is defined by behaviors that center on emotion such as lifting team spirit, arousing strong emotions among followers, and meeting followers' individual emotional needs (Bass, 1985). One can see the possible relationship between emotional

intelligence and transformational leadership in that it would make sense that leaders who have the ability to monitor their own and others' feelings are also more likely to arouse strong emotions among followers. Along the same lines, leaders who can discriminate among emotions and use emotional information to guide thinking and actions may be more skilled at identifying follower needs, determining ways to meet those needs and would possess knowledge of employees' emotions to help meet the needs of each individual.

Yet despite these intuitive links, the research that has examined the relationship between emotional intelligence and transformational leadership has resulted in inconsistent findings. Evidence for this relationship includes regression analyses revealing that overall emotional intelligence scores on Bar-On's (1997) self-report emotional intelligence inventory (EQ-i) predict transformational leadership style ( $R^2 = .25$ ) (Mandell & Pherwani, 2003), strong correlations between emotional intelligence scores on the Swinburne University Emotional Intelligence Test (SUEIT, Palmer & Stough, 2001) and all four components of transformational leadership ( $r_s > .54$ ; Gardner and Stough, 2002), positive relationships between scores on an emotional intelligence test developed by Carson and colleagues (Carson, Carson & Birkenmeier, 2000) and ratings of transformational leadership ( $r_s > .12$ ; Barbuto and Burbach, 2006), and a significant relationship between emotional intelligence as measured by the Mayer-Salovey-Caruso Emotional Intelligence Test (Mayer, Salovey & Caruso, 2000) and one component of transformational leadership, inspirational motivation ( $R^2 = .09$ ; Beshears, 2004). On the other hand, a study by Beshears (2004) revealed no evidence of relationships between MSCEIT scores and the individualized consideration, idealized influence, or intellectual

stimulation dimensions of transformational leadership, and overall MSCEIT scores explained only 3% of variance in overall transformational leadership scores. Similarly, Brown and colleagues (2006) found no support for a relationship between EQ-i scores and ratings of transformational leadership. Weinberger (2004) examined the relationship between ability-based emotional intelligence scores on the MSCEIT and transformational leadership ratings on the MLQ (Bass & Avolio, 1995) and also found no significant relationships.

Reasons for the inconsistency in findings may be due to the lack of consensus on the definition of emotional intelligence. Emotional intelligence is currently defined in different ways by different researchers. As previously mentioned, the ability model as proposed by Mayer, Salovey, and colleagues (Mayer & Salovey, 1993, 1995, 1997; Mayer et al., 2000), consists of four major components of emotional intelligence. These include the ability to: appraise and express emotion, use emotion to enhance cognitive processes and decision-making, understand emotions, and regulate and manage emotions. The distinguishing feature of this definition is that emotional intelligence is described as an aptitude or ability. In contrast, other scholars define emotional intelligence as a mix of competencies and traits. For example, Bar-On (2000) defines emotional intelligence as a mixture of noncognitive abilities, competencies, skills, and traits, including flexibility, happiness, optimism, assertiveness, and empathy. Others such as Goleman (1995; 1998) and Boyatzis and colleagues define emotional intelligence as the ability to exhibit self-awareness, self-management, social awareness, and social skills, but operationalize their definition through emotional competencies (Boyatzis, Goleman, & Hay/McBer, 1999). The competencies, including innovation, communication, trustworthiness, and

adaptability, are proposed to represent the manifestation or evidence of emotional intelligence (Boyatzis et al., 1999).

In addition to construct definition issues, measurement issues may also be to blame for the inconsistent findings with regard to emotional intelligence and transformational leadership. Emotional intelligence is assessed in various ways, depending on the conceptualization of the construct. Ability-based emotional intelligence is measured by devices such as the MSCEIT that assesses performance on tasks, while trait-based emotional intelligence is measured by methods such as Bar-On's self-report EQ-i and Boyatzis and colleagues' multi-rater Emotional Competence Inventory (ECI; Boyatzis et al., 1999). These different measurement approaches for emotional intelligence may be partly to blame for the mixed findings. It is also possible that measurement problems impact the transformational leadership construct as well and that this further contributes to the inconsistencies in the literature. Transformational leadership is almost always measured using the MLQ. While the MLQ provides the option to use multiple raters to evaluate the frequency of transformational leadership behaviors, many researchers have cited the use of a questionnaire-based assessment of transformational leadership as a methodological flaw (Beshears, 2004; Barbuto & Burbach, 2006; Brown et al, 2006; Hoffman & Frost, 2006) and specified the need for other sources of data to provide measures that are more construct valid.

In terms of the current study and its focus on further examining the nature of the inconsistent emotional intelligence and transformational leadership relationship, an ability-based approach to emotional intelligence will be used. The rationale for this choice is that ability-based scales that measure how well people perform tasks and solve

emotional problems are more likely to stand the test of academic scrutiny than those scales that rely on self-report formats (Brown & Moshavi, 2005). Additionally, the ability-based MSCEIT provides a measure of emotional intelligence by asking relevant questions and evaluating answers to these questions against a criterion of correctness, an approach most often used when measuring intelligences or mental abilities (Carroll, 1993). The expert scoring approach of the ability-based MSCEIT was developed using the pooled responses of 21 emotions researchers (Mayer, Salovey, Caruso, & Sitarenios, 2003). The answers given by these individuals are considered to be “correct” answers, and therefore individuals who respond in the same way are considered to have answered correctly. According to Roberts and his colleagues, the criterion of correctness approach links the scoring process directly to the definition of the construct (Roberts, Zeidner, & Matthews, 2001).

Empirical evidence also supports the use of an ability-based measure. Mabe and West’s (1982) meta-analysis revealed weak relationships between self-report scores and both interpersonal skills ( $r = .17$ ) and managerial competence ( $r = .04$ ), suggesting that an ability-based measure may be a more accurate way to measure emotional intelligence in the context of management and leadership. Furthermore, there is substantial empirical evidence that ability tests such as the MSCEIT measure emotional intelligence rather than other constructs, while other self-report-based emotional intelligence scales possess considerable overlap with personality traits such as Neuroticism, Extraversion, and Conscientiousness (Brackett & Mayer, 2003; Newsome, Day, & Catano, 2000). Finally, Bono and Judge’s (2004) meta-analysis produced little support for a strong predictive relationship between personality traits and transformational leadership ( $r_s \leq .19$ ),

suggesting that an ability-based approach that has little overlap with personality is more appropriate when examining the relationship between emotional intelligence and transformational leadership. Therefore, the ability-based conceptualization and measurement of emotional intelligence has been selected for the current proposed studies.

In addition, the current studies will attempt to overcome limitations of solely using an MLQ approach to measuring transformational leadership by gathering behavioral data. As previously mentioned, self-report scores and measures of managerial competence are weakly related to one another (Mabe & West, 1982). This may be because impression management often leads to inflated self-ratings (Farh & Werbel, 1986), reflecting a bias that protects self-esteem (Jackson, Stillman, Burke, & Englert, 2007). Although there are no studies specifically examining the difference between self-ratings and behavioral ratings of transformational leadership, empirical support for the use of behavioral ratings of leadership can be found in the assessment center literature. For example, Franks and his colleagues found significant differences between assessor ratings of performance and self-ratings, with assessor ratings generally being lower (Franks, Ferguson, Rolls, & Henderson, 1998). Therefore, the proposed studies will also include behavioral measures of transformational leadership in order to improve upon previous research.

The inconsistent findings from studies examining the relationship between emotional intelligence and transformational leadership have also been attributed to a lack of clear mediating variables (Sivanathan & Fekken, 2002; Barbuto & Burbach, 2006). Several leading emotional intelligence researchers have suggested that emotional competence is one such possible mediator. According to Goleman (1998), ability-based

emotional intelligence is the basis for emotional competence, and it is emotional competence, in turn, that functions as the antecedent to performance and leadership. Interestingly, according to Cherniss (2001), Mayer, Salovey, and Caruso agree with Goleman that ability-based emotional intelligence provides the foundation for the competencies that predict performance and leadership, and that it is these competencies that impact job performance or leadership. As noted by Cherniss (2001), these researchers believe in the existence of this mediated relationship through emotional competencies and don't think a direct relationship exists between ability-based emotional intelligence and these outcomes.

Therefore, there appears to be consensus among these researchers and others that ability-based emotional intelligence leads to emotional competence (Cherniss, 2001; Dulewicz & Higgs, 2000). This would mean that merely possessing high ability-based emotional intelligence is insufficient, that emotional intelligence abilities only suggest that an employee has the capability for learning and displaying emotional competence, not that the competence has actually been learned or will be displayed (Abraham, 2004). Hence, it seems that these researchers are suggesting that emotional competence mediates the relationship between an ability-based emotional intelligence and other behaviors reflecting performance including the focus of the current study, which is transformational leadership. However, to this point, there have been no empirical tests of this proposed relationship. The current studies will provide a theoretical foundation as well as an empirical test of this proposition involving the important mediating role of emotional competence.

Similar to the issues that surround the construct definition of emotional intelligence, there are also several ways emotional competence is defined in the literature. According to Boyatzis and colleagues, emotional competence is a group of learned capabilities based on emotional intelligence that leads to outstanding performance in the workplace (Boyatzis et al., 2000). This conceptualization of emotional competence is broad and includes 20 competencies, spanning from awareness of one's own emotions to leadership. Goleman and Boyatzis developed a measure to assess this model of emotional competence called the ECI (Boyatzis et al., 1999). However, many researchers have claimed this assessment is confounded with measures of traits, motivational factors, skills, and outcome behaviors and includes a vast array of competencies. In fact, the ECI has been described by Locke as "preposterously all-encompassing" (Locke, 2005, p. 428).

In contrast, Dulewicz and Higgs (2003) identified 16 out of 40 job competencies that, based on the definition of emotional intelligence, seemed most relevant and created their own measure of emotional competence. However, this measure was used in only 2 of their studies, and there is limited evidence to support that this conceptualization of emotional competence is a valid measure of the construct. Therefore, the current studies developed a new measure based on the Dulewicz and Higgs measure and data was collected to support that this new measure is designed appropriately. Using this new more rigorous measure and based upon the logic outlined above, it was expected that the results of the current studies show that emotional competence mediates the relationship between ability based emotional intelligence and transformational leadership.

In summary, a review of this research reveals that empirical support for a relationship between emotional intelligence and transformational leadership is inconsistent, definition and measurement issues may be contributing to this inconsistency, and researchers have suggested the relationship between ability-based emotional intelligence and outcome measures such as leadership is mediated by emotional competence but provide no empirical evidence for this relationship. Thus, the following chapters will review the literatures on emotional intelligence, transformational leadership, and emotional competence, the logic for the mediating role of emotional competence between ability-based emotional intelligence and transformational leadership will be put forward, and then the methodology, results, and implications of two studies will be outlined.

The first study was conducted in a laboratory at Baruch College. Undergraduate psychology students completed a background information form, measures of several control variables (i.e. cognitive ability, personality, positive affect, social desirability, and intellectual and managerial competencies), an ability-based measure of emotional intelligence (MSCEIT, Mayer et al., 2000), an emotional competence measure based on the Dulewicz and Higgs' (2000) emotional competence measure, and the transformational leadership items on the MLQ (Bass & Avolio, 1995). Participants then completed three leadership relevant exercises that allowed for behavioral ratings of their transformational leadership capability.

The second study was conducted in an applied setting using medical students. It is proposed that an understanding of the relationship between ability-based emotional intelligence, emotional competence, and transformational leadership among physicians

will be a valuable addition to both psychology and medical research literatures. In this applied study, graduate medical education residents in a primary care residency program in Central Alabama completed the same background information, control variable (i.e. cognitive ability, personality, positive affect, social desirability, and intellectual and managerial competence), emotional intelligence, emotional competence, and transformational leadership measures used in Study 1. These participants completed one leadership relevant exercise that allowed for behavioral ratings of their transformational leadership capability. In addition, transformational leadership ratings on the MLQ were obtained from the supervisors of the residents to further supplement the self- and behavioral ratings of leadership.

These studies tested a model of ability-based emotional intelligence as a predictor of emotional competence, which in turn predicts transformational leadership. The results of these studies help to provide a clearer picture of the relationships between these three constructs. Based on the findings, future research suggestions and selection, training, and development implications are discussed.

## Chapter 2

### Emotional Intelligence

Peter Salovey and John D. Mayer (1990) were the first to coin the term “emotional intelligence” among the scientific community. However, the foundations of and enthusiasm for the notion of emotional intelligence can be traced back further in the history of psychological research. Thorndike and Stein discussed the importance of social intelligence as early as 1920, and almost twenty years later, Wechsler (1940) stated that affective abilities, in combination with intellective abilities, determine intelligent behavior. The focus then shifted back to cognitive research on general intelligence, *g*, for many years until Gardner (1983) presented his theory of multiple intelligences, and people welcomed the notion of this more egalitarian view of intelligence (Visser, Ashton, & Vernon, 2006). Educators and parents embraced the concept that children can have diverse abilities and skills and that intelligence is not limited to a narrowly defined “*g*” (Daz-lefevre, 2004). Gardner (1983) claimed that a theory of multiple intelligences had more practical value, because *g* as measured by typical IQ test had little predictive value beyond the context of school performance. Although Schmidt and Hunter (1998) have since shown the value of *g* in the prediction of training outcomes as well as workplace performance, there is variance in performance that remains unaccounted for that may be predicted by other conceptualizations of intelligence such as emotional intelligence.

The foundation for the concept of emotional intelligence may have come from the combination of Gardner’s (1983) interpersonal and intrapersonal intelligences. Interpersonal intelligence is defined as the capability to understand intentions, motivations, needs, and desires of others, and consequently, to work well with others

(Gardner, 1983). Intrapersonal intelligence is defined as the ability to understand one's own desires, fears, and abilities and to use the information to make decisions (Gardner, 1999). These two abilities, to understand one's self and others and to use the information to guide behavior, are part of the underlying capabilities outlined by Salovey and Mayer's emotional intelligence ability model.

Salovey and Mayer (1990) identified emotional intelligence as a component of overall intelligence and defined it as the ability to monitor one's own and others' feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and actions. The ability model, as proposed by Mayer, Salovey, and colleagues (Salovey & Mayer, 1990; Mayer & Salovey, 1993, 1995, 1997; Mayer et al, 2000), reflects mental performance, rather than a preferred set of behaviors. However unlike *g*, the mental ability of emotional intelligence develops through learning and experience and thus improves with age. This model consists of the following four abilities: accurate appraisal and expression of emotions, use of emotion to enhance cognitive processes and decision-making, understanding emotions, and regulation and management of emotions, each of which is discussed in more detail below.

The accurate appraisal and expression of emotion refers to the capacity with which one can accurately recognize emotions and emotional content. Within one's self, the accurate appraisal of emotion includes identifying emotion through monitoring internal physical states, feelings, and thoughts. The appraisal of the emotions in others includes recognizing emotions in others' facial, voice, postural, and other nonverbal expressions. The expression of emotion refers to the ability of an individual to express emotions accurately, express needs related to those emotions, and to recognize inaccurate

or dishonest emotional expression in others (Mayer, Salovey, & Caruso, 2002; Mayer & Salovey, 1997).

The second component of emotional intelligence is the ability to use emotions to assist thinking. Emotions contribute to thinking when generated on demand and help an individual to better understand a situation (Mayer et al., 2002; Mayer & Salovey, 1997). Increased understanding comes from being able to experience the emotional consequences of a given situation, and consequently, better understand how other individuals might have felt in that same situation. This ability provides an individual with the capacity to consider multiple perspectives and identify how emotions affect information processing and can be used to direct future actions (Izard, 2001).

The third component, the ability to understand emotion, involves the capacity to analyze the determinants and outcomes of emotions (Mayer et al., 2002; Frijda, 1988; Mayer & Salovey, 1997). Emotions govern and often signal a motivated response to situations (Darwin, 1872/1965). Specific emotions are believed to arise in response to and communicate information about the appraisals of relationships (Lazarus, 1991). An individual with the ability to understand emotion has the ability to recognize motivated emotional responses and interpret the information about a given relationship communicated through those emotional responses. This component of emotional intelligence also includes the ability to understand complex, conflicting and blended emotions and to recognize transitions among emotions (Mayer et al., 2002; Mayer & Salovey, 1997).

Finally, the fourth component, the regulation and management of emotion is the keystone of Mayer and colleagues (Mayer et al., 2002; Mayer & Salovey, 1997)

conceptualization of emotional intelligence. It includes the ability to accept emotions, to engage or detach from an emotion after judging its utility, and to monitor emotions in one's self and others. It also includes the capability to moderate negative emotions and enhance pleasant emotions in oneself and in others without ignoring or exaggerating the meaning that the emotions convey. The management of emotion is the integration of emotion into decisions and behavior in a way that enhances a person's intellectual and emotional growth and increases the generation of effective solutions (Caruso & Salovey, 2004).

The four-branch model presented above is hierarchical and progresses from basic to sophisticated (Mayer & Salovey, 1997). Each component represents an increasingly complex ability and requires deeper integration into the individual's psychological subsystem than the prior component. Therefore, accurate appraisal and expression of emotion is less complex than use of emotion to enhance one's cognitive processing. The regulation and management of emotion requires more integration of emotional information with one's goals and plans than does understanding emotion (Mayer et al., 2002).

The measure created by Mayer and colleagues, the MSCEIT, to assess the ability-based model of emotional intelligence is a 141-item assessment that asks respondents to solve problems such as identifying emotion in a face or story and takes approximately 35 minutes to complete. MSCEIT items are grouped into 8 tasks. The first component of ability-based emotional intelligence, accurate appraisal of emotion, is measured through tasks that ask respondents to rate the extent to which certain emotions are represented in pictures of faces and designs. The second component, use of emotion

to enhance decision-making, is measured through tasks comprised of vignettes in which respondents rate the usefulness of different emotions in various situations and identify the extent to which certain emotions relate to sensations like colors and temperature. The third component, understanding emotions, is measured through tasks in which respondents are asked to identify more complex emotions that result from the blending of simpler emotions. Finally, the fourth component of ability-based emotional intelligence, managing emotions, is measured through tasks that ask respondents to rate the usefulness of strategies for maintaining, changing, or escalating emotions.

Scores on these tasks combine to form 2 sub-scores, experiential and strategic, and an overall emotional intelligence score. Experiential emotional intelligence assesses an individual's ability to experience emotion and is the cumulative score of the first 2 components, accurate appraisal and expression of emotions and using emotions to enhance cognitive processes and decision-making. Strategic emotional intelligence assesses an individual's ability to strategize about emotion and is the cumulative score of the remaining 2 components, understanding emotions and regulation and management of emotions.

Responses can be compared against either a consensus or expert response (Mayer et al., 2002). Consensus responses are determined by a 5,000-person database of responses. Expert responses are determined by the responses of 21 emotions research experts. Participant scores based on consensus and expert scoring are highly correlated ( $r_s = .96$  to  $.98$ ) across branch, area, and total scores. Research has revealed that participants sub-scores for the accurate appraisal of and understand emotions components are significantly higher when using the expert criterion (Mayer et al., 2003). Mayer and

his colleagues suggest that experts are more reliable judges and agree more frequently on correct answers in the appraisal and understanding of emotions areas as a result of more clearly established criteria in the research literature. If future research continues to result in these findings, then expert responses may become the criterion of choice for such tests, but currently either method is considered valid (Mayer et al, 2003).

As previously mentioned above, there are several reasons why the ability-based approach and the MSCEIT were chosen as the defining approach and measurement for emotional intelligence in the current studies. The MSCEIT is likely to stand up to the test of academic scrutiny (Moshavi & Brown, 2005), because the expert scoring approach uses a criterion of correctness that links it directly to the definition (Roberts et al., 2001) and scores on the MSCEIT do not overlap with personality constructs as much as scores on mixed model assessments (Brackett & Mayer, 2003; Newsome et al., 2000). In addition, ability-based tests are most often used in general intelligence measurement, making an objective, performance- and ability-based test appropriate (Mayer & Salovey, 1997; Mayer et al., 2000) and MSCEIT scores are correlated to general intelligence ( $r = 0.33$ , Van Rooy & Viswesvaran, 2004), supporting the notion that ability-based emotional intelligence is a component of overall intelligence. Thus, there is strong evidence in the literature to support the rigor of the ability-based model and measurement.

Although Mayer and his colleagues outlined this rigorous model and assessment of emotional intelligence, several researchers have put forward other models and assessments of emotional intelligence, and these are often referred to as mixed models. Daniel Goleman, one of the researchers who put forth a mixed model, is given credit for

much of the widespread attention that emotional intelligence has received. His book on emotional intelligence was a best-selling work (Goleman, 1995), and his article on emotional intelligence in the *Harvard Business Review* in 1998 attracted more readers than any article published in that periodical in the last 40 years (Cherniss, 2000). Thus, his writing led many people to embrace his conceptualization of emotional intelligence, especially those appreciating its proposed link to leadership skills (Watkin, 2000).

Even though Goleman spread awareness of the notion of emotional intelligence, his and other mixed models (e.g. Bar-On, 2000) of emotional intelligence have been accused of having a negative impact on the academic study of this construct. In fact, many researchers have stated that mixed models, that define emotional intelligence to include traits, motivational factors, skills, and outcome behaviors, cover too many different traits and concepts and have resulted in confusion and misuse of the construct (Landy, 2005; Murphy & Sideman, 2006; Zeidner, Roberts, & Matthews, 2004). Mayer and his colleagues (2008) have claimed these mixed model approaches have caused a schism in the field of emotional intelligence research, and Locke (2005) has even argued that emotional intelligence is an invalid concept because it has been defined in too many ways.

The examination of a mixed model in more detail makes clear the range of constructs included and basis for criticism of these conceptualizations of emotional intelligence. For example, Bar-On (2000) defined emotional-social intelligence as a mixed trait-ability model comprised of inter- and intra-personal competencies, skills, and facilitators that determine how effectively an individual understands and expresses emotions, understands and relates emotionally to others, manages and controls emotions,

adapts and solves personal and interpersonal problems, and generates positive affect and self-motivation. To measure emotional-social intelligence, Bar-On (1997) developed the Emotional Quotient Inventory (EQ-i), a 133-item self-report assessment which asks respondents to rate the extent to which they exhibit the following subscales of traits and abilities: Intrapersonal (comprised of Self-Regard, Emotional Self-Awareness, Assertiveness, Independence, and Self-Actualization), Interpersonal (comprised of Empathy, Social Responsibility, and Interpersonal Relationship), Stress Management (comprised of Stress Tolerance and Impulse Control), Adaptability (comprised of Reality-Testing, Flexibility, and Problem-Solving), and General Mood (comprised of Optimism and Happiness).

It is clear from the array of constructs that comprise the subscales of the EQ-i that this measure is assessing a much broader construct than Mayer and Salovey's ability model of emotional intelligence (Mayer et al., 2008; Locke, 2005; Caruso, 2003). Moreover, validity studies revealed that EQ-i has minimal overlap with cognitive intelligence tests (Bar-On, 2004), further differentiating the construct measured by the EQ-i from the ability model of emotional intelligence.

Not only is there too wide a range of factors included in mixed model approaches like that of Bar-On, but most assessments designed to measure mixed models are self-report measures (Caruso, 2003; Brown & Moshavi, 2005). This is problematic because there is little support for a relationship between self-report and ability measures of emotional intelligence ( $r_s \leq .22$ ; Brackett, Rivers, Shiffman, Lerner, & Salovey, 2006; Paulhus, Lysy, & Yik, 1998), and because self-report inventories are susceptible to

response sets, social desirability factors, deception, and impression management (Roberts et al., 2001).

Empirical evidence also suggests that using self-report methodology to measure emotional intelligence confounds the construct with personality (Davies, Stankov, & Roberts, 1998). In fact, a recent study found that the average correlation between the Big Five personality factors (Extraversion, Agreeableness, Openness, Conscientiousness, and Neuroticism) and general emotional intelligence as measured by the self-report-based Bar-On (1997) was almost .50 (Dawda & Hart, 2000). Thus, it has been argued that measures like the EQ-i may rely more on a person's self-understanding and therefore provides a measure of self-perception rather than actual emotional intelligence capability (Roberts et al., 2001).

It is not surprising that emotional intelligence and personality are somewhat related, as components of personality are emotion-related (e.g. neuroticism). However, the ability-based model defines emotional intelligence as a mental ability rather than as a preferred set of behaviors, suggesting that emotional intelligence and personality are conceptually distinct. There is also confirmatory factor analytic evidence to suggest this is true (Law, Wong, & Song, 2004). Law and colleagues used a four-branch model of emotional intelligence, similar to Mayer and his colleagues' model, and measured emotional intelligence using the Wong and Law Emotional Intelligence Scale (WLEIS; 2002). Personality was conceptualized using the Big Five model and measured using the Neuroticism, Extraversion, and Openness Personality Inventory (Costa & McCrae, 1985) scales. Factor analysis revealed a first-order model (CFI = .92; TLI = .91; RMSEA = .05)

and second-order model (CFI = .91; TLI = .90; RMSEA = .06) that displayed good model fit, suggesting these constructs are separate and distinct.

In sum, the criticism put forward by Mayer and his colleagues is that the broadening that has occurred with mixed models of emotional intelligence has created a schism in the literature, decreased the utility of the construct, and confused the general public (Mayer et al., 2008; Mayer et al., 2000). Mayer has also argued and there is evidence to support that measures like the MSCEIT and self-report measures like the EQi are assessing different constructs (Mayer, 2004). These criticisms have elevated the status of the ability-based model in the academic literature. Mayer and Salovey's (1997) four branch model of emotional intelligence and its current method of measurement (MSCEIT V2.0; Mayer et al., 2000) are held in high regard among the academic community because of their empirical and ability-base (Brown & Moshavi, 2005), while mixed models are viewed as flawed in conception and operationalization. The MSCEIT is viewed as the most compelling approach to measuring this construct, because it is the only measure that assesses performance, rather than self-report data. Therefore, because the literature supports the use of the ability-based or mental model of emotional intelligence, the current studies operationalized emotional intelligence according to this ability model.

## Chapter 3

### Transformational Leadership

While the research on emotional intelligence is still in its infancy and the construct is still being defined, the study of leadership has a much longer history. Leadership research has evolved over the last 140 years from a focus on the traits of leaders to situational constraints that affect leadership to the relationship between leaders and their followers, and most recently to the transforming effects of leadership on followers' thoughts and emotions (Hollander & Offerman, 1990). It is this theory of transformational leadership (Bass, 1985) that has received the most research attention in recent years. However, most of that research has focused upon the outcomes of transformational leadership rather than its antecedents (Barbuto & Burbach, 2006). In this search for antecedents and given the transformational leader's use of reasoning and emotion to influence subordinates (Bass, 1985), emotional intelligence seems a likely candidate. Therefore, the following section will provide a brief overview of the evolution of leadership research and a more detailed review of the current research on transformational leadership and its antecedents. This review will make a case that the link between transformational leadership and emotional intelligence warrants further attention. This chapter is then followed by a chapter reviewing the empirical research on the relationship between emotional intelligence and transformational leadership.

#### Evolution of Leadership Theory

In 1869, Galton defined leadership as a unique property of extraordinary individuals whose decisions are capable of radically changing the streams of history. He described this property as one that is inherited and passed from generation to generation

(Galton, 1869). This definition of leadership guided research until the mid-1900s, when Stogdill (1948) and Mann (1959) debunked the “great man” theory of leadership. Stogdill’s (1948) review of 124 studies revealed that the study of leadership must involve the study of both the leaders and situations (Zaccaro, 2007).

Consequently, situational-specific research took over the field. The movement was started by researchers at Ohio State University and the University of Michigan who focused on leader behavior. The Ohio State studies focused on the behavioral dimensions of consideration (establishment of mutual trust, concern for the employee as a human being) and initiating structure (defining work relationships, schedules, and methods). At the University of Michigan, Lowin and Craig (1968) showed that leaders exhibited much less support and consideration behaviors when confronted with an ineffective team, compared to an effective team. However, the research at these two universities focused primarily on consequences of leader behavior rather than antecedents.

In the absence of research on leader behavior antecedents, pure situational theories of leadership began to emerge. Perrow (1970) argued that the real causes of effective and ineffective behavior among leaders were the structural features of their organization rather than the characteristics of the leader. This reasoning is similar to the underlying logic of Fiedler’s Contingency Model (1964; 1967). Fiedler identified leaders as either relationship-motivated or task-motivated and put them in 8 different types of situations, consisting of a combination of the following factors: leader-member relations, follower-task structure, and leader-position power. His findings revealed that relationship-motivated leaders performed better in approximately one half of the situations, and the opposite was true for the remaining half (Fiedler, 1967). The

implication of these results was that leaders should be placed in situations that best fit their respective style. This theory has since received its fair share of theoretical and methodological criticism but, to its credit, played a large role in shining a spotlight on situational theories of leadership.

Building upon both the studies at Ohio State and Fiedler's Contingency Model, a group of researchers proposed a theory that a leader's role is to create and manage followers' paths toward individual and group goals, to clarify expectations, and to ensure resources are available for obtaining those goals (Evans, 1970; House, 1971; House & Dessler, 1974; House & Mitchell, 1974). This theory was called path-goal theory and represented the attempt to resolve some of the inconsistencies of the consideration and initiating structure studies. The premise of path-goal theory was that the effectiveness of leader behaviors depends on subordinate and environmental characteristics, such that when behaviors are properly matched to these characteristics, acceptance of leadership, job satisfaction, effort and performance increase (House & Mitchell, 1974). Meta-analysis has supported the key propositions of this theory (Indvik, 1986).

At approximately the same time path-goal theory was emerging into the literature, Vroom and Yetton (1973) proposed a theory similarly based on behavioral contingencies, but much more narrow in its focus. These researchers specified 5 decision processes that ranged from highly autocratic to highly participative and 7 situational variables that could vary within the decision encountered and would govern the appropriate behavioral response. From these factors, Vroom and Yetton created a decision tree with branches, providing a prescriptive model of how leaders should behave in each decision situation. Vroom and Yetton (1973) and Vroom and Jago (1988) also revealed that not only did

different situations dictate different behaviors, but that even individuals with a similar disposition in the exact same situation behaved oppositely from one another. From this finding, these researchers concluded that leadership is not simply about traits or simply about situations, but that the situation must be taken into account and even traits can be situationally specific. Other situational theories also emerged over time (e.g. situational leadership theory, Hemphill, 1949; substitutes for leadership, Kerr & Jermier, 1978).

### Transactional and Transformational Leadership

The situational and contingency era was then followed by the introduction of transactional and transformational leadership theories (Dansereau, Graen, & Haga, 1975; Graen, 1976; Graen & Cashman, 1975; Graen & Scandura, 1976; Burns, 1978; Bass & Avolio, 1990). According to Burns (1978), transactional and transformational leaders were two ends of the same continuum. Transactional leaders tend to engage in a series of transactions to gain the efforts and performance of followers and are aimed at monitoring and controlling employees through rational or economic means, while transformational leaders offer a purpose for followers and encourage them to self-identify with the leader. However, Bass (1985) disagreed with Burns (1978) and defined transactional and transformational leadership as separate, albeit complimentary, concepts. Bass (1985) went on to define the behaviors that manifest transactional and transformational leadership, as well as non-leadership (Bass & Avolio, 1990), and claimed the best leaders are both transactional and transformational.

According to Bass and Avolio (1990), transactional leadership includes the following behavior categories: contingent rewards, management-by-exception-active, and management-by-exception-passive. They also define a non-leadership dimension called

laissez-faire. Contingent reward refers to leadership behaviors focused on exchange of valued resources for follower support, management-by-exception-active is the monitoring of performance and taking corrective action as necessary when performance deviations arise, management-by-exception-passive involves intervening only when problems become serious, and laissez-faire is the avoidance of leadership and taking no action (Bass & Avolio, 1990). The central tenet of this conceptualization of transactional leadership is that the quality of the exchange relationship between leaders and followers determines the quality of the outcomes achieved. Additional transactional theories include the vertical dyad linkage and leader-member exchange theories (Dansereau et al., 1975; Graen, 1976; Graen & Cashman, 1975; Graen & Scandura, 1976).

On the other hand, the foundations for transformational leadership were introduced into organizational literature by House in 1977. House was attempting to explain the capability among some leaders to arouse devotion and a sense of identification among followers. His theory, based on concepts first proposed by Weber in the 1920s, proposed that charismatic leaders were seen by followers as both heroic and extraordinary individuals with a moral imperative, and as a result, gained their followers' devotion and cooperation. According to House (1977), charismatic leaders were characterized by three factors: personal characteristics such as high self-confidence and strong conviction in moral righteousness of beliefs, behaviors such as vision articulation and motive arousal, and situational factors such as followers' susceptibility to influence. These types of leaders use these factors to engage the self-concepts of followers and get them to personally identify with the leader's vision and membership in the group (Shamir, House, & Arthur, 1993). House and Shamir (1993) went on to explain this

phenomenon in the context of path-goal theory, such that charismatic leaders gain the capability to influence their followers' self-concepts, values, and goals by creating intrinsic rewards. These types of leaders empower followers by setting high expectations and conveying confidence in their followers' ability to attain lofty goals (House & Shamir, 1993).

It was upon these factors outlined by House (1977) that Bass (1985) first articulated 3 behaviors associated with transformational leadership: charisma, individualized consideration, and intellectual stimulation. Bass and Avolio (1990) then added a fourth behavior, inspirational motivation, and in 2003, the term "charisma" is also now referred to as "idealized influence" (Antonakis, Avolio, & Sivasubramaniam, 2003). These four behaviors are now widely accepted as the major components of transformational leadership.

Idealized influence, formerly known as charisma, is defined as the leader's demonstration of high standards of moral and ethical conduct, self-sacrifice, and far-sightedness. These leaders are held in high personal regard and have gained both trust from their followers and their belief that the leader's goals can and will be achieved. Charismatic leaders engender loyalty, represent a symbol of their own vision, arouse strong emotions, consider followers' needs, and meet the emotional needs of followers (Bass & Avolio, 1990). These leaders are also described as magnetic, confident, and possessing a "powerful aura" that results in extraordinary effects on their followers (House & Baetz, 1979).

Inspirational motivation is defined as the emotional appeal of the leader's vision. The ability to provide inspirational motivation is to provide meaning and challenge for

the follower through prosocial collective actions and high standards, articulate a strong vision for the future based on values and ideals, stimulate optimism, enthusiasm, and team spirit, and build confidence. Leaders who exhibit inspirational motivation inspire followers using symbolic actions and persuasive language, encouragement, and a shared commitment to mutual goals (Bass, 1985).

Intellectual stimulation behaviors include encouraging followers to question past behaviors and old assumptions, think creatively, and challenge organizational norms. Leaders who are intellectually stimulating also encourage divergent thinking, innovative strategies, articulation of their own views, and viewing problems from a new perspective (Bass, 1985). Finally, individualized consideration is defined by the degree to which the leader treats all followers equitably and in a manner that is consistent with the follower's needs, abilities, and desired goals. This includes leader behaviors aimed at recognizing the unique growth, developmental, and achievement needs of followers, coaching and consulting with them, establishing strong one-on-one relations, and viewing the employee as an entire person (Bass, 1985).

While many of the previously discussed theories of leadership have contributed to the understanding of leadership, transformational leadership theories successfully combine many aspects of previous leadership theories (e.g., traits, behaviors, attributions, and situations) to create what Yukl and Van Fleet (1992) call a hybrid approach to leadership. Both transformational and transactional leadership behaviors are measured using the Multifactor Leadership Questionnaire (MLQ), an assessment developed originally by Bass and Avolio in 1990. The measure has since been revised (Bass & Avolio, 2000), and it has been suggested that the development of the MLQ is responsible

for the popularity of the study of transformational leadership (Chemers, 1997). The MLQ has been shown to yield a stable factor structure that aligns to Bass and Avolio's transactional and transformational leadership and non-leadership constructs. However, there is also research that suggests ratings on the MLQ are influenced by the degree of interpersonal affect the rater feels toward the individual evaluated (Brown & Keeping, 2005).

In addition, transformational leadership theory has received strong empirical support. Data suggests that individuals rated high on the four transformational leadership behaviors were also generally associated with more effective work units (Bass & Avolio, 1993). A recent meta-analysis indicated that when averaged across the four factors, transformational leadership behaviors were related to subjective ( $\rho = .73$ ) and objective ( $\rho = .30$ ) measures of leadership effectiveness. Further, this relationship seemed to generalize across both private ( $\rho = .53$ ) and public ( $\rho = .67$ ) organizations and across higher level ( $\rho = .63$ ) and lower level ( $\rho = .62$ ) leaders (Lowe, Kroeck, & Sivasubramaniam, 1996), providing support for the general effectiveness of transformational leadership. In addition, research suggests that transformational leadership behaviors predict leadership effectiveness above and beyond transactional leadership, but that the reverse is not true (Howell & Avolio, 1993). It is the effectiveness of transformational leadership behaviors that has led to the importance of understanding the antecedents of such behaviors.

#### Antecedents of Transformational Leadership

Personality. Given the empirical links between transformational leadership behaviors and effective leadership, there has been some, albeit limited, research on the

factors that predict transformational leadership behavior. In the general search for antecedents of leadership, personality has received a significant amount of attention. Bono and Judge (2004) conducted a meta-analytical examination of the relationship between personality traits and transactional and transformational leadership. However, the results of this meta-analysis revealed that the five-factor model of personality was not a particularly strong predictor of transformational and transactional leadership behaviors. Extraversion and Neuroticism were the only factors correlated with an overall criterion of transformational leadership, .24 and -.17 respectively.

Overall, the five factors of personality explained little variability among the specific transformational leadership ratings of charisma (combined idealized influence and inspirational motivation), intellectual stimulation, and individualized consideration, (12%, 5%, and 6% respectively). Bono and Judge (2004) concluded that Extraversion does seem to have some significance in predicting transformational leadership and deserves further attention. To explain the lack of strong predictive relationships, they suggested that perhaps transformational leadership behaviors are more malleable and less trait-like than other outcomes predicted by personality. In addition, there is evidence that transformational leadership behaviors can be trained (Barling, Weber, & Kelloway, 1996) and result from life experiences (Avolio, 1994), and therefore may not need to be strongly related to dispositional personality traits.

One dissertation included personality as one of several components (e.g., affect, cognitive ability, emotional intelligence) in an examination of incremental validity when predicting transformational leadership (Beshears, 2004). Interestingly, her results revealed better predictive validity for personality compared to the results revealed by

Bono and Judge (2004). Openness to experience accounted for 27% of the variance in transformational leadership behaviors, 20% of the variance in inspirational motivation behaviors, and 27% of the variance in idealized influence behaviors. Conscientiousness also accounted for a moderate proportion of the variance in overall transformational leadership, inspirational motivation, and idealized influence behaviors (14%, 14%, and 12% respectively). Extraversion, Agreeableness, and Neuroticism each explained relatively small proportions of variance (< 9%) of each of the components of transformational leadership behaviors. Beshears acknowledged that it's possible that the relationships between personality factors and transformational leadership behaviors are due to the common method variance of self-report measures, which suggests the need for behavioral measures in these types of studies. However, because each of the five factors of personality were found to explain some variance across Bono and Judge's (2004) and Beshears' (2004) research, these personality factors were measured and controlled for in the current studies.

Cognitive Ability. Few studies have directly examined the relationship between cognitive ability and transformational leadership. However, general cognitive ability has been found to be a strong predictor of work performance, accounting for approximately 25% of variance (Schmidt & Hunter, 1998), and general intelligence was said to account for 10-20% of academic and occupational success (Riggio, 2002). One dissertation included the investigation of the relationship among general cognitive ability and the characteristics of transformational and transactional leadership behaviors and leadership effectiveness outcomes (Nguyen, 2002). Results from this research revealed that cognitive ability scores of Shell Oil employees on the Wonderlic Personnel Test were

positively correlated with transformational and transactional leadership behaviors, .16 and .09, respectively (Nguyen, 2002), suggesting cognitive ability is relatively weakly related to transformational leadership.

Beshears' (2004) dissertation research also included cognitive ability as one of the components in the regression model of transformational leadership antecedents. Beshears (2004) administered the Shipley Institute of Living Scale (Shipley, 1940) to 206 individuals with leadership experience. This assessment yields WAIS-R full-scale IQ equivalence scores (Weiss & Schell, 1991). Regression analysis revealed that cognitive ability, when included in a full regression model of emotional intelligence, personality, and affect, explained only 0.6-0.7% of variance in transformational leadership behaviors (ability-based and self-report based measures of emotional intelligence were analyzed in separate, comparable models). These results provide further support for the notion that cognitive ability is not a particularly strong predictor of transformational leadership. However, because of the significance of Schmidt and Hunter's (1998) findings regarding the value of cognitive ability in the prediction of workplace performance, the current studies included a measure of cognitive ability, in order to control for any variance explained by cognitive ability in the prediction of transformational leadership.

Affect. Although there is little research directly examining the relationship between affect and transformational leadership, positive affect has been found to mediate the relationship between imagery speech and leadership ratings of charisma (Naidoo & Lord, 2008), the research on emotional contagion suggests that positive affect can be transferred from one individual to another (Pugh, 2001), and Beshears (2004) included positive and negative affect in her overall regression model. She proposed that positive

affect should be positively related to transformational leadership, given that transformational leadership involves evoking emotions in others to achieve goals. The results of her study revealed that positive affect is actually a strong predictor of transformational leadership behaviors, explaining 38% of variance in transformational leadership behavior when personality, cognitive ability, and ability-based measure of emotional intelligence were included in the model and 27% of variance when personality, cognitive ability, and a self-report measure of emotional intelligence were included. Negative affect was not a strong predictor in either model, accounting for less than 3% of variance. However, the evidence of a relatively strong predictive relationship between positive affect, a construct related to emotion, and transformational leadership lends support to the notion that emotional intelligence may also be an antecedent to transformational leadership. The current studies tested this notion, but included a measure of positive affect in order to control for the variance explained by positive affect and determine the variance explained by the related, yet separate construct of emotional intelligence.

### Summary

Based on the above review of leadership theory and transformational leadership research, several conclusions can be drawn. First, transformational leadership is a useful theory of leadership, is tied to many positive outcomes in the workplace, and can be reliably measured by the MLQ. Second, research on antecedents of transformational leadership is still warranted, because, although proportions of variance in transformational leadership have been explained by personality, cognitive ability, and positive affect, findings are either not consistent or limited to one or two studies. Third,

given the impact of positive affect on transformational leadership, and the basic tenet of transformational leadership that the ability to influence subordinates through the use of reasoning and emotion (Bass, 1985), emotional intelligence appears to be a likely antecedent of these types of behaviors.

Moreover, emotional intelligence appears to be a likely antecedent to transformational leadership when considering the behaviors typically associated with it and their respective emotional components. Idealized influence is described as the means by which the leader engages or evokes emotion and meets the emotional needs of followers (House, 2002; Bass & Avolio, 1990). Inspirational motivation refers to the emotional appeal of the leaders' message and includes the ability to stimulate optimism and enthusiasm. Individualized consideration includes the leader's ability to recognize and meet the follower's unique needs, abilities, and desired goals. These factors suggest that a large part of transformational leadership involves evoking and appealing to the emotions of followers, and that individuals who are higher in emotional intelligence may be more likely to possess the ability to exhibit these types of transformational leadership behaviors. Therefore, the following chapter will review the literature examining the role of emotional intelligence as an antecedent of transformational leadership behaviors.

## Chapter 4

### Emotional Intelligence and Transformational Leadership

Leadership has been described as an intrinsically emotional process, such that leaders display emotion and attempt to evoke emotion in their followers (Dasborough & Ashkanasy, 2002). Therefore, many leading researchers have proposed that emotional intelligence is positively related to leadership effectiveness (George, 2000; Prati, Douglas, Ferris, Ammeter, & Buckley, 2003; Higgs & Rowland, 2001; Caruso Mayer, & Salovey, 2002; Goleman et al., 2002; Abraham, 1999) and that it becomes increasingly important as individuals rise into leadership positions (Dulewicz & Higgs, 2000, 2003; Goleman et al., 2002). In fact, according to Humphrey (2002), it has become generally accepted among leadership researchers that the relationship between a leader and a follower is a strongly emotional one. Thus, a view has emerged in the field that emotional intelligence is an essential component to effective leadership of today's organizations (Dulewicz & Higgs, 2003).

In tandem with this emerging view, much of the literature in this area has assumed that emotional intelligence is also directly related to transformational leadership (Abraham, 2004). These assumptions seem logical when considering the basic tenet of transformational leadership is these types of leaders are purported to influence subordinates through the use of logic, reasoning, and emotion (Bass, 1985; Brown & Moshavi, 2005). According to Bass (1998), transformational leaders must be able to exhibit self-awareness and self-control, identify with or relate to others emotionally, and provide intuitive insight and guidance when needed. Leaders with high levels of emotional intelligence may also know how to use emotionally expressive language and

nonverbal cues more effectively, which are skills associated with charisma, a key component of transformational leadership (Megerian & Sosik, 1996). Hoffman and Frost (2006) suggested that emotional intelligence is quite similar to transformational leadership, such that a leader who is viewed as individually considerate is likely a leader who takes an interest in each employee on an individual level, both professionally and personally and is aware of the needs of individual followers. Increased awareness of others' emotions may also help leaders communicate more effectively, and ultimately, more effectively influence the emotions and opinions of others (George, 2000). Therefore, when considering the components of transformational leadership, emotional intelligence seems a likely antecedent.

However, despite the assumptions and seemingly intuitive links between emotional intelligence and transformational leadership, research examining the relationship between these two variables has resulted in inconsistent findings. One possible reason for these inconsistencies may be the many conceptualizations of emotional intelligence used across these studies. The argument for the use of an ability-based model and measurement rather than a mixed model approach and measurement has been outlined in a previous chapter. However, a review of the research on the relationship between mixed models of emotional intelligence and transformational leadership will underscore the importance of using the more rigorous ability-based approach to define emotional intelligence and will provide further support for the use of an ability-based approach in the current studies.

Among the studies using a mixed model of emotional intelligence, there are several that provide support for a relationship between emotional intelligence and

transformational leadership (Barling et al., 2000; Gardner & Stough, 2002; Hoffman & Frost, 2006; Barbuto & Burbach, 2006). Barling and colleagues (2000) obtained emotional intelligence scores (measured using Bar-On's EQ-i, 1997), the Seligman Attributional Style Questionnaire (Seligman, 1984), and subordinate ratings of transformational leadership (MLQ 5X-Short, Bass & Avolio, 2000) for 49 managers in a pulp and paper organization. Their results revealed significant positive correlations between emotional intelligence scores and the components of transformational leadership ( $r_s > .35$ ), after controlling for attributional style. Individuals scoring in the 65<sup>th</sup> percentile or higher on the EQ-i scores also were rated significantly higher on ratings of the components of transformational leadership than individuals scoring in the 33<sup>rd</sup> percentile or below. These researchers concluded subordinates viewed individuals scoring higher in emotional intelligence as also displaying more leadership behaviors (Barling et al., 2000).

Gardner and Stough (2002) examined the relationship between a mixed model of emotional intelligence, assessed using a self-report measure called the Swinburne University Emotional Intelligence Test (SUEIT, Palmer & Stough, 2001), and transformational leadership (MLQ-5X; Bass & Avolio, 2000). The SUEIT is based on the following five factors: emotional recognition and expression (ability to identify one's own feelings and emotions and express those feelings to others), emotions direct cognition (extent to which emotions and emotional knowledge are used in decision-making), understanding of emotions external (ability to identify and understand other's feelings and emotions), emotional management (ability to manage emotions in one's self and others), and emotional control (ability to control emotions at the workplace). Results

of their study revealed a strong positive correlation between total emotional intelligence and transformational leadership scores ( $r = .68$ ).

Hoffman and Frost (2006) used a mixed model approach with the addition of behavioral measures of emotional, cognitive, and social intelligence. Emotional intelligence was operationalized as a combination of conscientiousness, empathy, and assessment center ratings of coaching and sensitivity, cognitive intelligence was operationalized as assessment center ratings of analysis and judgment, and social intelligence was operationalized as personality measures of dominance, social presence, capacity for status, and self-acceptance, and behavioral measures of confrontation, team building skills, leadership skills, and oral communication skills. Transformational leadership behaviors were assessed using selected items from the MLQ (Bass & Avolio, 2000).

Their results revealed that Conscientiousness was significantly positively related to charisma ( $r = .25$ ) and individualized consideration ( $r = .31$ ). Empathy was significantly positively related to charisma ( $r = .28$ ), intellectual stimulation ( $r = .25$ ), and individualized consideration ( $r = .25$ ). Behavioral measures of coaching were significantly positively related to individualized consideration ( $r = .25$ ), and behavioral measures of sensitivity were not related to any transformational leadership dimensions. Thus, some components of their mixed model of emotional intelligence appeared to be related to transformational leadership ratings. Some components of cognitive and social intelligence also predicted transformational leadership. Cognitive intelligence, when defined as an assessment center measure of analysis, was significantly positively related to charisma ( $r = .28$ ) and intellectual stimulation ( $r = .32$ ), and when defined as an

assessment measure of judgment, was significantly positively related to intellectual stimulation ( $r = .24$ ). Several components of social intelligence were significantly related to transformational leadership components. Dominance was significantly related to charisma ( $r = .32$ ), intellectual stimulation ( $r = .21$ ), and individualized consideration ( $r = .26$ ). Leadership skills were positively related to charisma ( $r = .27$ ) and intellectual stimulation ( $r = .28$ ), and the social intelligence components of social presence ( $r = .27$ ), capacity for status ( $r = .24$ ), self-acceptance ( $r = .22$ ), team building skills ( $r = .25$ ), leadership skills, and oral communication skills ( $r = .22$ ) were also all significantly related to charisma (Hoffman & Frost, 2006).

Barbuto and Burbach (2006) examined the relationship between scores on 5 components (empathetic response, mood regulation, interpersonal skills, internal motivation, and self awareness) of a 30-item emotional intelligence test developed by Carson and colleagues (2000), and both self-report and direct report ratings of transformational leadership of 80 elected community leaders using the MLQ. The results revealed significant relationships between overall emotional intelligence scores and all self-ratings of transformational leadership ( $r_s > .21$ ), and empathetic response scores were significantly related to all self- and direct report ratings of transformational leadership ( $r_s > .11$ ). Overall emotional intelligence and interpersonal skill scores were significantly related to direct report ratings of individualized consideration and inspirational motivation ( $r_s > .12$ ). Interpersonal skills were also significantly related to self-ratings of individualized consideration, inspirational motivation, and idealized influence ( $r_s > .30$ ) and direct report ratings of idealized influence ( $r = .11$ ). Internal motivation was significantly positively correlated with self-ratings of intellectual

stimulation, inspirational motivation, and idealized influence ( $r_s > .11$ ) and direct report ratings of intellectual stimulation ( $r = .11$ ). However, mood regulation and self-awareness were not positively related to any transformational leader behaviors (either self- or direct report-rated). In fact, mood regulation was negatively related to self-report ratings of transformational leadership, indicating the possibility that leaders less likely to manage their moods may be more likely to be perceived as authentic and effective by their colleagues (Barbuto & Burbach, 2006).

Interestingly, although all four of these studies provide support for the relationship between a mixed model of emotional intelligence and transformational leadership, each study defines and measures emotional intelligence in a different way. Moreover, a common point mentioned in the discussion sections of these studies is that results of their research could be due to common method bias of using mostly self-report and questionnaire-based assessments for emotional intelligence and transformational leadership. Although common method bias may not be as serious a methodological flaw as previously thought (Spector, 2006), many of these researchers suggest an ability-based or performance measure would strengthen the validity of their findings (e.g. Barbuto & Burbach, 2006), suggesting that an ability-based emotional intelligence test provides a more objective assessment of emotional intelligence than the self-report assessments.

In addition to the potential methodological flaws of the studies reviewed above, there is one study that shows no support for a relationship between a mixed model of emotional intelligence and transformational leadership. Brown, Bryant, and Reilly (2006) examined the relationship between the EQ-i (Bar-On, 1997) scores of 161 managers and the ratings of transformational leadership and desirable outcomes (defined as ratings of

job satisfaction, supervisor satisfaction, intent to turnover, and intent to request a transfer to new unit) of 2,411 subordinates in a manufacturing plant. The goal of their study was to determine if emotional intelligence was an antecedent of transformational leadership, a moderator between transformational leadership and desirable outcomes, or an independent factor that explains additional variance. They found that overall transformational leadership scores and subscale scores were a significant predictor of desirable outcomes ( $R^2 > .32$ ), however neither the overall emotional intelligence scores nor the subscales of the EQ-i were significant predictors of desirable outcomes. In addition, scores on the EQ-i were not significantly related to transformational leadership scores, and consequently, there was no support for emotional intelligence as an antecedent of or moderator between transformational leadership and desirable outcomes.

These researchers attributed their contradictory findings to the possible effects of methodological differences. Previous studies examining the relationship between scores on the EQ-i and MLQ utilized much smaller manager (ranged from 32-70) and direct report (ranged from none to 232) sample sizes when compared to their sample size (161 managers and 2,411 direct reports). In addition, cultural differences in organizations may have affected their findings. The participants in Brown's and his colleagues' study were from a manufacturing plant, which had a strong performance-based culture that may not support more emotional interactions. They conclude that their results do not suggest the lack of a relationship between emotional intelligence and transformational leadership, but rather fail to provide support for a relationship between scores on the EQ-i and transformational leadership and, like many other researchers, suggest that an ability measure of emotional intelligence may have been more appropriate (Brown et al, 2006).

Due to the limited support of a relationship between mixed models of emotional intelligence and transformational leadership and the inconsistent results of Brown and his colleagues' study, several studies have included moderating variables in an attempt to clarify the relationship between mixed models of emotional intelligence and transformational leadership (Sosik & Megerian, 1999; Sivanathan & Fekken, 2002; Barbuto & Burbach, 2006). Sosik and Megerian (1999) examined whether self-awareness (defined as self-other agreement) moderated the relationships between emotional intelligence and transformational leadership and transformational leadership and managerial performance. In this study, the mixed model of emotional intelligence was measured using self-report ratings on the following dimensions: self-awareness (private self-consciousness, public self-consciousness, and purpose-in-life), emotional management (self-monitoring), self-motivation (personal efficacy), relationship management (interpersonal control), and empathy (social self-confidence, even temperedness, and sensitivity). Managers and three subordinates provided leadership behavior ratings using the MLQ-5X (Bass & Avolio, 2000). Managerial performance was operationalized as superiors' ratings of performance effectiveness and subordinates' ratings of the managers' performance, their own willingness to exert effort for the manager, and overall satisfaction with the managers. These ratings were considered outcome measures of transformational leadership.

Results revealed significant correlations between several dimensions of this conceptualization of emotional intelligence (purpose-in-life,  $r = .58$ ; personal efficacy,  $r = .38$ ; interpersonal control,  $r = .48$ ; social self-confidence,  $r = .47$ ) with self-ratings of transformational leadership. However, among subordinates' ratings of their managers'

transformational leadership skills, only interpersonal control was significantly related to transformational leadership ( $r = .31$ ), indicating a difference in the relationship between emotional intelligence and self-ratings compared to subordinate ratings of transformational leadership. Higher emotional intelligence scores were also significantly positively related to performance measures. Interpersonal control was significantly correlated with subordinate ratings of effectiveness ( $r = .29$ ), extra effort ( $r = .43$ ), and satisfaction ( $r = .32$ ). Purpose-in-life and personal efficacy ratings were significantly correlated with subordinate ratings of extra effort ( $r = .28$  and  $r = .26$ , respectively).

Among those managers identified as self-aware (those whose self-ratings of transformational leadership were in agreement with their subordinate ratings), the correlations between emotional intelligence and transformational leadership were quite strong. Among self-aware managers, respective self- and subordinate ratings of public self-consciousness ( $r = .41$ ,  $r = .33$ ), purpose-in-life ( $r = .51$ ,  $r = .50$ ), personal efficacy ( $r = .44$ ,  $r = .45$ ), interpersonal control ( $r = .63$ ,  $r = .66$ ), social self-confidence ( $r = .54$ ,  $r = .45$ ), and self-ratings of even-temperedness ( $r = -.38$ ) and self-monitoring ( $r = .34$ ) were significantly correlated with transformational leadership ratings. Subordinate ratings of self-aware managers were also significantly correlated with performance ratings (superior's performance rating,  $r = .39$ , and subordinates' ratings of effectiveness ( $r = .69$ ), extra effort ( $r = .77$ ), and satisfaction ( $r = .67$ )).

For managers who underestimated their transformational leadership behaviors (defined as lower self-ratings than subordinate ratings), significant correlations were revealed for interpersonal control ( $r = .48$ ) and social self-confidence ( $r = .63$ ) and subordinate ratings of transformational leadership and purpose-in-life ( $r = .69$ ) and social

self-confidence ( $r = .55$ ) and self-ratings of transformational leadership. Subordinate ratings of underestimating managers were also significantly correlated with superior's performance ratings ( $r = -.62$ ), and subordinates' ratings of effectiveness ( $r = .52$ ), extra effort ( $r = .64$ ), and satisfaction ( $r = .63$ ). Among those managers who overestimated their transformational leadership behaviors, significant correlations were revealed for purpose-in-life ( $r = .48$ ) and sensitivity ( $r = -.57$ ) and subordinate ratings of transformational leadership and subordinates' ratings of effectiveness ( $r = .84$ ), extra effort ( $r = .87$ ), and satisfaction ( $r = .81$ ).

Sosik and Megerian (1999) conclude that because self-awareness is an integral part of emotional intelligence, these findings suggest that emotionally intelligent leaders may be more effective than those who are not emotionally intelligent. They also conclude that managers who maintain self-awareness possess more emotional intelligence attributes and exhibit more transformational leadership behaviors, as a result were more consistent among self-aware managers than those who had either over- or underestimated their transformational leadership skills. These results suggest that the actual ability to be self-aware, rather than only the self-reported ability, helps to predict transformational leadership ratings, lending support to the notion of a relationship between emotional intelligence and transformational leadership. However, according to the ability-based model of emotional intelligence, self-awareness is the first of four hierarchical abilities that provide the foundation of emotional intelligence, rather than a moderating variable between self-reported emotional intelligence and transformational leadership. Therefore, these findings seem to simply support the importance of the ability to be self-aware and

lend more support to the use of an ability-based model of emotional intelligence when predicting transformational leadership (Sosik & Megerian, 1999).

Two other potential moderators between emotional intelligence and transformational leadership have also been examined. Sivanathan and Fekken (2002) examined moral reasoning as a moderator. Moral reasoning was chosen as a potential moderator because making judgments based on values is considered to be part of transformational leadership (Bass, 1985) and because there is empirical evidence for a relationship between moral reasoning and effective leadership (Atwater, Dionne, Avolio, Cambreco, & Lau, 1999). Emotional intelligence scores on the EQ-i (Bar-On, 1997) were significantly correlated ( $r = 0.40$ ) with transformational leadership scores on the MLQ-5X (Bass & Avolio, 2000). Regression analysis revealed that when entered simultaneously, emotional intelligence and moral reasoning (measured using the Defining Issues Test – Short Form, DIT, Rest, 1990) account for 17% of the variance in transformational leadership scores, and a significant beta weight was associated with emotional intelligence ( $t = 3.2, p < 0.002$ ). However, the interaction term, a value resulting from multiplying emotional intelligence and moral reasoning scores, did not reach significance, suggesting that moral reasoning does not moderate the relationship between a mixed model of emotional intelligence and transformational leadership. However, these researchers call for continued exploration of variables that do.

Mandell and Pherwani (2003) examined the potential moderating role of gender between a mixed model of emotional intelligence and transformational leadership. Their results revealed a significant relationship between emotional intelligence (assessed using the EQ-i) and transformational leadership (assessed using the MLQ-5X) ( $r = .50$ ) among

32 managers from several organizations. Although women ( $M = 109.56$ ) scored significantly higher than men ( $M = 98.31$ ) on the emotional intelligence measure, no significant gender differences on transformational leadership were revealed, and gender did not moderate the relationship between emotional intelligence and transformational leadership, indicating that gender does not likely play a significant role in the relationship between these two variables.

Thus, in sum, most of the studies examining the relationship between mixed models of emotional intelligence and transformational leadership support a relationship between the two variables but are limited and not completely consistent. The cause for the lack of consistency may be because, although a mixed model approach is used in each study, emotional intelligence is defined and measured differently across almost every one of these studies, and most of these researchers noted that an ability-based measure is likely the more appropriate model to use. Transformational leadership is also almost exclusively measured as self-report ratings across these studies. The researchers examining potential moderators revealed little about factors that influence the relationship between emotional intelligence and transformational leadership and concluded that the need remains to examine the relationship between emotional intelligence and other behaviors, such as influence strategies and tactics, to better explain this relationship (Barbuto & Burbach, 2006). Therefore, these studies do not clearly explain the relationship between mixed models of emotional intelligence and transformational leadership, and consequently, given the low correlation between self-report and ability-based emotional intelligence (Brackett et al., 2006), shed no light on

the relationship between ability-based emotional intelligence and transformational leadership.

The inconsistent findings reviewed above and the commonly recognized rigor of the ability-based approach has led to surprisingly few investigations of the relationship between ability-based emotional intelligence and transformational leadership. Beshears' (2004) dissertation research provided the first empirical examination of the relationship between both self-report (SREIT) and ability-based (MSCEIT) measures of emotional intelligence and transformational leadership self-ratings. Her results revealed a significant relationship between MSCEIT scores and one component of transformational leadership, inspirational motivation ( $R^2 = .09$ ). However, her analyses revealed that ability-based measures of emotional intelligence accounted for only 3-6% of the variance in inspirational motivation, idealized influence, and overall transformational leadership scores when personality, affect, and cognitive ability were included in the predictive model. Additionally and somewhat surprising, self-report measures of emotional intelligence, compared to the ability-based measure, accounted for 20-42% of the variance in intellectual stimulation, inspirational motivation, idealized influence, and transformational leadership scores, when replacing the ability measure of emotional intelligence in the same predictive model. Relative importance analyses indicated that the self-report measure added more to the prediction of leadership than did ability-based emotional intelligence, however the researcher concluded that this was likely due to mono-method bias of the emotional intelligence and transformational leadership self-report measures, highlighting the potential methodological flaws of this type of data collection.

In contrast, Beshears (2004) found no evidence of a significant relationship between ability-based emotional intelligence and three (individualized consideration, idealized influence, or intellectual stimulation) of the four dimensions of transformational leadership. Furthermore, Weinberger's (2004) dissertation research included the examination of the relationship between MSCEIT ability-based emotional intelligence scores of 138 manufacturing managers and transformational leadership ratings on the MLQ-5X provided by 791 of their subordinates. She reported finding no significant relationships between MSCEIT and MLQ scores, and concluded that the practice of measuring emotional intelligence as an indicator of managers' leadership skills was not based on sound data. Therefore, the results of the two studies examining ability-based emotional intelligence and transformational leadership are inconsistent, just like the results on the mixed model of emotional intelligence and transformational leadership.

Overall, a review of the research on relationships between both mixed and ability-based models of emotional intelligence and transformational leadership revealed several interesting trends. An examination of the definitions of emotional intelligence and transformational leadership leads to the assumption that the two constructs are related. However, the actual empirical relationship between these two constructs is inconsistent. There seems to be consensus among the researchers conducting these studies that the inconsistency is likely due to the multiple conceptualizations and assessments of emotional intelligence and the self-report assessments of transformational leadership used across studies (Beshears, 2004; Barbuto & Burbach, 2006; Brown et al, 2006; Hoffman & Frost, 2006). In addition, researchers state that the ability-based model is the more rigorous approach that should be leveraged to study emotional intelligence and outcomes

such as transformational leadership. Despite this, only two studies have examined the relationship between the ability-based model of emotional intelligence and transformational leadership, and these results were mixed as well. Furthermore, previous investigations of variables that may moderate or mediate the relationship between emotional intelligence and transformational leadership have explained little and have called for further research in this area in an effort to reveal the true nature of the relationship between emotional intelligence and transformational leadership.

Therefore, the current studies improved upon previous research by using the more rigorous ability-based measure of emotional intelligence, obtaining both self-ratings and behavioral measures of transformational leadership, and investigating a potential mediating variable, emotional competence. Emotional competence was chosen as the potential mediator because previous researchers have suggested that ability-based emotional intelligence provides the foundation for emotional competence, and emotional competence is a required antecedent to performance and leadership (Cherniss, 2001). In other words, according to these researchers, emotional intelligence indicates an employee's ability for learning emotional competence, but does not guarantee that the employee has, in fact, learned or will exhibit these behaviors (Cherniss, 2001; Abraham, 2004). Thus, the current studies examined the role of emotional competence as a mediator in the relationship between ability-based emotional intelligence and transformational leadership, which had yet to be explored in the literature.

## Chapter 5

### The Mediating Role of Emotional Competence

The empirical literature reviewed in the previous chapters revealed the need for a clearer understanding of the relationship between emotional intelligence and transformational leadership, the issues associated with the different operationalizations of emotional intelligence, the methodological issues with self-report assessments of both emotional intelligence and transformational leadership, and the lack of research on mediating or moderating variables between these two constructs. The previous research that included possible mediating or moderating variables (e.g. Sivanathan & Fekken, 2002; Barbuto & Burbach, 2006) provided little clarity or explained variance between emotional intelligence and transformational leadership. Overall, based on the above review of the research on emotional intelligence and transformational leadership, these issues remained unresolved.

Leading emotional intelligence researchers have suggested emotional competence as a likely mediating variable (see Cherniss, 2001). However, there has been no empirical evidence that ability-based emotional intelligence is related to emotional competence. As a result, the relationship between ability-based emotional intelligence, emotional competence, and transformational leadership was unclear. Therefore, the following chapter will review the assumed relationship between ability-based emotional intelligence and emotional competence, as well as detailed descriptions of two measures of emotional competence. One of the emotional competence measures reviewed was used as the foundation for a new measure of emotional competence used in the current studies. The rationale for the development of a new measure of emotional competence will be

outlined. These descriptions and rationale will be followed by a review of the research supporting possible links between ability-based emotional intelligence, emotional competence, and transformational leadership. Finally, based on this research, the logic for emotional competence as a mediator between ability-based emotional intelligence and transformational leadership will be outlined.

Several researchers have linked emotional intelligence to emotional competence inherently within the construct definition of emotional competence. According to Boyatzis and colleagues, emotional competence is a group of learned capabilities based on emotional intelligence that leads to outstanding performance in the workplace (Boyatzis et al., 2000). Emotional intelligence is “observed when a person demonstrates the competencies that constitute self-awareness, self-management, social awareness, and social skills at appropriate times and ways in sufficient frequency to be effective in the situation” (Boyatzis et al, 1999, p. 343).

Similarly, Goleman defined emotional competence as the result of emotional intelligence, the manifestation of emotional intelligence that then translates into effective performance, and he postulated that each domain of emotional intelligence forms the foundation for emotional competence (Goleman, 1995; 1998). Therefore, according to Goleman (2001), ability-based emotional intelligence represents the *potential* for achieving mastery of specific abilities in this domain, and emotional competence represents the degree to which an individual has mastered specific skills that build on that potential, and thus allow greater effectiveness in the workplace.

Based on this logic, Emmerling and Goleman (2003) stated that, “emotional intelligence might predict the ease by which a given individual will be able to master the

specific skills and abilities of a given emotional competence” (p.17). Goleman (1998) has asserted, and according to Cherniss (2001), Mayer and his colleagues have agreed that ability-based emotional intelligence provides the foundation for emotional competence. Thus, these researchers seem to be suggesting that a linear relationship exists between emotional intelligence and emotional competence.

From this, Boyatzis and Goleman developed a multi-rater measure of emotional competence, the Emotional Competence Inventory (ECI; Boyatzis et al., 2000) based on the assumption that emotional intelligence provides the foundation for emotional competence. Although they had no empirical data to support the notion, they reviewed the literature and identified the emotional competencies that seemed the likely manifestation of emotional intelligence. The ECI measures the following emotional competencies: the extent to which an individual exhibits behaviors such as emotional self-control, honesty and integrity, flexibility in adapting to different circumstances, challenging goal-setting, calculated risk-taking, bending the rules when necessary to get the job done, demonstrates sensitivity and understands others’ perspectives, seeks ways to increase customer satisfaction and loyalty, reads a group’s emotional currents and power relationships, detects crucial social networks, uses complex strategies like indirect influence to build consensus and support, deals with difficult issues straightforwardly, listens well, leads by example, guides the performance of others while holding them accountable, challenges the status quo, models the change expected of others, handles difficult people with diplomacy and tact, cultivates and maintains extensive informal networks, builds rapport, balances focus on task with attention to relationships, builds team identity and commitment, and shares credit (Boyatzis et al., 1999).

However, similar to the criticism of mixed model measures of emotional intelligence discussed in an earlier chapter, the ECI has also been criticized for including measures of traits, motivational factors, skills, and outcome behaviors, and as previously noted was deemed “preposterously all-encompassing” (Locke, 2005, p.428). It does seem unlikely that all of these competencies are related to the ability-based definition of emotional intelligence, given the large number included. Furthermore, there is little, if any, empirical research linking emotional intelligence to these types of behaviors. Therefore, the assumption upon which the ECI was developed, that an underlying ability of emotional intelligence manifests into emotional competence, has not been directly empirically tested. The proposed studies will look to provide a test of this assumption by using a less confounded measure of emotional competence, the foundation for which is described below.

Perhaps in response to the criticism of the ECI, another program of research provided a more refined conceptualization of emotional competence. In an examination the relative predictive value emotional, intellectual, and managerial intelligence competencies when predicting managers’ level advancement, Dulewicz and Higgs (2000) created scales to measure each of these competencies. Based on a content analysis of the 40 competencies on the Job Competencies Survey (Dulewicz, 1998), they mapped the 16 competencies that seemed most relevant to emotional intelligence. Principal component factor analysis on ratings from 100 managers revealed 6 independent (4 unipolar and 2 bi-polar) factors among the emotional competencies measured. The factors and their corresponding alpha reliability coefficients were sensitivity vs. achievement (.61), resilience (.71), influence and adaptability (.61), decisiveness and assertiveness (.56),

energy vs. integrity (.54), and leadership (.71). The specific emotional competencies, factor loadings, and corresponding factor were as follows: perceptive listening (.78, sensitivity vs. achievement), sensitivity (.51, sensitivity vs. achievement), flexibility (.51, sensitivity vs. achievement), achievement orientation (-.78, sensitivity vs. achievement), stress tolerance (.65, resilience), resilience (.81, resilience), persuasiveness (.73, influence and adaptability), negotiating (.72, influence and adaptability), adaptability (.67, influence and adaptability), decisiveness (.84, decisiveness and assertiveness), ascendancy (.65, decisiveness and assertiveness), energy (.81, energy and impact), impact (.62, energy and impact), integrity (-.56, energy and impact), motivating others (.84, leadership), and leadership (.78, leadership). The alpha reliability coefficient for the overall emotional intelligence competencies scale was .61; lower than the recommended reliability coefficient of .70 (Nunnally, 1978).

Twelve of the 40 job competencies were identified as intellectual intelligence competencies. Principal component factor analysis revealed 4 independent unipolar factors among the intellectual intelligence competencies. The factors and their corresponding alpha reliability coefficients were analysis and judgment (.76), planning and organizing (.73), strategic perspective (.54), and creativity and risk-taking (.48). The specific intellectual intelligence competencies, factors loadings, and corresponding factor were as follows: information collection (.81, analysis and judgment), problem analysis (.68, analysis and judgment), numerical interpretation (.77, analysis and judgment), judgment (.50, analysis and judgment), detail conscious (.75, analysis and judgment), planning (.84, planning and organizing), organizing (.87, planning and organizing), helicopter (.62, strategic perspective), organizational awareness (.73, strategic

perspective), external awareness (.75, strategic perspective), creativity (.74, creativity and risk-taking), and risk-taking (.67, creativity and risk-taking). The alpha reliability coefficient for the overall intellectual intelligence competencies scale was .56; also lower than the recommended reliability coefficient of .70 (Nunnally, 1978).

Finally, the remaining 12 competencies on the Job Competencies Survey were identified as managerial intelligence competencies. Factor analysis revealed 4 independent (3 unipolar, 1 bi-polar) factors among the managerial intelligence competencies. The factors and their corresponding alpha reliability coefficients were supervision (.63), oral communication (.75), business sense vs. self-management (.49), and initiative and independence (.49). The specific managerial intelligence competencies, factor loadings, and corresponding factor were as follows: delegating (.58, supervision), appraising (.74, supervision), developing subordinates (.88, supervision), oral expression (.85, oral communication), oral presentation (.88, oral communication), business sense (-.58, business sense vs. self-management), self-management (.65, business sense vs. self-management), reading (.65, business sense vs. self-management), written communication (.61, business sense vs. self-management), initiative (.75, initiative and independence), independence (.72, initiative and independence), and tenacity (factor loading not reported, initiative and independence). The alpha reliability coefficient for the overall managerial intelligence competencies scale was .25. This level of reliability is significantly lower than Nunnally's recommended .70 and indicates a need for improvement to this scale.

The current studies included an assessment of Dulewicz and Higgs' (2000) emotional, intellectual and managerial intelligence competencies to determine the relative

value of emotional competence in the relationship between ability-based emotional intelligence and transformational leadership, while controlling for the effect of intellectual and managerial intelligence competencies. However, in the current studies, new measures of each of these competencies were used.

There were several reasons for developing new measures. First, Dulewicz and Higgs' measures of emotional, intellectual, and managerial intelligence competence were used in only 2 published studies. Second, the reported reliability levels for the scales were moderately to well below Nunnally's (1978) recommended reliability coefficient of 0.70. Furthermore, when reviewing Dulewicz and Higgs' source of definitions for each of these competencies, the Institute of Directors' book on Standards for the Board (2001), there were no definitions for several of the emotional, intellectual, and managerial intelligence competencies. For many of the competencies that were defined, the behavioral definitions could be used to create only one or two items for measurement. Furthermore, Dulewicz' (1998) Job Competencies Survey is no longer available in print, and attempts to obtain the definitions from him were unsuccessful. Therefore, items based on the definitions published by the Institute of Directors were used as the foundation of a measure to assess these competencies, where they exist, but these items were augmented by additional items to create new measures of emotional, intellectual, and managerial competence.

To ensure construct validity of these new measures, subject matter experts in a pilot study described below evaluated the additional items. A detailed description of the development of these measures will be outlined in the following chapter. Using these more rigorous measures, the current studies provide the first empirical test of the

relationship between ability-based emotional intelligence and emotional competence, while controlling for the effects of intellectual and managerial intelligence competencies.

In addition to testing a more valid and reliable measure of emotional competence, the current studies also provide an empirical test of the assumed relationship between ability-based emotional intelligence and emotional competence. Although no such empirical evidence has previously been published, there is some research to support the notion that these two constructs are related. Brackett and his colleagues conducted several studies to determine the relationship between an ability-based measure of emotional intelligence and perceived social competence (Brackett et al., 2006). Social competence was defined as active or passive and constructive or destructive responses to positive and negative events with a friend. Scores on the MSCEIT correlated significantly with perceived social competence. However, this effect was present only for men. More specifically, among men, MSCEIT scores were negatively correlated with the tendency to use both active and passive destructive responses and passive constructive responses to positive interpersonal events ( $r_s = .23$  to  $.33$ ). However, among women, scores on the MSCEIT were negatively associated with only active destructive strategies ( $r = .14$ .)

Similar findings emerged for perceived responses to negative events. Among men, MSCEIT scores were negatively associated with both active and passive destructive strategies, ( $r_s = .22$  and  $.27$ ), while among women, MSCEIT scores were negatively correlated with active destructive strategies ( $r = .17$ ). Overall, men with lower MSCEIT scores were more likely to use both passive and active destructive strategies in response to both relationship conflict and others' reports of positive events. Therefore, these

researchers concluded from these findings that scores on the MSCEIT predict perceived social competence, but only among men (Brackett et al., 2006).

In a follow-up study, Brackett and his colleagues had participants complete the MSCEIT and then participate in a “getting to know you” exercise with a confederate in order to assess actual social competence behaviors. Ratings of the participants’ social interaction behaviors from the participants, the confederate, and several observing judges were then obtained. The results revealed that, again, among only men, scores on the MSCEIT were significantly related to confederates’ ratings of participants’ interest in the task ( $r = .48$ ) and judges’ ratings of social engagement ( $r = .47$ ), ability to work on a team ( $r = .53$ ), and overall social competence ( $r = .51$ ) (Brackett et al., 2006).

These researchers concluded that the results of these studies support the notion that emotional intelligence scores, as measured by the MSCEIT, were associated with social competence, but only among men. Compared to men with lower emotional intelligence scores, men with higher emotional intelligence scores reported using less destructive strategies in both positive and negative emotional situations with a friend and were judged by the confederate and observing judges to be more socially competent in a laboratory-based social interaction (Brackett et al., 2006).

Brackett and his colleagues (2006) recommended that these findings need to be replicated with other operationalizations of social competence in a wider variety of social interaction situations, including leader-follower scenarios, and that the research on ability-based emotional intelligence and competence receive further attention to understand these gender differences. With respect to the current proposal, these findings provide at least some initial empirical support for a relationship between ability-based

emotional intelligence and emotional competence, and the current studies will examine this relationship in a leader-follower scenario. Gender will be assessed in a background information form, so that the effect of gender can be explored. Finally, although the competencies in this study were categorized as social, the scenarios required participants to deal with emotional circumstances, suggesting that similar patterns might emerge among emotional competencies.

Interestingly, the state of research on the relationship between emotional competence and transformational leadership is similar to that of emotional intelligence and emotional competence. Again there are no direct empirical investigations of a link, but there are intuitive links and some research to suggest a link is possible. From an intuitive perspective, emotional competence seems a likely antecedent to transformational leadership. Emotional or affective competence often includes behaviors such as being personally involved, being sensitive to people's feelings, and being sensitive to values (Fineman, 1997). Most managerial competencies on emotion are expressed as externally directed, often towards subordinates, and the connections between emotional competence and transformational leadership seem likely, given the role of emotion in transformational leadership.

Specifically, the competencies that make up Dulewicz and Higgs' (2000) conceptualization of emotional competence seem intuitively linked to transformational leadership behaviors. A leader exhibiting the emotional competence of integrity is likely to be better able to gain trust and respect, instill confidence, exhibit high standards of moral conduct and elicit high personal regard from followers. A leader exhibiting perceptive listening skills is likely viewed as more considerate and is better able to

appraise how to best motivate and inspire followers, having heard the needs and expectations of followers. Therefore, integrity and perceptive listening were expected to predict transformational leadership behaviors. The leader who is competent in achievement orientation and motivating others can instill pride, build confidence, present a vision, and encourage followers to take ownership of that vision, and empirical evidence supports the relationship between motivation and transformational leadership (Barbuto & Scholl, 1998). Individuals who possess emotional competencies such as resilience and decisiveness are likely better at making self-sacrifices, building confidence and commitment to goals, sharing commitment to goals, and perceiving the unique developmental needs of followers which are all part of being a transformational leader. Individuals' competent in exhibiting sensitivity and energy would likely treat all followers equally, taking their individual needs into consideration, and be able to arouse strong emotion and stimulate optimism and enthusiasm about a goal. Therefore, the arguably emotional competencies of achievement orientation, motivating others, resilience, decisiveness, sensitivity and energy were expected to predict transformational leadership behaviors.

In addition, a leader who is flexible and adaptable should also be better equipped to recognize and adjust to the unique growth, developmental, and achievement needs of followers. Negotiation skills are likely key in presenting a vision and getting followers with different perspectives and needs to agree to take ownership of that vision. The very nature of being a transformational leader suggests competence in stress tolerance, ascendancy, and impact. Transformational leadership demands that a leader balance the intellectual, motivational, developmental needs of each individual he/she leads, all while

also accomplishing business goals. In order to balance these needs, the leader must be competent at tolerating a large amount of stress, and to accomplish these goals, a transformational leader must have ascended to a position of power to have impact. The unique ability of transformational leaders is how they have impact once in that position of power. In fact, the empirical evidence that transformational leadership behaviors are generally associated with more effective work units (Bass & Avolio, 1993) suggests that having impact is likely related to being a transformational leader.

Furthermore, an individual with competence in persuasiveness and impact is likely better equipped to engender loyalty and use symbolic actions and persuasive language. There is some empirical evidence to support a relationship between impact, defined by different bases of power (French & Raven, 1959), and transformational leadership. French and Raven (1959) identified the following five bases of power: referent power (defined as the ability to influence others because of admiration, respect, attraction and identification of a follower with a leader), expert power (defined as the ability to influence others based on level of technical knowledge or expertise), reward power (defined as the ability to influence others using tangible outcomes), coercive power (defined as the ability to influence others using implied or explicit threats), and legitimate power (defined as the ability to influence others based on recognized position-based authority and role expectations). There is evidence of relationships between four of the five bases of power and an overall measure of transformational leadership; referent ( $r = .70$ ), expert ( $r = .57$ ), legitimate ( $r = .32$ ), and reward ( $r = .45$ ) (Rahim, Antonioni, & Psenicka, 2001). Therefore, the emotional competencies of flexibility, adaptability,

negotiating, stress tolerance, ascendancy, impact, and persuasiveness were expected to predict transformational leadership behaviors.

In addition to the intuitive links between emotional competence, as defined by Dulewicz and Higgs (2000) and transformational leadership, there are several studies that provide empirical support for a relationship between emotional competence and leadership in general. In a test of the relationship between emotional competence, performance, and potential, Cavallo and Brienza (2004) revealed that managers at Johnson & Johnson who were rated 4.1 or greater on a 5-point scale of performance were also rated significantly higher than other managers on ECI (Boyatzis et al., 1999) competencies of self-confidence, achievement orientation, initiative, leadership, influence, and change catalyst. Overall, high performing leaders were rated significantly higher than all other leaders on all 4 dimensions of emotional competence by supervisors and subordinates. Peers rated high performing leaders significantly higher than other leaders on the self-awareness and self-management clusters of the ECI. The competencies of self-confidence, achievement orientation, initiative, leadership, influence, and change catalyst distinguished high performing leaders from all other leaders across the three rater groups.

Managers who were identified as high potential by their supervisors (rated as 4 or higher) were also rated significantly higher than other managers on the accurate self-assessment, self-confidence, adaptability, achievement orientation, initiative, developing others, service orientation, leadership, influence, communication, change catalyst, conflict management, and building bonds competencies. Supervisors rated high-potential leaders higher on over half of the emotional competencies measured, as well as in the

self-awareness, self-management, and social skills clusters compared to ratings of all other leaders. Peers rated high-potential leaders higher on 6 of 20 emotional competencies, and subordinates, with the exception of a slight difference in ratings on Conscientiousness, did not rate high-potential leaders any differently than all other leaders.

These researchers conclude that their findings support a relationship between emotional competence and effective leadership, but they also note that supervisor ratings may have been biased due to their knowledge of an employee's potential status. They note that it is also possible that supervisors had enhanced knowledge of the skills necessary to be successful at higher levels within the organization, and therefore provided more accurate assessments of employees. They also suggested that high-potential managers may make a concerted effort to demonstrate their capabilities to supervisors, in order to increase the likelihood of higher potential ratings. Furthermore, emotional competence was measured using the ECI, which may have confounded the results. Nonetheless, these findings lend support to the notion that higher levels of emotional competence distinguish high-performing and high-potential leaders from all other leaders and lend support to the notion that emotional competencies may be related to effective leadership (Cavallo & Brienza, 2003).

Dulewicz and Higgs (2000) provide further support for the relationship between emotional competence and leadership in the study in which they developed the emotional, intellectual, and managerial intelligence competence measures. They examined the relationship between scores on the emotional, intellectual, and managerial intelligence competency scales and managers' level advancement over a 7-year period.

Significant, positive correlations were revealed between emotional (.29), intellectual (.28), and managerial (.26) intelligence competencies and managers' level advancement. When combining the emotional and intellectual competencies in a composite measure, the correlation obtained was even stronger (.38). A composite score of all three intelligence competencies was also significantly and positively correlated to managers' level advancement (.40). When examining the correlations between the factors that make up the emotional intelligence competency measure, only one factor (decisiveness and assertiveness) was significantly correlated to level advancement (.27).

These researchers also conducted regression analysis to determine the degree to which emotional, intellectual, and managerial intelligence competencies, both separately and in combination, predict long-term managerial advancement. Emotional, intellectual, and managerial intelligence competencies accounted for 36%, 27%, and 16% of variance in managerial advancement, respectively. When combining emotional and intellectual intelligence competency scores, 52% of variance in level advancement was explained, and when combining emotional, intellectual, and managerial intelligence competency scores, 71% of variance in level advancement was explained.

Based on the findings of their study, these researchers conclude that they have strong support for the role of emotional intelligence competencies in the prediction of managers' level of advancement. They note that, in addition, the combination of emotional, intellectual, and managerial intelligence competencies explained 71% of variance, likely close to the ceiling of variance that can be explained when using this type of data. These researchers also conclude that they have relatively strong support for the factors identified among the emotional, intellectual, and managerial intelligence

competency scales, and the competencies identified are almost identical to those identified by Dulewicz in previous research (Dulewicz, 1994).

In a similar series of studies, Dulewicz and Higgs (2003) provided further support for their conceptualization of emotional competence. They examined the importance of emotional, intellectual, and managerial intelligence competencies for senior managers at varying levels within organizations. Their objective was to test Goleman's (1996) assertion that the higher one rises within an organization, the more important emotional intelligence becomes. In the first study, chairmen, chief executive officers, executive directors, and non-executive directors rated the extent to which 10 emotional competencies identified as closely linked to emotional intelligence were relevant to successful performance. The competencies included were integrity, listening, motivating others, influence and persuasiveness, achievement motivation, resilience, decisiveness and intuitiveness, determination, sensitivity, and energy. A majority of chairmen (58-95%) rated all emotional competencies (with the exception of energy) as vital or highly relevant to success. A majority of chief executive officers (54-96%) rated all 10 emotional competencies as vital or highly relevant to success. A majority of executive directors (52-86%) rated integrity, motivating others, achievement motivation, resilience, decisiveness, determination, and energy as vital or highly relevant to success, and a majority of directors (55-90%) rated only integrity and listening as vital or highly relevant to success. These researchers suggest that the importance of emotional intelligence competencies decreases as level in the organization decreases.

In a second study, Dulewicz and Higgs obtained self-ratings of performance on the same 10 emotional intelligence competencies in addition to 14 intellectual

intelligence competencies and 9 managerial intelligence competencies from a sample of chairmen, chief executive officers, executive directors, and non-executive directors. They combined the chairmen and chief executive officers into one group and compared their ratings to the executive and non-executive directors. The results revealed that chairmen and chief executive officers reported significantly higher performance on the emotional intelligence competencies ( $t = 2.07, p = .04$ ) and intellectual intelligence competencies ( $t = 2.97, p = .01$ ) when compared to executive and non-executive directors. No differences were revealed among managerial intelligence competency ratings.

Finally, in a third study, a sample of 100 directors and managers completed the Job Competency Survey (Dulewicz, 1998). Emotional, intellectual, and managerial intelligence competency scores were determined using the same factor structure that was outlined in Dulewicz and Higgs' (2000) earlier research, such that 16 emotional, 12 intellectual, and 12 managerial intelligence competencies were assessed. Results revealed that directors reported significantly higher performance on overall emotional intelligence competencies ( $t = 2.66, p = .01$ ) as well as the sensitivity ( $t = 2.86, p = .01$ ) and resilience ( $t = 2.82, p = .01$ ) factors of emotional intelligence competencies when compared to managers. No differences were reported among the intellectual or managerial intelligence competencies (Dulewicz & Higgs, 2003).

The researchers suggest their results provide support for Goleman's claim that emotional intelligence becomes more significant as one progresses up the leadership hierarchy. However, there are several methodological flaws in this series of studies. One, different operationalizations of emotional, intellectual, and managerial competencies are used across the studies, and no explanation is provided regarding why this was done.

More specifically, there is no empirical evidence provided regarding why only 10 emotional intelligence competencies were included in the measure used in the first 2 studies and then 16 emotional intelligence competencies were used in the third study or why 14 intellectual and 9 managerial intelligence competencies were used in the second study and 12 intellectual and 12 managerial intelligence competencies were used in the third study. The competence measures used in Dulewicz and Higgs' (2000) previous research were reported to have a reliable factor structure and reasonable reliability. It is unclear why or how these measures were changed across studies. Finally, while it is useful to understand the differences in self-rated relevance for and performance on emotional, intellectual, and managerial intelligence competencies, it is not possible to draw any sound conclusions regarding the relationship between each of these competencies and actual behaviors. Although there appears to be a decrease in relevance for and self-reported performance on emotional intelligence competencies as level in organization decreases, there is still a need to determine if individuals with higher levels of emotional intelligence competencies actually behave differently than individuals with lower levels of emotional intelligence competencies. The results from these studies support a relationship between emotional competence and leadership, but the current studies provide a more rigorous test of this notion.

There is also some initial support for a relationship between emotional competence and effective leadership behaviors. Dulewicz, Young, and Dulewicz (2005) examined the value of managerial, intellectual, and emotional competencies in the prediction of job performance and leadership ratings among Royal Navy Officers. Competencies were measured using the Leadership Dimensions Questionnaire (LDQ;

Dulewicz & Higgs, 2000), a self-report assessment of competencies. The emotional competencies measured by the LDQ were self-awareness, emotional resilience, motivation, interpersonal sensitivity, influence, intuitiveness, and conscientiousness. Performance was defined as ratings from two performance appraisals that assess current performance and potential, and leadership was defined as ratings of leadership competency from the same two performance appraisals.

The results of this study revealed support for a relationship between emotional competencies and overall performance and leadership ratings. Overall performance was significantly related to resilience ( $r = .18$ ), sensitivity ( $r = .15$ ), influence ( $r = .18$ ), motivation ( $r = .26$ ), and conscientiousness ( $r = .12$ ). Officer ratings of leadership were significantly related to resilience ( $r = .23$ ), influence ( $r = .22$ ), and motivation ( $r = .32$ ). Regression analysis revealed that emotional competencies accounted for 9% of the variance in overall performance ratings and 13% of the variance in leadership ratings. With respect to the current studies, the results suggest that a relationship exists between three of the emotional competencies included in the Dulewicz and Higgs' (2000) conceptualization of emotional competence and leadership (i.e. resilience, sensitivity, and motivation). It's also possible that these competencies would account for even more variance among transformational leadership ratings, a style of leadership that may inherently rely on more emotional interactions. Overall, the results of Dulewicz' and his colleagues' research across several studies lend support to the current hypotheses.

Thus, in total, the research reviewed in this chapter and previous chapters has revealed an assumed relationship between ability-based emotional intelligence and emotional competence but no empirical evidence for this relationship, inconsistent

evidence for a relationship between ability-based emotional intelligence and transformational leadership, and the lack of any direct test of a relationship between emotional competence and transformational leadership. Previous measures of emotional competence have either been confounded or lacking in acceptable levels of reliability and clarity on the items used to measure the competencies. This review has also revealed that it is possible that the relationship between the ability-based measures of emotional intelligence and transformational leadership may be mediated by emotional competence, that there is theoretical logic and initial empirical support to suggest this mediating relationship is possible, but this notion had not previously been tested. Thus, these areas of research could be improved upon in three ways: 1) through the use of a methodologically sound measure of ability-based emotional intelligence and multiple sources of data measuring transformational leadership behaviors, 2) through the inclusion of emotional competence as a mediating variable to help explain the link between ability-based emotional intelligence and transformational leadership, and 3) through the development and use of a more rigorous measure of emotional competence. Therefore, the following chapter will provide a detailed description of how a more rigorous measure of emotional competence was developed, followed by a chapter reviewing the methodology and hypotheses for the two studies conducted to provide these needed improvements.

## Chapter 6

### **The Development of a New Measure of Emotional Competence**

Previous research has provided support for a relationship between emotional competence and job performance and leadership. However, the existing measures of emotional competence used in these studies are methodologically flawed, leading to questions about the validity of the relationships reported. As noted previously, the Emotional Competence Inventory developed by Boyatzis and Goleman has been criticized for including too wide a range of constructs, calling into question its construct validity (Locke, 2005; Mayer et al., 2008). As also discussed above, the measure of 16 emotional competencies developed by Dulewicz and Higgs (2000), although supported by empirical, factor-analytic evidence, has a reliability coefficient of .61, slightly lower than Nunnally's (1978) recommended .70. Furthermore, there is a lack of clarity regarding how some of 16 competencies are measured and several of these competencies are measured using only one or two items, which could negatively impact the reliability of the scales.

Therefore, in order to improve the measurement of emotional competence, a new measure was developed and used in the two current studies. The following paragraphs provide a detailed explanation regarding how I constructed this new measure of emotional competence. The emotional competence measure used in Main Studies 1 and 2 (after revisions resulting from two pilot studies had been incorporated) can be found in Appendix N, which includes the competency associated with each behavioral item and the original source from which the behavioral item came.

The new emotional competence measure builds upon Dulewicz and Higgs' measure, using the same competencies to provide its structure. Factor analysis and reliability analysis have previously shown some initial, although moderate, support for these competencies as a measure of emotional competence ( $r_s < .51$ , Dulewicz & Higgs, 2000), therefore, providing a rationale to use a similar structure. Yet, reliability coefficients were below the recommended level of .70 (Nunnally, 1978), therefore highlighting a need for improvements to the measure.

According to Dulewicz and Higgs, the items making up their emotional competence measure were based upon the behavioral definitions of each competency as described in the Institute of Directors' Standards of the Board (2001). However, only 11 of the 15 emotional competencies identified by Dulewicz and Higgs were defined by the Institute of Directors. It is unclear how the remaining 4 items were measured, and as previously noted, the original Job Competencies Survey is no longer in print or available from the original author. Therefore, for those competencies for which there are definitions outlined by the Institute of Directors, items made up of those behavioral definitions were included on the new measure of emotional competence.

To supplement these items and provide items for those competencies not defined by the Institute of Directors, I created items based on the competency model research of Lombardo and Eichinger (2006). I chose to use the competencies outlined by Lombardo and Eichinger because these competencies are based on the empirical research at the Center for Creative Leadership and the research of leading leadership researchers (Levinson, 2006; Kotter, 1996; Gabarro, 1987; Kouzes & Posner, 2003; Bennis, 2003;

Bass, 1990). They have also been used to develop 360-degree feedback and surveys and leadership development programs across many organizations and industries.

Based on the behavioral definitions of each, I mapped Dulewicz and Higgs' emotional competencies to the competencies outlined by Lombardo and Eichinger that seemed most similar. Two of Dulewicz and Higgs' emotional competencies did not require supplemental items, four of their competencies were not defined by the Institute of Directors and, therefore, are measured using behavioral descriptors exclusively from Lombardo and Eichinger's research, and one of Lombardo and Eichinger's competencies (composure) was broadly defined, so I mapped it to two of Dulewicz and Higgs' competencies. In all cases, competencies were mapped based on the similarities in construct name and/or behaviors used to define each, and a criterion of a minimum of four items to assess each competency was used. There were minor revisions made to some of these items, as a result of two pilot studies. Therefore, the following detailed description of the items used to construct this measure and their source describes the original items rather than the revised items actually used in the studies. The detailed results of the pilot studies and all revisions made to the measures are described in a following chapter (see Appendix B for original emotional competence scale, see Appendix N for revised emotional competence scale).

The emotional competencies of persuasiveness and integrity were assessed on the new measure using only behavioral descriptors from Dulewicz and Higgs' conceptualization. Persuasiveness was measured using the following behavioral descriptors: can persuade others to give their agreement; in the face of conflict, use personal influence to achieve consensus; can persuade others to give their commitment;

and use personal influence to achieve agreement. Integrity was measured using the following behavioral descriptors: am truthful; can be relied upon to keep your word; do not have double standards; do not compromise on ethical or legal matters; and am trustworthy.

However, a majority of the competencies on the new measure of emotional competence were assessed using a combination of behavioral descriptors from Dulewicz and Higgs and Lombardo and Eichinger. The emotional competency of perceptive listening was measured using the following items from Dulewicz and Higgs' conceptualization: listen dispassionately, intently, and carefully so that key points can be recalled and taken into account; and ask questions when necessary to ensure understanding. The following behavioral descriptors of Lombardo and Eichinger's listening competency were added as items: have the patience to hear people out; can accurately restate the opinions of others even when I disagree; and practice attentive and active listening.

Decisiveness was measured using the following behavioral descriptors from Dulewicz and Higgs' conceptualization: show readiness to take decisions and take action; and make up your mind. The following behavioral descriptors from Lombardo and Eichinger's timely decision making competency were added as items: can make a quick decision; can make a decision with incomplete information; and can make a decision under tight deadlines and pressure.

Sensitivity was measured using the following items from Dulewicz and Higgs' conceptualization: show an understanding of the feelings and needs of other; and willing to provide personal support or take other actions as appropriate. Behavioral descriptors of

Lombardo and Eichinger's competency of compassion were added as items: demonstrates real empathy with the joys and pains of others; show concern about the work and non-work problems of employees; and asks about employees' plans, problems and desires.

Flexibility was measured using the following behavioral descriptors from Dulewicz and Higgs' conceptualization: adopt a flexible style when interacting with others; and take others' views into account and change position when appropriate. The following behavioral descriptors of Lombardo and Eichinger's learning on the fly competency were added as items: experiments to find solutions; open to change; will try anything to find solutions.

Achievement orientation was measured using the following behavioral descriptors from Dulewicz and Higgs' conceptualization: show commitment, enthusiasm, encouragement, and support; set challenging but achievable goals and standards of performance for self; and set challenging but achievable goals and standards of performance for others. The following behavioral descriptors from Lombardo and Eichinger's action-oriented competency were added as items: enjoy working hard; action-oriented and full of energy for the things I see as challenging.

Adaptability was measured using the following behavioral descriptors from Dulewicz and Higgs' conceptualization: alert and responsive to the need for change; encourage new initiatives; and encourage implementation of new policies, structures, and practices. The following behavioral descriptors from Lombardo and Eichinger's dealing with ambiguity competency were added as items: can comfortably handle uncertainty; and can shift gears comfortably.

Energy was measured using the following behavioral descriptors from Dulewicz and Higgs' conceptualization: exhibit energy; exhibit vitality; and exhibit commitment. The following behavioral descriptors from Lombardo and Eichinger's perseverance competency were added as items: pursue everything with energy and drive; and pursue everything with a need to finish.

Motivating others was measured using the following behavioral descriptor from Dulewicz and Higgs' conceptualization: inspire others to achieve goals to ensure clear understanding of what needs to be achieved. The following behavioral descriptors from Lombardo and Eichinger's motivating others competency were added as items: create a climate in which people want to do their best; can motivate many kinds of direct reports and team or project members; invites input from each person and shares ownership and visibility; and makes each individual feel his/her work is important.

The emotional competencies of negotiating, ascendancy, and impact put forward by Dulewicz and Higgs were not defined by the Institute of Directors. Therefore, these competencies were assessed on the new measure of emotional competence using only behavioral descriptors from Lombardo and Eichinger's competency model. Negotiating was measured using the following behavioral descriptors from their negotiating competency: can negotiate skillfully in tough situations with internal groups; can negotiate skillfully in tough situations with external groups; can settle differences with minimum noise; and can win concessions without damaging relationships. Ascendancy was measured using the following behavioral descriptors from their command skills competency: relish leading; take unpopular stands if necessary; encourage direct and tough debate; is not afraid to end debate and move on; looked to for direction in a crisis;

and face adversity head on. Impact is measured using the following behavioral descriptors from their managing and measuring work competency: clearly assign responsibility for tasks and decisions; set clear objectives and measures; monitors process, progress and results; and design feedback loops into work.

Because Lombardo and Eichinger's composure competency is broad in scope, the behavioral descriptors associated with composure were divided and mapped to both Dulewicz and Higgs' competencies of stress tolerance and resilience. Stress tolerance was not defined by the Institute of Directors, so it is unclear how Dulewicz and Higgs measured this competency. However, for the new measure, the following behavioral descriptors from Lombardo and Eichinger's composure competency were added as items: can handle stress; not knocked off balance by the unexpected; do not show frustration when resisted or blocked; and seen as a settling influence in a crisis. Resilience was measured using the following behavioral descriptor from Dulewicz and Higgs' conceptualization: maintain composure and effectiveness in the face of adversity, setbacks, opposition, or unfairness. The following behavioral descriptors from Lombardo and Eichinger's composure competency were added as items: stay cool under pressure; do not become defensive or irritated when times are tough; considered mature; and can be counted on to hold things together during tough times.

The last emotional competency identified by Dulewicz and Higgs, leadership, was also not defined by the Institute of Directors, but more importantly, is too broad construct to include as a component of emotional competence. Leadership is a separate and distinct construct. Because the goal of the current studies was to determine the relationship between ability-based emotional intelligence, emotional competence, and

transformational leadership, it would not have been methodologically sound to include leadership as a component of the proposed mediator of transformational leadership. Therefore, this competency was not included in the new measure of emotional competence.

Dulewicz and Higgs (2000) also created measures of intellectual and managerial intelligence competencies, in order to understand the relative predictive value of emotional intelligence competencies. Therefore the current studies included measures of intellectual and managerial competence in order to control for the effects of intellectual and managerial intelligence competencies and determine the relative predictive value of emotional competence as a mediator between ability-based emotional intelligence and transformational leadership. However, similar to the process used to create a new, more rigorous measure of emotional competence, new measures of intellectual and managerial intelligence competence were used in the current studies as well.

The new intellectual and managerial competence measures also build upon Dulewicz and Higgs' measure, using the same competencies to provide their structure. Factor analysis and reliability analysis has previously provided support for the intellectual competency measure ( $\alpha = .56$ ). However, the reliability of the managerial competency measure was fairly weak ( $\alpha = .25$ ), further highlighting the need for improvements to its measurement.

Like Dulewicz and Higgs' emotional competence measure, the items making up the intellectual and managerial competence measures were based upon the behavioral definitions of each competency as described in the Institute of Directors' Standards of the Board (2001). Based on the behavioral definitions of each, I mapped Lombardo and

Eichinger's job competencies to Dulewicz and Higgs' intellectual and managerial competencies. However, interestingly, only 10 of the 12 intellectual and 5 of the 12 managerial intelligence competencies identified by Dulewicz and Higgs were defined by the Institute of Directors. In all cases, competencies were mapped based on the similarities in the name of the construct and/or the behaviors used to define each. Again, a criterion of a minimum of four items to assess each competency was also used in the development of these two scales. Similar to the emotional competence measure, there were revisions made to some of the intellectual and managerial competence items, as a result of the two pilot studies (see Appendix B for original intellectual and managerial competence scales, see Appendix M for revised intellectual and managerial competence scales). Therefore, the following detailed description of the items used to construct these measures and their source describes the original items rather than the revised items actually used in the studies. The detailed results of the pilot studies and all revisions made to the measures are described in a following chapter. The intellectual and managerial competence items used in Main Studies 1 and 2, the competency measured, and the source from which the behavioral item came can be found in Appendix M.

Dulewicz and Higgs' intellectual competencies of numerical interpretation and judgment did not require supplemental items, and therefore, were assessed on the new measure using only behavioral descriptors from Dulewicz and Higgs' conceptualization. The following behavioral descriptors provided measures of numerical interpretation: assimilate numerical and statistical information accurately; understand the derivation of numerical and statistical information; make sensible interpretations based on numerical and statistical information; and draw sound interpretations based on numerical and

statistical information. Judgment was measured using the following Dulewicz and Higgs' behavioral descriptors: make sensible decisions or recommendations by weighing evidence; consider reasonable assumptions; consider ethical dimensions; and consider factual information.

However, the majority of the competencies on the new measure of intellectual intelligence competencies were assessed using a combination of behavioral descriptors from Dulewicz and Higgs and Lombardo and Eichinger. Information collection was measured using the following behavioral descriptor from Dulewicz and Higgs' conceptualization: systematically seek all possible relevant information from a variety of sources. The following behavioral descriptors from Lombardo and Eichinger's intellectual horsepower competency were added as items: deal with concepts and complexity comfortably; others would describe you as intellectually sharp, capable, and agile; others would describe you as bright and intelligent; and quickly grasp the essence and underlying structure of anything.

Problem analysis was measured using the following behavioral descriptors from Dulewicz and Higgs' conceptualization: identify problems; and identify possible or actual causes. The following behavioral descriptors from Lombardo and Eichinger's problem solving competency were added as items: use rigorous logic and methods to solve problems; probe all fruitful sources for answers; and can see hidden problems.

Detail conscious was measured using the following behavioral descriptors from Dulewicz and Higgs' conceptualization: insist that sufficiently detailed information is taken into account; insist that sufficiently reliable information is taken into account; insist that sufficiently detailed information is reported when necessary; and insist that

sufficiently reliable information is reported when necessary. The following behavioral descriptor from Lombardo and Eichinger's informing competency was added as an item: provide information so that people can make accurate decisions.

Helicopter was measured using the following behavioral descriptors from Dulewicz and Higgs' conceptualization: rise above the immediate problem or situation; see wider issues and implications; able to relate disparate facts; and able to see relevant relationships between disparate facts. The following behavioral descriptor from Lombardo and Eichinger's perspective competency was added as an item: can easily pose future scenarios.

Organizational awareness was measured using the following behavioral descriptors from Dulewicz and Higgs' conceptualization: aware of the company's strengths and weaknesses; and aware of the likely impact of the management decisions on an organization. The following behavioral descriptors from Lombardo and Eichinger's organizational agility competency were added as items: know how to get things done through formal channels in the organization; know how to get things done through informal networks in the organization; and understand the origin and reasoning behind key policies, procedures, and practices.

External awareness was measured using the following behavioral descriptors from Dulewicz and Higgs' conceptualization: aware of the various factors that determine a company's opportunities and threats (e.g., shareholder, stakeholder, market, technological, environmental, and regulatory factors); and able to imagine possible future states and characteristics of the company in a future environment. The following behavioral descriptors from Lombardo and Eichinger's business acumen competency

were added as items: know the competition; aware of how strategies and tactics work in the marketplace; and knowledge in current and possible future policies, trends, technology or information affecting the market.

Creativity was measured using the following behavioral descriptors from Dulewicz and Higgs' conceptualization: generate imaginative solutions and innovations; and recognizes imaginative solutions and innovations. The following behavioral descriptors from Lombardo and Eichinger's creativity competency were added as items: come up with new and unique ideas; easily make connections among previously unrelated notions; and others see you as original and value-adding in a brainstorming session.

Risk-taking was measured using the following behavioral descriptor from Dulewicz and Higgs' conceptualization: is prepared to take action that involves calculated risks in order to achieve a desired benefit or advantage innovations. The following behavioral descriptors from Lombardo and Eichinger's standing alone competency were added as items: willing to stand up and be counted; willing to be the only champion for an idea or position; and doesn't shirk personal responsibility.

The intellectual intelligence competencies of planning and organizing put forward by Dulewicz and Higgs were not defined by the Institute of Directors. Therefore, these competencies were assessed on the new measure of intellectual competence using only behavioral descriptors from Lombardo and Eichinger's competency model. Planning was assessed using the following behavioral descriptors from their planning competency: accurately scope out length and difficulty of tasks and projects; set objectives and goals; break down work into the process steps; develop schedules and tasks/people assignments;

anticipate and adjust for problems and roadblocks; and measure performance against goals and evaluates results. Organizing was assessed using the following behavioral descriptors from Lombardo and Eichinger's organizing competency: can marshal resources (people, funding, material, support) to get things done; can orchestrate multiple activities at once to accomplish a goal; use resources effectively and efficiently; and arrange information and files in a useful manner.

As previously noted, the same process for the development of a new managerial competence scale was followed as in the development of the emotional and intellectual competence scales. One of Dulewicz and Higgs' managerial competencies did not require supplemental items, four competencies required supplemental items, and seven of their competencies were not defined by the Institute of Directors and, therefore, are measured using only behavioral descriptors from Lombardo and Eichinger's research and the work of Palagi (1993), an adult reading comprehension researcher. A detailed description of the original items used to measure each competency and their source follows below.

The managerial competency of oral expression was assessed on the new measure using only behavioral descriptors from Dulewicz and Higgs' conceptualization. The following behavioral descriptors provide measures of oral expression: speak clearly; speak audibly; have good diction; and speak concisely.

In addition, four of the competencies on the new measure of managerial intelligence competencies are assessed using a combination of behavioral descriptors from Dulewicz and Higgs and Lombardo and Eichinger. Delegating was measured using the following behavioral descriptors from Dulewicz and Higgs' conceptualization: distinguishes between what should be done by others from what should be done by

him/her self; and allocates decision-making or other tasks to appropriate colleagues or subordinates. The following behavioral descriptors from Lombardo and Eichinger's delegation competency were added as items: can delegate both routine and important tasks and decisions; tend to trust people to perform; and let direct reports and others finish their own work.

Oral presentation was measured using the following behavioral descriptors from Dulewicz and Higgs' conceptualization: avoid jargon; and tailor content to audience needs. The following behavioral descriptors from Lombardo and Eichinger's presentation skills competency were added as items: command attention and can manage group process during the presentation; and can change tactics midstream in the presentation when something isn't working.

Written communication was measured using the following behavioral descriptors from Dulewicz and Higgs' conceptualization: written matter is readily intelligible; ideas, information and opinions are conveyed accurately; ideas, information and opinions are conveyed clearly; and ideas, information and opinions are conveyed concisely. The following behavioral descriptor from Lombardo and Eichinger's written communication competency was added as an item: can get messages across that have the desired effect.

Business sense was measured using the following behavioral descriptor from Dulewicz and Higgs' conceptualization: has the ability to identify opportunities to increase company's business advantage. Similar to the broad scope of Lombardo and Eichinger's composure competency, their business acumen competency is equally broad. Therefore, the behavioral descriptors associated with business acumen were divided and mapped to both the intellectual competency of external awareness as well as the

managerial competency of business sense. The following behavioral descriptors from Lombardo and Eichinger's business acumen competency were added as items to measure business sense: know how businesses work; knowledge in current and possible future policies, trends, technology or information affecting the organization; and sensitive to how people and organizations function. It may be problematic to map Lombardo and Eichinger's business acumen to both of Dulewicz and Higgs' business sense and external awareness competencies, particularly because one competency identified by Dulewicz and Higgs is a component of intellectual competence and the other is a component of managerial competence. However, its possible that Lombardo and Eichinger's business acumen competency is in fact too broad to constitute only one competency. The results of the factor analysis of these new measures of intellectual and managerial competence are discussed in a following chapter and help to answer this question.

The remainder of the managerial intelligence competencies put forward by Dulewicz and Higgs were not defined by the Institute of Directors. Therefore, these competencies were assessed on the new measure of managerial competence using behavioral descriptors from Lombardo and Eichinger's competency model and Palagi's (1993) research on adult reading comprehension.

Developing subordinates was assessed using the following behavioral descriptors from Lombardo and Eichinger's developing direct reports and others competency: provide challenging and stretching tasks and assignments; hold frequent development discussions with direct reports; aware of each direct report's career goals; and construct compelling development plans and execute them.

Appraising was assessed using the following behavioral descriptors from Lombardo and Eichinger's sizing up people competency: a good judge of talent; can articulate strengths and limitations of people inside the organization; can articulate strengths and limitations of people outside the organization; and can accurately project what people are likely to do across a variety of situations.

Self-management was assessed using the following behavioral descriptors from Lombardo and Eichinger's self-development competency: personally committed to and actively works to continuously improve your self; understand that different situations and levels may call for different skills and approaches; work to deploy strengths; and work on compensating for weaknesses and limits.

Initiative was assessed using the following behavioral descriptors from Lombardo and Eichinger's career ambition competency: know what you want from a career and actively work on it; are career knowledgeable; make things happen for yourself, market yourself for opportunities; and do not wait for other to open doors.

Independence was assessed using the following behavioral descriptors from Lombardo and Eichinger's self-knowledge competency: know personal strengths, weaknesses, opportunities, and limits; seek feedback; gain insight from mistakes; open to criticism; and do not get defensive when receiving feedback.

Tenacity was assessed using the following behavioral descriptors from Lombardo and Eichinger's drive for results competency: can be counted on to exceed goals successfully; is constantly and consistently one of the top performers; very bottom-line oriented; and steadfastly pushes self and others for results.

Because the competency of reading is neither defined by the Institute of Directors or included in Lombardo and Eichinger's competency model, reading was assessed using the following behavioral descriptors outlined in Palagi's research on adult reading competencies: can identify the main idea communicated in a written document; can understand figurative language in a written document; can draw accurate conclusions from a written document; and can identify mood in a written document.

Subject matter experts in a pilot study reviewed these new measures of emotional, intellectual, and managerial competence to ensure they were reliable and valid. An additional pilot study was conducted to ensure that undergraduate students could understand the vocabulary used on these measures. There were revisions made to several items to ensure the wording was clear. A detailed description of these pilot studies and the resulting revisions can be found below (see Appendix B for original competence scales, see Appendices M and N for competence scales revised based on the results of the pilot studies). Building upon the previous empirical evidence supporting the factor structure of these competencies, descriptive statistics are reported, internal consistency reliabilities and scale intercorrelations were determined, and principal components factor analysis was conducted to ensure that all of the items measured across these three competency scales load on to a 3-factor structure to determine if these new measures are in fact valid measures of emotional, intellectual, and managerial competence. The results of these analyses are reported in detail below.

## Chapter 7

### Overview of Current Research and Hypotheses

The current studies provide the first empirical examination of the possible mediating role of emotional competence in the relationship between ability-based emotional intelligence and transformational leadership. Participants in the first study, which was conducted in a lab, completed a background information form (assessing demographic and work history information), an ability-based measure of emotional intelligence (MSCEIT, Mayer et al., 2000), a new emotional competence measure based on Dulewicz and Higgs' (2000) research, and the MLQ-5X measure of transformational leadership (Bass & Avolio, 2000). In order to supplement the self-ratings of the MLQ-5X measure of transformational leadership, participants also completed three simulation exercises (2 written, 1 oral) from which trained assessors evaluated the participants' transformational leadership behaviors. Participants also completed measures of several control variables (i.e. cognitive ability, personality, positive affect, social desirability, and intellectual and managerial competence measures).

In a second study in an applied setting, graduate medical education residents in a primary care residency program in Central Alabama completed the same measures of background information, emotional intelligence, emotional competence, transformational leadership, and several control variables (i.e. cognitive ability, personality, positive affect, social desirability, and intellectual and managerial competence measures) as those used in the first study. Residents also completed one of the written simulation exercises from Study 1 from which trained assessors rated their transformational leadership. In addition, the residents' supervisors completed the MLQ-5X measure of transformational

leadership to supplement the residents' self- and behavioral ratings of transformational leadership.

The purpose of these studies was to test the hypothesis that emotional competence mediates the relationship between ability-based emotional intelligence and transformational leadership, when controlling for cognitive ability, personality, social desirability, positive affect, and intellectual and managerial competence. It was predicted that ability-based emotional intelligence explains a significant amount of variance in transformational leadership (Hypothesis 1), Baron and Kenny's (1986) first criterion for mediation. To test this hypothesis, an initial model was tested to determine the fit of emotional intelligence as a predictor of transformational leadership and the significance of the path between emotional intelligence and transformational leadership (Hopwood, 2007). It was also predicted that ability-based emotional intelligence explains a significant amount of variance in emotional competence ratings (Hypothesis 2), and that the effect of ability-based emotional intelligence on transformational leadership would be mediated by emotional competence (Hypothesis 3). To test these hypotheses, a second model that included the mediator and control variables was tested to determine fit and the significance of the indirect path of emotional intelligence to transformational leadership via emotional competence.

There were no predictions made at the dimension level of either ability-based emotional intelligence or transformational leadership. The decision to make predictions only at the overall construct level for these two variables is supported by prior empirical evidence. With respect to ability-based emotional intelligence, overall MSCEIT scores have been reported to be more reliable than the dimension scores. In fact, the test manual

explicitly warns that if task level scores are employed, they should be interpreted with caution due to their lower reliability (Mayer et al., 2002). Regarding transformational leadership, Avolio and his colleagues conducted a study using 14 samples and nearly 4,000 leadership reports and found that a six-factor model (combined idealized influence–inspirational motivation, intellectual stimulation, individualized consideration, contingent reward, management by exception–active, and combined management by exception passive–laissez faire) best represented the structure of transformational and transactional leadership when measured together. However, when only transformational leadership behaviors are considered, a single transformational leadership factor represents the data most accurately (Avolio, Howell, & Sosik, 1999; Carless, 1998; Judge & Bono, 2000).

Cognitive ability, personality, positive affect, social desirability, and intellectual and managerial competence were measured as control variables. No predictions were made regarding the demographic variables assessed. Gender was explored due to Brackett and his colleague's findings of a relationship between scores on the MSCEIT and social competence behaviors only among men (Brackett et al., 2006). Ethnicity was not expected to have an effect on the relationship between emotional intelligence, emotional competence, and transformational leadership, because there is general empirical support for the concept of transformational leadership and its positive impact on managerial effectiveness and subordinate effort and satisfaction across cultures (Bass, 1997; Hater & Bass, 1988; Pereira, 1986; Steyrer & Mende, 1994; Yokochi, 1989). However, due to the diverse population at Baruch College, ethnicity was assessed and its

effects were explored. Social desirability was assessed to control for this response tendency on the self-report measures.

No predictions were made regarding the effects of cognitive ability, personality, or positive affect. As mentioned above, each of these variables has been explored in previous research as an antecedent of transformational leadership. Small to moderate amounts of variance in transformational leadership have been explained by these variables. However, measuring and controlling for them provided a more accurate estimation of the variance in transformational leadership explained by ability-based emotional intelligence and emotional competence.

Finally, intellectual and managerial competence were measured in order to isolate the role of emotional competence and help establish empirical evidence for its mediating effect on the relationship between ability-based emotional intelligence and transformational leadership. Structured equation modeling was used to test the predictive model that ability-based emotional intelligence predicts emotional competence, which in turn, predicts transformational leadership.

## **Chapter 8**

### **Method**

#### Pilot Study 1

The purpose of the first pilot study was to obtain ratings from subject matter experts regarding the extent to which they agreed that the statements on each of the competency measures were representative of the competence. In addition, pilot study participants completed the transformational leadership behavioral exercises in order to provide ratings for the extent to which they agreed that each exercise provided them with the opportunity to exhibit transformational leadership behaviors.

Participants. Participants were 11 graduate students at Baruch College, City University of New York who volunteered to act as subject matter experts in the evaluation of new measures of emotional, intellectual, and managerial competence and 3 new behavioral measures of transformational leadership that were used in the main studies.

Measures and Procedure. The new measures of emotional, intellectual, and managerial competence were described in a previous chapter. Participants completed a consent form (Appendix A), reviewed each of these measures and then completed an evaluation form (Appendix B) in which they rated on a scale of 0 (strongly disagree) to 4 (strongly agree) the extent to which they agreed that each behavioral statement is a component of the associated competency noted in parentheses.

Then, pilot study participants completed the behavioral measures of transformational leadership. First, participants completed the first written exercise. The written exercise instructions asked participants to recall and provide a detailed written

account of a time when they successfully led a group through a change (see Appendix P for instructions). The instructions included several example situations. Participants then spent 10 minutes writing and were asked to provide as much detail as possible regarding what behaviors they exhibited to help effectively lead a change.

Next, pilot study participants were asked to complete a second written exercise and a simulated group presentation. The instructions asked each participant to imagine that he/she is the leader of a group of 4 other undergraduate students, and the group has to complete a project for the introductory psychology class. The project requires designing a psychology experiment on a topic of their choice, implementing the study, analyzing the data, and presenting the final results to the class at the end of the semester. However, the topic the group had previously chosen will no longer work, and the participant, as the leader of the group, has to convince the group of a new topic area to research, even though the group is several weeks into pursuing the original topic.

Participants spent 5 minutes reviewing the background information packet (see Appendix R) and then 10 minutes writing a sample email that he/she would send to the group to introduce the need for a project topic change and the new topic proposed. Participants then spent 5 minutes preparing to deliver a 5-minute presentation to two trained evaluators. Finally, the participants delivered the speech to two objective evaluators as though he/she were speaking to the project team about why this new topic area was the best choice for their research project. The objective evaluators completed the transformational items on the MLQ rater form (see Appendix S) while observing the presentation to rate the extent to which each participant exhibited the behaviors

associated with transformational leadership. The objective evaluators completed this evaluation as part of their rater training, a process that is described in more detail below.

The behavioral exercises designed for this study were based on validated assessment center devices used in private leadership consulting. However, they were adapted so that the exercises were placed in a relevant context for the undergraduate participants. Participants were provided with the opportunity to exhibit transformational leadership behaviors by completing written and oral exercises in which they could stress the importance of a project, share a vision related to the project, increase the confidence of their fellow project team members, and stress the common goals of the project in both written and oral format. The overall content was kept consistent with the assessment center. Previous researchers have used similar scenarios (e.g. sharing vision related to a project, enthusiastically delivering an inspirational speech to a team) to operationalize transformational leadership in a lab setting (Howell & Frost, 1989; Frese, Beimeel, & Schoenborn, 2003). However, because these behavioral measures of transformational leadership had never been used in previous research, subject matter experts in this pilot study were asked to complete the exercises that were used in the main study to ensure these exercises in fact provide the opportunity to exhibit transformational leadership behaviors.

Finally, pilot study participants were also asked to review the instructions for the first writing exercise and the background information packet that was designed to provide context around the group dynamics that were in place prior to the needed topic change (i.e. profiles of other group members, two emails from group members complaining about the performance of the other two group members; see Appendix R) for the second

writing exercise and simulated presentation. They were asked to note on a piece of paper if they felt that any of this information was confusing, unclear, or unnecessary for the materials.

Upon completion of reviewing all of these materials and completing the three behavioral exercises, pilot study participants also completed evaluation forms (Appendices C-E) in which they were asked to rate on a scale of 0 (strongly disagree) to 4 (strongly agree) the extent to which they felt each of the behavioral exercises would provide main study participants with the opportunity to exhibit the behaviors associated with transformational leadership. Ratings were summed and averaged across all pilot study participants.

Results and Discussion. It was expected that pilot study participants would agree the items designed to measure each emotional, intellectual, and managerial competency provide a construct valid measurement of the competency, and the results supported this notion. The overall average ratings for the emotional, intellectual, and managerial competence measures were 3.32 ( $SD = .30$ ), 3.41 ( $SD = .34$ ), and 2.93 ( $SD = .29$ ), respectively. Thus, on average, the subject matter experts agreed or strongly agreed that the emotional, intellectual, and managerial competence items provide an accurate measurement of each intended competency.

However, there were four emotional competence, four intellectual competence, and 2 managerial competence individual items that were rated 2.5 or below by participants. Each of these items was rewritten to be more comparable with the other items measuring the competency. For example, the intellectual competency of information collection was measured using 5 items. The average rating for the first item,

“systematically seek all possible relevant information from a variety of sources,” was 3.82 ( $SD = .40$ ), providing support for the notion that this item is a good measure of information collection competency. However, the average ratings for the other four items were 2.36 ( $SD = .67$ ), 1.82 ( $SD = .75$ ), 2.00 ( $SD = .89$ ), and 2.27 ( $SD = 1.19$ ). Therefore, the other four items were re-written to be more similar to the first item, to ensure that all items were focused on the collection and incorporation of new information rather than others’ perceptions of this competency. More specifically, the items “others would describe you as intellectually sharp, capable, and agile” and “others would describe you as bright and intelligent” were revised to “gather information quickly” and “incorporate new information in an intelligent way.”

Participants also indicated on a separate piece of paper any words they thought might be confusing or unclear to main study participants. Words such as “dispassionately,” “change gears,” “shirk,” “direct reports,” “orchestrate,” and “jargon” were consistently noted as too business-oriented or US-centric, particularly for individuals who speak English as a second language. All words that were noted as possibly confusing were revised to be clearer and simpler. In addition to the words indicated above, there were two items intended to measure the same competency that were noted as too similar to one another. The following items were created to measure the emotional competency of negotiating: “can negotiate skillfully in tough situations with internal groups” and “can negotiate skillfully in tough situations with external groups.” These items were revised in the following way to provide more distinction: “negotiate skillfully in tough situations within teams” and “negotiate tough situations with external clients.”

It was also expected that pilot study participants would agree that all three behavioral exercises designed for the proposed studies will provide participants with the opportunity to exhibit all transformational leadership behaviors, and the results provided some support for this notion. The overall average ratings for the first and second writing exercises and the simulated presentation were 3.94 ( $SD = .55$ ), 4.15 ( $SD = .42$ ), and 3.59 ( $SD = .75$ ), respectively. Subject matter experts agreed the second writing exercise provided participants with the opportunity to exhibit transformational leadership behaviors, and their ratings for the first writing exercise and the simulated presentation ranged from neutral to agree.

Slightly higher agreement ratings on the first writing exercise and simulated presentation would have been preferable. However, there were no ratings of disagreement (minimum rating provided for these exercises was 3, which is the neutral response). In order to address these lower ratings, the instructions for the first writing exercise were edited to provide more detailed direction (described in the following paragraph) and the evaluators of the simulated presentation provided participants with the following verbal instructions: “The purpose of this presentation is to convince your group that changing the research topic is a good idea. You want to discuss how you will lead the group through the change, how you will help them get excited and motivated about the new project, and how you will lead them. However, they were intended to focus the participant on the aspects of the exercise that were most likely to elicit transformational leadership behaviors, without being so specific as to reveal the desired behaviors to participants, and thus avoiding skewing the results.

Pilot study participants also provided feedback on the clarity of instructions for the writing exercises and background information packet. This feedback led to several improvements to the materials. The instructions for writing exercise 1 were revised to include more examples of leading groups through change, specific questions to guide the participants when writing about leading a group through change, and a reminder to participants to print legibly so that the experimenter can read their handwriting. The background information packet was revised to include highlighted portions of text, in order to better focus participants' attention on the key components of the exercise.

Overall, the results of this pilot study indicated support for the use of these new emotional, intellectual, and managerial competency measures and the new behavioral measures of transformational leadership in the two main studies. The feedback from pilot participants on the study materials was incorporated to make instructions clearer and improve the overall quality of the study materials.

Rater Training. In order to train the objective evaluators to rate the extent to which transformational leadership behaviors are exhibited in both the written and oral exercises, the evaluators received approximately 3 hours of training regarding how to use the checklist and the MLQ rater form. The lead researcher reviewed the forms with the evaluators to ensure understanding of the content. To increase inter-rater agreement, the raters were given explicit definitions and examples of transformational leadership in the context of written communication and a presentation. To ensure inter-rater reliability, the evaluators provided ratings for all 11 pilot study participants. The independent ratings of the two coders were correlated, and a correlation coefficient of .92 was established,

meeting the minimum criterion of .70 (as suggested by Klein et al., 2000) to establish inter-rater reliability for each of the individual items on the rater forms.

### Pilot Study 2

The purpose of this second pilot study was to ensure that undergraduate students, the target population of Main Study 1, could understand the vocabulary used on the new measures of emotional, intellectual, and managerial competence and 3 new behavioral measures of transformational leadership that were used in the current studies.

Participants. To supplement the findings of Pilot Study 1, a second pilot study was conducted. Participants were 10 introductory psychology students at Baruch College, City University of New York who volunteered in partial fulfillment of a course requirement.

Measures and Procedure. As noted in the description of Pilot Study 1, the new measures of emotional, intellectual, and managerial competence were described in a previous chapter. The competency measures were revised to reflect the needed changes identified in Pilot Study 1. Participants completed a consent form (see Appendix F), reviewed each of these measures and then, on a separate piece of paper, noted any words, phrases or instructions that were unclear or unnecessary for the materials.

Then, pilot study participants reviewed the materials used for the behavioral measures of transformational leadership. First, participants reviewed the instructions for the first written exercise (see Appendix P for instructions) and then the materials packet for the second written exercise and a simulated group presentation (see Appendix R). Participants were also asked to note on a piece of paper note any words, phrases or instructions that are unclear or unnecessary for the materials.

Results and Discussion. It was expected that pilot study participants would understand all language included in these materials. However, participants indicated on a several words they thought were confusing or unclear. Words and phrases such as “consensus,” “make up mind,” “fruitful,” “disparate,” “marshal,” and “tailor” were noted as unclear. All words that were noted as unclear were revised to be simpler. In addition, one of the items created to measure the emotional competence of motivating others, “inspire others to achieve goals to ensure clear understanding of what needs to be achieved,” was noted as unclear. Therefore, the item was revised to be clearer, “inspire others to achieve goals.” The feedback from these undergraduate pilot participants on the study materials was incorporated to ensure the main study participants would be able to understand the study materials. Similar to the results from Pilot Study 1, the results of Pilot Study 2 provide further support for the use of these new emotional, intellectual, and managerial competency measures in the current studies. Specifically, the results of Pilot Study 2 support the notion that these measures are understandable to the target population of Main Study 1.

### Main Study 1

#### Participants

The participants in this study were 271 introductory psychology students at Baruch College, City University of New York, who volunteered in partial fulfillment of a course requirement. The rationale for choosing a sample size of 271 participants to test a structural equation model is based on the work of MacCallum and colleagues (MacCallum, Browne, & Cai, 2006) and Satorra and Saris (1985). MacCallum and his colleagues created a formula to establish the sample size needed to obtain a desired level

of power. The formula created is  $\delta = (F^*_A - F^*_B) = (d_A \epsilon_A^2 - d_B \epsilon_B^2)$ . These researchers offer the following principles and guidelines for choosing values for  $\epsilon_A$  and  $\epsilon_B$  to solve for  $\delta$  when testing for differences between two models (the null hypothesis and an alternative model). Using an example sample size of  $N = 200$  and a significance level of  $\alpha = 0.05$ , they chose values of  $\epsilon_A = .06$  and  $\epsilon_B = .04$ , meaning they wished to determine power for detecting a difference this large or larger in fit when testing the null hypothesis of no difference in population. Degrees of freedom were set at  $d_A = 22$  and  $d_B = 20$ . Using these values in the equation above, the value for  $\delta$  was determined to be .047, which represents the specified effect size. The null and alternative hypotheses were then expressed, respectively as  $H_0: (F^*_A - F^*_B) = 0$  and  $H_1: (F^*_A - F^*_B) = .047$ . The distribution of the test statistic under  $H_0$  was central  $\chi^2$  with  $d_{A-B} = 22 - 20 = 2$ . The resulting critical value based on this distribution was found to be  $\chi^2_{c'} = 5.99$ . The distribution of the test statistic under  $H_1$  is noncentral  $\chi^2$  with  $d_{A-B} = 2$  and noncentrality parameter of  $\lambda = n\delta = 9.393$ . If the area under the noncentral distribution to the right of  $\chi^2_{c'} = 5.99$  is computed, the area is found to be .79. Thus, the true difference in fit is represented by  $\epsilon_A = .06$  and  $\epsilon_B = .04$ , and a test of the null hypothesis of no difference in fit, using  $N = 200$  and  $\alpha = .05$ , the probability of rejecting that null hypothesis is approximately .79 (MacCallum et al., 2006). Using this same iterative process, in order to obtain power of .90 for the current study, a sample of  $N = 271$  is needed, and therefore was used.

In order to obtain the information needed to describe the population included in the study, each participant's background information was assessed using the background information form (see Appendix H). Participants were asked to report their age, gender,

ethnicity, whether they have ever worked part-time or full-time, if so, the number of years they have worked either part-time or full-time, whether they have ever been a manager, and if so, the number of years spent as a manager. The diverse population at Baruch College was reflected in the sample included in this study (27% Caucasian, 7% African-American, 42% Asian/Pacific Islander, 12% Hispanic, 12% Other). There were 126 men (46% of sample) and 145 women (54% of sample), and the average age was 22.21 years. A total of 54% of participants reported they had worked at least part-time for an average of 1.64 years. In addition, 18.5% of participants reported working full-time for an average of 1.17 years. Approximately one-third of participants (33.6%) reported having experience managing others for an average of .88 years. Although differences in outcomes were not expected as a result of these demographic variables, the possible effects were explored and the results of that analysis are described below.

### Measures

Control variables. Several control variables were assessed. Cognitive ability was assessed using 25 sample items from the Wonderlic Personnel Test (Wonderlic, 1984; obtained from [http://www.testprepreview.com/wonderlic\\_practice.htm](http://www.testprepreview.com/wonderlic_practice.htm); see Appendix I). This test is a general cognitive test for industrial use. The full test is a 12-min timed test consisting of 50 items with a variety of verbal, numerical, and some spatial content, and it yields a single total score. The Cronbach's  $\alpha$  obtained for the cognitive ability measure used in the current studies was 0.68, which is just below Nunnally's (1978) criterion of  $\alpha = .70$ . It is possible that the reliability coefficient is slightly lower due to the use of 25 sample items rather than a full 50-item test, which normally yields test-retest reliabilities

ranging from .70s to .90s, and suggests the need to use a longer measure in future research.

Personality was assessed using the shortened version of the NEO Five-Factor Inventory (NEO-FFI; Costa & McCrae, 1989; see Appendix J); perhaps the most widely used and extensively validated measure of the five-factor model. As a review of the NEO-PI-R has noted, the NEO exhibits relatively high internal consistency, high test-retest reliability, and strong convergent and discriminant validity (Botwin, 1995). The NEO-FFI measures each factor of personality with 12 items. Participants rated the extent to which each statement best correspond to their level of agreement or disagreement, using a scale of 4 (strongly disagree) to 0 (strongly agree). The Cronbach's  $\alpha$  coefficients for the scales were: Neuroticism = .76, Extraversion = .79, Openness to Experience = .62, Agreeableness = .56, and Conscientiousness = .80, all of which are comparable to the reliability coefficients typically obtained when using this measure (although the coefficients for Openness to Experience and Agreeableness are somewhat low).

Social desirability was measured using the short form of the Marlowe-Crowne Social Desirability Scale (Appendix K). Participants were asked to rate statements such as, "I sometimes try to get even rather than forgive and forget," or "I am sometimes irritated by people who ask favors of me," as true or false. Participants were given a score of 1 for each item to which they provide the socially desirable response. Scores across the 13 items were summed to provide an overall measure of social desirability ( $\alpha = .55$ , Cronbach's alpha is considered acceptable with both continuous and dichotomous scales, Cortina, 1993). However, this reliability coefficient is somewhat lower than the typically

reported coefficient of .78 and indicates it may be necessary to use the longer form of this scale in future studies.

Trait positive affect (PA) was assessed using the ten items making up the PA subscale of the Positive and Negative Affect Schedule (PANAS) created by Watson, Clark, and Tellegen (1988; see Appendix L). Participants rated on a scale of 1 (very slightly or not at all) to 5 (very much) how they feel “in general, that is, on the average” regarding the following positive emotions: enthusiastic, interested, determined, excited, inspired, alert, active, strong, proud, and attentive. Scores were summed to provide an overall measure of positive affect. Cronbach’s alpha was .90, which is similar to the typically reported reliability coefficient of .88, indicating good reliability.

Intellectual and managerial intelligence competencies were measured using the new measure based on Dulewicz and Higgs’ (2000) research, created for these studies, and described in a previous chapter (Appendix M). Participants in the current study rated the extent to which they exhibit the behaviors that define these competencies on a five-point scale, from “never” to “always.” The items making up this scale are also described in a previous chapter. Exploratory factor analyses led to a reduced number of factors and the removal of several items from these measures, and these results of these analyses are described in detail below. The internal reliability coefficients of Dulewicz and Higgs’ versions of this scale were reported previously .56 and .25, respectively, but the reliability coefficients for the factors measured on the new intellectual and managerial competency scales were significantly higher, ranging from .62 to .90 (see Tables 1 and 2 for alphas for each factor). The increased reliability coefficients of the new measures

suggest that it is possible that the changes and additions made to Dulewicz and Higgs' scales have led to an instrument that better measures these constructs.

Hypothesized model variables. Emotional intelligence was measured using the MSCEIT (Mayer et al., 2000), a 141-item ability-based assessment that provides an objective test of emotional intelligence. The MSCEIT is owned by Multi-Health Systems and takes approximately 35 minutes to complete. The MSCEIT assesses four aspects of emotional intelligence based on the definition by Mayer and Salovey (1997), including the appraisal and expression of emotion ( $\alpha = .89$ ), the use of emotion to enhance cognitive processes and decision-making ( $\alpha = .79$ ), knowledge about emotions ( $\alpha = .82$ ), and management of emotions ( $\alpha = .84$ ). The Cronbach's alpha coefficients obtained in this study are almost identical to the typically reported reliability coefficients of .90, .79, .80, and .83, respectively, and indicate good reliability.

Participants were asked to rate the extent to which certain emotions are represented in pictures of faces and designs, rate the extent to which certain emotions relate to sensations like colors and temperature, analyze blended emotions and how that blending forms more complex feelings, and the usefulness of strategies for maintaining, changing, or escalating emotions. The MSCEIT correlates moderately ( $r = .34$  and  $.38$ ) with the Army Alpha Vocabulary Scale (Mayer et al., 1999), and correlated moderately ( $r = .32$ ,  $p < .001$ ) with the cognitive ability measure used in the current study, providing support for a relationship with, but independence from, intelligence. There is almost no relationship ( $r = .02$ ) with the impression management scale of the 16 Primary Factors Test (Caruso et al., 2002) and was little correlation ( $r = .17$ ,  $p < .001$ ) with the social

desirability scale used in the current study, suggesting that the MSCEIT is not susceptible to socially desirable responding.

Emotional competence was measured using the assessment described in a previous chapter. This measure was adapted from a study by Dulewicz and Higgs (2000; see Appendix N). Dulewicz and Higgs identified 16 out of the 40 competencies assessed on the Job Competency Survey (Dulewicz, 1998) that seemed to be most closely linked to emotional intelligence. The emotional competencies identified were perceptive listening, sensitivity, flexibility, achievement orientation, stress tolerance, resilience, persuasiveness, negotiating, adaptability, decisiveness, ascendancy, energy, impact, integrity, motivating others, and leadership (Dulewicz & Higgs, 2000). Participants in the current study rated the extent to which they exhibit the behaviors that define these emotional competencies on a five-point scale, from “never” to “always.” The items making up this scale are also described in a previous chapter.

Like the intellectual and managerial competence scales, exploratory factor analyses led to a reduced number of factors and the removal of several items from this measure, and these results of these analyses are described in detail below. The internal reliability coefficient of Dulewicz and Higgs’ version of this scale was .61, but the reliability coefficients for the factors measured on the new emotional competency scale were significantly higher, ranging from .67 to .92 (see Table 3 for alphas for each factor). Similar to the intellectual and managerial competence measures, the increased reliability coefficients of the new measure of emotional competence also suggests its possible that the changes and additions made to Dulewicz and Higgs’ scale have improved the ability to measure this construct.

Transformational leadership was assessed in several ways. Self-ratings were measured using the Multifactor Leadership Questionnaire (MLQ; see Appendix O), originally by Bass and Avolio in 1990. The measure has since been revised (MLQ-5X; Bass & Avolio, 2000). The MLQ-5X assesses the transformational and transactional leadership behavior of leaders at varying levels. It has been shown to be psychometrically sound and to consistently yield the seven-factor structure (4 components of transformational leadership, 2 components of transactional leadership, and the non-leadership component). Participants rated themselves on the 20 items of the MLQ-5X that assess transformational leadership using the self-report form. Behaviors were rated on a five-point scale ranging from 0 (not at all) to 4 (frequently, if not always). The Cronbach's alpha coefficient obtained for self-ratings was .94. The MLQ has been shown to yield a stable factor structure that aligns to Bass and Avolio's transactional and transformational leadership and non-leadership constructs (Avolio & Bass, 2004).

Behavioral measures of transformational leadership were obtained using an updated version of the materials described in the pilot study, after having been revised based on the results of the pilot studies. Participants were first asked to recall and provide a detailed written account of a time when they successfully led a group through a change. They were given several example situations (i.e. leading a group of peers to stand up for their beliefs, shifting the focus of a sports team from winning to a focus on effective defensive strategies, encouraging family members to communicate more openly, leading students or co-workers to stand up to faculty or management when policies need to be adjusted) and then asked to spend 10 minutes writing their account (see Appendix P for instructions). It was emphasized that they needed to provide as much detail as possible

regarding what behaviors they exhibited to help effectively lead a change. This written account was evaluated and coded by an independent trained evaluator for transformational leadership behaviors. The trained evaluator used a checklist based on the transformational items on the MLQ (see Appendix Q) to rate the frequency of transformational leadership behaviors included in this written account.

Next, each participant was asked to imagine that he/she is the leader of a group of 4 other undergraduate students, and the group had to complete a project for their introductory psychology class. The project required designing a psychology experiment on a topic of their choice, implementing the study, analyzing the data, and presenting the final results to the class at the end of the semester. However, the topic the group had previously chosen no longer worked, and the participant, as the leader of the group, had to convince the group of a new topic area to research, even though the group was several weeks into pursuing the original topic. The participant was provided with detailed instructions that provide the background of the project and supplemental materials designed to provide context around the group dynamics that had been in place prior to this needed topic change (i.e. profiles of other group members, two emails from group members complaining about the performance of the other two group members; see Appendix R) and given 5 minutes to review this packet.

Then the participant was asked to spend 10 minutes writing a sample email that he/she would send to the group to introduce the need for a project topic change and the new topic proposed. This written email was also evaluated and coded by an independent trained evaluator for transformational leadership behaviors. Ratings from both of the writing exercises were summed to provide an overall score. The Cronbach's alpha

coefficient obtained for the writing exercise ratings of transformational leadership was  $\alpha = .83$ , indicating good reliability.

Then participants were given another 5 minutes to prepare and deliver a 5-minute presentation to a trained evaluator. The participant was asked to deliver the speech as though he/she was speaking to the project team about why this new topic area is the best choice for their research project. The trained objective evaluator completed the transformational items on the MLQ rater form (see Appendix S) while observing the presentation to rate the extent to which each participant exhibited the behaviors associated with transformational leadership. The Cronbach's alpha coefficient obtained for the simulated presentation ratings of transformational leadership scale was  $\alpha = .93$ .

### Procedure

This study was conducted in a laboratory at Baruch College. The sign-up sheet described this experiment as a study about emotions and leadership. Upon arrival to the laboratory, participants completed a consent form (see Appendix G) and were told that they would be completing several assessments and then participating in two writing exercises and a role-play presentation. Then the participants completed paper-based versions of the background information form, measures of the control variables (i.e. cognitive ability, personality, social desirability, positive affect, and intellectual and managerial intelligence competence), an ability-based measure of emotional intelligence (MSCEIT, Mayer et al., 2000), the new emotional competence assessment, and the transformational leadership items on the MLQ (Bass & Avolio, 1995). Participants then completed the writing exercises and presentation. They were given 10 minutes for the first writing exercise, 5 minutes to review the informational packet, 10 minutes to write

the sample email, 5 minutes to prepare the presentation to the project group, and 5 minutes to present. The objective evaluators coded the written behaviors from the writing exercises and observed and provided MLQ ratings of transformational leadership behaviors exhibited in the presentation.

Upon completion of the presentation, participants were informed of the purpose of the study. They were given a written copy of the debriefing statement (see Appendix T). They were provided with the opportunity to ask any questions. All participants received a small gift of their choice (e.g. candy, pens) as a token of appreciation for participating.

### Data Analysis

In this study, data analysis consisted of first conducting exploratory factor analysis on each of the new measures of emotional, intellectual, and managerial competence and measures of transformational leadership. Exploratory factor analysis of the competence scales determined the extent to which the new items measuring emotional, intellectual, and managerial competence support the original factor structure determined by Dulewicz and Higgs (2000). A minimum eigenvalue of 1.00 was used to determine the factor structure of each scale, and items with factor loadings below .40 were removed. Similarly, exploratory factor analysis of the new behavioral measures of transformational leadership was conducted to determine the extent to which the behaviors load on to the same factor structure measured by the MLQ. All factor analysis was conducted using AMOS (Arbuckle, 1999), and the results of these analyses are presented in detail below.

To test the hypothesized mediating role of emotional competence, the following conditions of mediation were assessed: a) the independent variable must be related to the

mediator, b) the mediator must be related to the dependent variable, and c) the independent variable must have no effect on the dependent variable when the mediator is held constant (full mediation) or the effect should be significantly smaller (partial mediation; Kenny, Kashy, & Bolger, 1998). The control variables that regressed on to transformational leadership were also included in the model to examine the third condition of mediation.

Several statistics and goodness-of-fit indices were used to evaluate overall model fit. According to Hu and Bentler (1999), Comparative Fit Index (CFI) values of .95 and above indicate good model fit. Root Mean Square Error of Approximation (RMSEA) values of less than .05 indicate good model fit, values less than .08 indicate reasonable fit, and values less than .10 indicate poor fit (Brown & Cudeck, 1993). In addition, Standardized Root Mean Square Residual (SRMR) values of less than .08 indicate good model fit (Hu & Bentler, 1998). Finally, the ratio of likelihood  $\chi^2$  to degrees of freedom is reported. The benchmark for this ratio is still not established but the lower the number (i.e., below 3.00), the better the fit (Kenny, 2010).

### Main Study 2

Participants. The participants in this study were 32 graduate medical education residents and students and 32 resident supervisors from a primary care residency program in Central Alabama. The medical residents were asked to report their age, gender, ethnicity, whether they have ever worked part-time or full-time, if so, the number of years they have worked either part-time or full-time, whether they have ever been a manager, and if so, the number of years spent as a manager. There were 16 men (50% of sample) and 16 women (50% of sample), and the average age was 34.16 years. The

ethnicity distribution of medical residents was 69% Caucasian, 9% African-American, 6% Asian/Pacific Islander, 6% Hispanic, and 9% other. A total of 6% of residents reported they had worked at least part-time for an average of .31 years. In addition, 81% of residents reported working full-time for an average of 8.34 years. A total of 60% of residents reported having experience managing others for an average of 3.22 years.

Measures. Residents completed the control variable, ability-based emotional intelligence, emotional competence, and transformational leadership self-rating measures used in Main Study 1. Reliability coefficients obtained for these measures in Main Study 2 were comparable to those obtained in Main Study 1. Behavioral measures of transformational leadership were obtained from both the medical residents and their supervisors. Like the participants in Study 1, the residents completed a written exercise to assess transformational leadership. However, the residents completed only the written exercise asking them to recall and provide a detailed written account of a time when they successfully led a group through a change. They were given the same instructions (see Appendix P) and asked to spend 10 minutes writing. The written accounts were also evaluated and coded by an independent trained evaluator for transformational leadership behaviors using the coding checklist (Appendix Q;  $\alpha = .76$ ). Supervisors of the medical residents completed the MLQ rater form (see Appendix S;  $\alpha = .97$ ) to provide supplemental behavioral ratings of transformational leadership.

Procedure. The second study was conducted on-site at the residency program in Central Alabama. Participants completed a consent form to participate in the study (see Appendix U). They were then asked to complete several assessments. Participants completed paper-based versions of the background information form, measures of the

control variables (i.e. cognitive ability, personality, social desirability, positive affect, and intellectual and managerial intelligence competence), an ability-based measure of emotional intelligence (MSCEIT, Mayer et al., 2000), the new emotional competence assessment, and the transformational leadership items on the MLQ (Bass & Avolio, 1995). Then participants completed the written exercise. Once completed, they were reminded that their supervisor would be assessing their leadership behaviors as well, but that these ratings would be used for research purposes only. The supervisors of each of the residents completed an informed consent form (see Appendix V) and then completed the MLQ rater form (see Appendix S) to provide supplemental behavioral ratings of transformational leadership.

Upon completion of these measures, resident and supervisor participants were informed of the purpose of the study. They were given written copies of the debriefing statements (see Appendices W and X). They were provided with the opportunity to ask any questions. All participants received a small gift of their choice (e.g. candy, pens) as a token of appreciation for participating.

Data Analysis. In this second study, given the much smaller sample size, factor analysis could not be conducted on the emotional, intellectual, and managerial competence and the measures of transformational leadership. However, the factor analytic evidence from Main Study 1 (discussed below) supports the use of these measures in Main Study 2.

Furthermore, because there were only 32 medical residents, the structural model could not be tested on this small sample. Thus, regression procedures were used to determine whether emotional competence would mediate the effect of emotional

intelligence on transformational leadership. As suggested by Baron and Kenny (1986), to determine whether emotional competence mediated the effect of emotional intelligence on transformational leadership, three regression procedures were conducted: the mediator was regressed on the independent variables, the dependent variable was regressed on the independent variables, and the dependent variable was regressed on the independent and mediating variables. The results of these regression procedures are discussed in more detail below.

## Chapter 9

### Results

The current studies tested a model of ability-based emotional intelligence as a predictor of emotional competence, which in turn predicted transformational leadership behaviors. Prior to testing the hypothesized relationships in a structural equation model, exploratory factor analysis was conducted on the competence and transformational leadership measures, and the demographic and control variables were examined to determine relevance for inclusion the structural equation model testing. Detailed descriptions of these analyses follow below.

#### Exploratory Factor Analyses

Emotional, Intellectual, and Managerial Competence Measures. To determine the number of factors underlying the emotional competence measure, Principal Components Analysis was used to extract the factors. The following criteria were used to determine the number of factors to retain: the Kaiser criterion of retaining factors with an eigenvalue of one or more; visually inspecting and locating the break in the Cattell scree plot. Since it was anticipated that the factors would be correlated, the resulting factors were then rotated using a non-orthogonal Oblimin procedure.

A total of thirteen factors were extracted. The percentage of variance accounted for by the 13 factors was 65%. The percentage of variance accounted for by each of the 13 factors is shown in Table 4. The items that loaded onto each factor are summarized in Table 5, and the factor loadings are presented in Table 6.

Five factors were dropped (i.e., 1, 6, 9, 11, and 13) because only one or two items loaded onto those factors or the items that comprised the scale were not substantively

meaningful. It should be noted that, prior to rotation, a large number of items loaded on to the first factor, indicating the possibility of a general factor. However, after rotation, only two items had factor loadings of .40 or higher on the first factor, and thus, the factor was subsequently dropped. The following items were dropped because their loadings were less than .40: 7, 10, 15, 26, 27, 29, 30, 31, 32, 41, 42, 43, 44, 45, 46, 51, 59, 60, 61, 65, 66, 68, and 71. The following items were dropped, as they were one of the only items that loaded onto their respective factors: 3, 4, 9, 28, 47, 48, 50, and 67. These items loaded onto one factor but they did not appear to be substantively meaningful: 6, 8, 62, 63, and 64.

The same Principal Components Analysis was conducted to determine the number of factors underlying the intellectual and managerial competence measures. A total of ten factors were extracted for the intellectual competence measure, and nine factors were extracted for the managerial competence measure. The percentage of variance accounted for by the 10 factors of the intellectual competence measure was 64%, and the percentage of variance accounted for by each of the 10 factors is shown in Table 7. The 9 factors of the managerial competence scale accounted for 65% of variance (see Table 8 for the percentage of variance explained by each factor). The factor names and items that loaded onto each factor of the intellectual and managerial competence measures are summarized in Tables 9 and 10, and the factor loadings are presented in Tables 11 and 12, respectively.

Four factors were dropped (i.e., 4, 8, 9, and 10) from the intellectual competence measure and one factor was dropped (i.e., 8) from the managerial competence measure because only one or two items loaded onto those factors or the items that comprised the

scale were not substantively meaningful. Fifteen items from the intellectual competence measure (i.e., 10, 15, 16, 17, 18, 19, 22, 25, 29, 30, 31, 36, 44, 48, and 55) and sixteen items from the managerial competence measure (i.e., 4, 5, 14, 15, 17, 20, 23, 31, 32, 33, 42, 44, 49, 50, 51, and 52) were dropped because their loadings were less than .40. There were also 5 items on the intellectual competence measure (i.e., 24, 26, 27, 28, and 32) and 6 items on the managerial competence measure (i.e., 12, 13, 16, 18, 19, and 34) that loaded onto one factor but did not appear to be substantively meaningful. Therefore, these items were also dropped from each respective measure.

Overall, the exploratory factor analytic results discussed above provide initial support for the use of these new refined competence measures. Confirmatory factor analysis was also conducted on these measures in the evaluation of the measurement model for the structural equation model testing, and the results of these analyses are discussed below.

Transformational Leadership Measures. Transformational leadership was assessed in several ways. Participants in both Main Studies 1 and 2 completed self-ratings of transformational leadership using the MLQ self-rating form, and participants in Study 2 received transformational leadership ratings from their supervisors using the MLQ other-rater form. Several behavioral measures of transformational leadership were also obtained. Participants in both studies received ratings on the transformational leadership items on the MLQ from an objective evaluator on a writing exercise. However, only those participants in Study 1 received additional ratings of transformational leadership items on the MLQ on a second writing exercise and a simulated presentation.

Many previous researchers have used the self- and manager ratings of the transformational leadership items from the MLQ. However, the current studies are the first to include the behavioral measures used in the two writing exercises and the simulated presentation. Therefore, exploratory factor analysis was conducted on all transformational leadership measures used in Study 1 (self-ratings and three new behavioral measures) to determine if the expected the 4-factor structure of transformational leadership was obtained.

Like the competence measures, Principal Components Analysis was used to extract the factors underlying each measure of transformational leadership. Again, the Kaiser criterion of retaining factors with an eigenvalue of one or more and visual inspection and location of the break in the Cattell scree plot were used. The resulting factors were also rotated using a non-orthogonal Oblimin procedure, due to the expectation that the factors would be correlated.

For the self-ratings of transformational leadership, a total of three factors were extracted. The percentage of variance accounted for by the 3 factors was 57%. The percentage of variance accounted for by each of the 3 factors is shown in Table 13. The items that loaded onto each factor are summarized in Table 14, and the factor loadings are presented in Table 15. The first factor appears to be a combination of the idealized influence and inspirational motivation factors of transformational leadership. The second and third factors do not load in a way that is meaningful or consistent with the original MLQ factor structure. The following items yielded factor loadings of less than .40: 1, 3, 10, and 11.

For the ratings of transformational leadership on the first writing exercise, a total of eight factors were extracted. The percentage of variance accounted for by the 8 factors was 66%. The percentage of variance accounted for by each of the 8 factors is shown in Table 16. The items that loaded onto each factor are summarized in Table 17, and the factor loadings are presented in Table 18. The first factor extracted appears to be inspirational motivation, but the remaining items do not load on to the other 7 factors in a meaningful way. The following items yielded factor loadings of less than .40: 1 and 16.

A total of six factors were extracted for the ratings of transformational leadership in the second writing exercise. The percentage of variance accounted for by the 6 factors was 60%. The percentage of variance accounted for by each of the 6 factors is shown in Table 19. The items that loaded onto each factor are summarized in Table 20, and the factor loadings are presented in Table 21. Similar to the first writing exercise, the first factor extracted appears to be inspirational motivation, but the remaining items do not load on to the other 5 factors in a meaningful way. The following items yielded factor loadings of less than .40: 2, 5, 11, 13, and 17.

Similar to the self-ratings of transformational leadership, a total of three factors were extracted for the simulated presentation ratings. The percentage of variance accounted for by the 3 factors was 65%. The percentage of variance accounted for by each of the 3 factors is shown in Table 22. The items that loaded onto each factor are summarized in Table 23, and the factor loadings are presented in Table 24. The first factor extracted appears to be individualized consideration, but the items loading on to the second factor appear to be a combination of inspirational motivation and idealized influence and the items loading on to the third factor appear to be a combination of

intellectual stimulation and idealized influence. The following items yielded factor loadings of less than .40: 9, 11, and 18.

A four-factor solution was expected for all measures of transformational leadership, and particularly for the self-ratings measure, as this measure has been used in many prior studies. Yet, none of the transformational leadership measures yielded a 4-factor structure. However, both the self-ratings and simulated presentation ratings yielded 3-factor solutions. Therefore, in an effort to obtain a consistent factor structure across all of the transformational leadership measures, the two writing exercises were factor analyzed again using a forced 3-factor solution. The items that loaded onto each factor and the factor loadings are presented in Tables 25 and 26. The first, second, and third factors extracted for the first writing exercise measure appear to be inspirational motivation, idealized influence, and individual consideration, respectively. However, almost all of the items on the second writing exercise measure load on to the first factor, and therefore provide no meaningful structure. Items 2, 5, 13, and 18 from the first writing exercise and items 2, 7, 8, and 19 from the second writing exercise yielded factor loadings less than .40. Thus, neither the exploratory factor analyses of the transformational leadership measures nor the forced 3-factor solution provided a consistent meaningful factor structure. Thus, this data did not support aggregating the four measures of transformational leadership.

Despite the lack of a consistent factor structure across the transformational leadership measure, the Cronbach's alpha coefficient for each of the measures individually was actually quite good (self-ratings = .94, writing exercises = .83, and simulated presentation measures = .93). Furthermore, the transformational leadership

measures were significantly positively correlated with one another (i.e. self-ratings and writing exercise ratings = .16,  $p < .001$ , self-ratings and simulated presentation ratings = .12,  $p = .04$ , and writing exercise ratings and simulated presentation ratings = .32,  $p < .001$ ). Thus, in order to determine if these measures were indicators of a latent construct of transformational leadership, confirmatory factor analysis was conducted in the evaluation of the measurement model for the structural equation model testing, and the results of these analyses are discussed below.

#### Demographic and Control Variable Analyses

Several analyses were conducted to examine the possible effects of gender, age, ethnicity, part-time work experience, full-time work experience, and management experience on ability-based emotional intelligence, the emotional competence factors, and the measures of transformational leadership to determine if any of these variables should be included in the structural equation model. There was significant main effect for gender on ability-based emotional intelligence. Female participants scored significantly higher on the ability-based emotional intelligence measure ( $M = 90.40$ ) than male participants ( $M = 84.26$ ), [ $F(1,270) = 12.60$ ,  $p < .001$ ,  $\eta^2 = .42$ ]. However, there was no effect of gender on the emotional competence factors or the measures of transformational leadership [all  $F_s \leq 1.79$ ,  $p_s \geq .15$ ]. Therefore, gender was not included in the model testing.

Regression analyses revealed no significant effects for age on ability-based emotional intelligence, the emotional competence factors, or the measures of transformational leadership [all  $t_s(271) \leq 1.44$ ,  $p_s \geq .07$ ,  $\beta_s \leq .19$ ]. In addition, analyses of variance revealed no significant effects for ethnicity, part-time or full-time work

experience or management experience on ability-based emotional intelligence or the measures of transformational leadership [all  $F_s \leq 2.02$ ,  $p_s \geq .09$ ]. Therefore, none of these demographic variables were included in the structural equation models. However, management experience had a significant effect on six of the eight emotional competence factors (motivating others, decisiveness, persuasiveness, flexibility, ascendancy, and adaptability and stress tolerance) and a marginally significant effect on the integrity factor of emotional competence (see Table 27 for means, t-values, and significance levels).

Additional analyses were conducted to examine the effect of gender, age, ethnicity, part-time work experience, full-time work experience, and management experience on intellectual and managerial competence. Although they functioned only as control variables, the intellectual and managerial competence measures were created and used for the first time in the current studies, and therefore, the potential effects of the demographic variables on these new measures have not been previously explored. However, the results revealed no significant effects for age [all  $t_s (271) \leq 1.39$ ,  $p_s \geq .07$ ,  $p_{rs} \leq .19$ ] or for gender, ethnicity, part-time or full-time work experience on intellectual or managerial competence [all  $F_s (1,270) \leq 1.59$ ,  $p_s \geq .21$ ].

There were, however, significant main effects for management experience on all six intellectual competence factors (information collection and problem analysis, judgment and detail consciousness, external awareness, creativity, risk-taking, and planning and organizing) and on five management competence factors (delegating, oral expression and presentation, appraising, developing subordinates, reading, and initiative). There was a marginally significant effect for management experience on the

independence factor of managerial competence (see Tables 28 and 29 for means, t-values, and significance levels). Due to the effect of management experience on most of the factors across the emotional, intellectual, and managerial competence measures, a structural equation model was tested on a subset of only those participants with management experience. The results of this model testing are discussed in detail below.

The control variable measures (cognitive ability, personality, social desirability, positive affect, and intellectual and managerial competence) were evaluated via regression analyses to determine the relevance of their inclusion in the structural equation model testing. Because the measures of transformational leadership produced different factor structures and therefore could not be aggregated, regression analyses were conducted separately on self-ratings, writing exercise ratings, and simulated presentation ratings.

Self-ratings of transformational leadership were regressed on the six control variables. The findings of this regression are summarized in Table 30. Conscientiousness ( $B = .15, p < .001$ ), openness to experience ( $B = .10, p = .03$ ), extraversion ( $B = .10, p = .03$ ), and managerial competence ( $B = .49, p < .001$ ) significantly predicted self-ratings of transformational leadership. Writing exercise and simulated presentation ratings were also regressed on the six control variables in two separate regression analyses, and the findings for each of these are summarized in Tables 31 and 32. Cognitive ability significantly predicted both writing exercise ratings ( $B = .15, p = .03$ ) and simulated presentation ratings ( $B = .27, p < .001$ ).

The results of these regression analyses reveal that different control variables predict transformational leadership, depending on the type of leadership measure used.

Three personality factors and managerial competence predicted self-ratings of transformational leadership, while cognitive ability predicted both behavioral measures of transformational leadership. This finding, in conjunction with the higher intercorrelations between the writing and simulated presentation ratings ( $r = .32, p < .001$ ) when compared to the intercorrelations between self-ratings and the writing exercise ratings ( $r = .16, p < .001$ ) and between self-ratings and simulated presentation ratings ( $r = .12, p = .04$ ), indicated the possibility that the self- and behavioral ratings of transformational leadership were not necessarily measuring the same latent construct. This possibility was explored further in the measurement model analyses discussed in detail below.

### Measurement Models

Prior to conducting the confirmatory analyses on the emotional, managerial, and intellectual competence measures, the data set was screened for multivariate outliers via the Mahalanobis Distance. Cases with p-values less than .001 (Tabachnick & Fidell, 1989) were considered as outliers. The following cases were outliers and were deleted from the data set: 27, 89, 168, 172, and 215.

Three confirmatory factor analyses (CFA) procedures (using AMOS 16) were conducted to test which factor structure (i.e., single-factor, two-factor, or three-factor) would fit the competence measures best. The single-factor model was tested first. Indicators with standardized factor loadings below .50 were dropped from the model (as suggested by Bagozzi & Yi, 1988). Only a single indicator (i.e., emotional competence – decisiveness) had a standardized coefficient below .50. Accordingly, this indicator was dropped from consequent model tests. The goodness-of-fit indices for all three measurement models are summarized in Table 33.

The findings indicate that the three-factor structure had the best fit. This model is illustrated in Figure 1. The RMSEA value fell within the range of reasonable fit. Similarly, the SRMR was lower than the acceptable criterion of .08. The CFI was acceptable at .93. Lastly, the ratio of the chi-square to the degrees of freedom was relatively low at 2.26. All items loaded on highly and significantly to their respective constructs (refer to Table 34). Further, the correlations between the constructs (shown in Table 35) were all statistically significant and in the predicted direction.

The proposed measurement model (depicted in Figure 2), however, did not fit the data well (fit indices are summarized in Table 36). Accordingly, this model was modified and indicators whose standardized coefficients were less than .50 (as suggested by Bagozzi & Yi, 1988) were deleted from the model. The openness to experience subscale did not load on highly to the personality construct and was deleted. Similarly, the perception of emotions subscale did not load on highly to the emotional intelligence construct and was deleted. Because the writing exercise and simulated presentation items did not load on highly to the transformational leadership construct, they were also deleted. Thus, transformational leadership was measured solely by self-ratings.

The best-fitting measurement model is depicted in Figure 3. As the fit indices shown in Table 37 reveal, this model fit the data well. The RMSEA value fell within the range of reasonable fit. Similarly, the SRMR was lower than the acceptable criterion of .08. The CFI was acceptable at .92. Lastly, the ratio of the chi-square to the degrees of freedom was low at 2.01.

### Convergent and Discriminant Validity of Competence Measures

As suggested by Hair, Anderson, and Tatham (1998), convergent validity of the competence measures was assessed by examining the factor loadings, computing the composite reliability of, and average variance extracted for the model constructs. Constructs have convergent validity when the factor loadings are statistically significant, the composite reliability exceeds the criterion of .70, and the average variance extracted is above .50.

The convergent validity results are summarized in Table 38. The standardized factor loadings ranged from .54 to .85 and were all statistically significant (i.e.,  $p < .001$ ). The composite reliabilities, which assess how well the indicator variables measure the construct, ranged from .91 to .95; all values exceeded the acceptable criterion of .70 (Hair, et al., 1998). The values of the average variance extracted ranged from .43 to .84; except for the managerial competence construct, all other constructs exceeded the acceptable criterion of .50 (Hair, et al., 1998). Thus, the constructs demonstrated convergent validity.

As suggested by Kline (2005) and Fornell and Larcker (1981), discriminant validity of the competence measures was assessed by comparing the squared correlations (between the constructs) and the average variance extracted for a construct. Constructs have discriminant validity when the squared correlations are lower than the average variance extracted for a construct. The squared correlations vis-à-vis the average variance extracted for each of the constructs is displayed in Table 39. The squared correlations for the managerial and emotional competence constructs were higher than the average variance extracted for those constructs; thus, these constructs did not demonstrate

adequate discriminant validity. However, the squared correlations for the emotional intelligence, intellectual competence, and personality constructs were lower than the average variance extracted values. Accordingly, these constructs demonstrated discriminant validity.

### Structural Models

The proposed structural model is depicted in Figure 4. Although this model fit the data adequately, the path from intellectual competence to transformational leadership was not statistically significant. Intellectual competence was included as a control variable in order to understand its predictive value relative to emotional competence. However, since the findings showed intellectual competence was not related to transformational leadership, this construct was deleted from the model.

The final structural model is depicted in Figure 5. This model fit the data well. As shown in Table 40, the RMSEA value fell within the range of reasonable fit. Similarly, the SRMR was lower than the acceptable criterion of .08. The CFI was acceptable at .94. Lastly, the ratio of the chi-square to the degrees of freedom was low at 1.86. Accordingly, the study hypotheses were evaluated using the findings of this final structural model.

The findings in Table 41 reveal that, after controlling for managerial competence and personality, emotional intelligence did not significantly predict transformational leadership ( $B = .02, p = .53$ ) or emotional competence ( $B = .05, p = .42$ ). Because emotional intelligence did not significantly predict emotional competence or transformational leadership, emotional competence did not mediate the effect of emotional intelligence on transformational leadership. Thus, Hypotheses 1, 2, and 3 did

not receive support. However, there was support for the predicted relationship between emotional competence and transformational leadership ( $B = .71, p < .001$ ).

#### Effect of Management Experience

Due to the effect of management experience on the competence measures, the fit of the final structural model was tested on a sample of only those participants with management experience. There were 92 participants in Main Study 1 and 19 participants in Main Study 2 that indicated they had management experience. These samples were combined for a total sample size of 111 participants. The findings in Table 42 reveal that the structural model (depicted in Figure 6) did not fit the data well. In addition, the path coefficient from emotional intelligence to emotional competence was not statistically significant ( $B = .02, p = .790$ ). Similarly, the path from emotional competence to transformational leadership was not statistically significant ( $B = .06, p = .545$ ).

The fit of the final structural model was also tested on the sample of respondents without management experience ( $N = 192$ ). The structural model (depicted in Figure 7) did not fit the data well. However, the path coefficient from emotional intelligence to emotional competence was statistically significant ( $B = .11, p = .013$ ). Similarly, the path from emotional competence to transformational leadership was statistically significant ( $B = .19, p = .043$ ).

Despite the lack of fit, a multi-group analysis was nevertheless conducted (although a requirement for a multi-group analysis is that the structural model fit the groups that are being tested). This analysis was done to determine whether the paths of the structural model were invariant across the two samples (i.e., respondents with management experience and respondents without management experience).

The findings of the multi-group analysis are shown in Table 43. The findings indicate that the paths of the structural model were invariant across the two samples ( $\Delta\chi^2(6) = 9.77, p < .10$ ). Since the paths were invariant across samples, the two samples were combined. The fit of the transformational leadership model was then tested using the combined sample.

The structural model is depicted in Figure 8, and the fit statistics are summarized in Table 44. The findings in Table 44 indicate that the structural model did not fit the data well: the RMSEA was above even the mediocre range, the CFI was below the acceptable criterion, and the ratio of the chi-square to the degrees of freedom was very high.

#### Regression Analyses of Medical Resident Sample

Due to the smaller sample size of Main Study 2, regression analyses were conducted to test the hypotheses among this population. Emotional competence was regressed on the three control variables and emotional intelligence (i.e., the control variables were entered in the first step; emotional intelligence was entered in the second step). The findings of the second step are summarized in Table 45. After controlling for conscientiousness, extraversion, and managerial competence, emotional intelligence significantly predicted emotional competence ( $B = .83, p < .001$ ). Transformational leadership self-ratings were then regressed on the three control variables and emotional intelligence. The findings of the second step are summarized in Table 46. After controlling for conscientiousness, extraversion, and managerial competence, emotional intelligence did not significantly predict transformational leadership ( $B = .09, p = .65$ ).

Transformational leadership self-ratings were regressed on the three control variables, emotional intelligence, and emotional competence. The findings in Table 47

reveal that emotional intelligence did not significantly predict transformational leadership ( $B = .09, p = .65$ ). Since only one of the four criteria established by Baron and Kenny (1986) was met, emotional competence did not mediate the effect of emotional intelligence on transformational leadership.

## Chapter 10

### Discussion

Previous research examining the relationship between emotional intelligence and transformational leadership has resulted in inconsistent findings, and although several researchers have suggested that emotional competence mediates the relationship between emotional intelligence and outcomes such as leadership, no previous empirical examinations of such relationship have been put forth. The present studies aimed to provide the first empirical test of the possible mediating role of emotional competence on the relationship between emotional intelligence and transformational leadership.

Leading emotional intelligence researchers have suggested that ability-based emotional intelligence is related to emotional competence based on the intuitive links between the two constructs (Goleman, 1995, 1998, 2001; Emmerling & Goleman, 2003; Boyatzis et al., 2000; see Cherniss, 2001; 2010), and Brackett and colleagues (2006) have shown empirical links between ability-based emotional intelligence and similar competencies. Emotional competence in turn has been linked intuitively with transformational leadership (Dulewicz & Higgs, 2000) and empirically linked with general leadership effectiveness (Cavallo & Brienza, 2004; Dulewicz & Higgs, 2000, 2003; Dulewicz et al., 2005). Thus, the current studies tested the mediating role of emotional competence by examining the extent to which ability-based emotional intelligence predicted emotional competence, which in turn predicted transformational leadership.

The results from the current studies revealed mixed support for the predicted relationships between emotional intelligence, emotional competence, and

transformational leadership. Neither the structural equation models nor the regression analyses provided support for a relationship between emotional intelligence and transformational leadership. Prior examinations of the empirical relationship between emotional intelligence and transformational leadership have led to inconsistent findings, and researchers have suggested the inconsistency is likely due to measurement issues and a lack of clear mediating variables (Cherniss, 2010; Sivanathan & Fekken, 2002; Barbuto & Burbach, 2006).

Previous researchers have also been unable to provide support for explored mediators between emotional intelligence and transformational leadership (Sivanathan & Fekken, 2003; Mandell & Pherwani, 2003). Goleman (1998) suggested emotional competence as a mediator between emotional intelligence and outcomes such as performance and leadership, and Mayer, Salovey, and Caruso agreed that the relationship between emotional intelligence and these types of outcomes was mediated by emotional competence, rather than the relationship being direct (see Cherniss, 2001; 2010). Prior to the current studies, there was no empirical test of this proposed mediated relationship. However, the results of the current studies did not support emotional competence as a mediator between emotional intelligence and transformational leadership. There was no support for a relationship between emotional intelligence and transformational leadership, and thus, no effect to mediate.

The lack of support for a relationship between emotional intelligence and transformational leadership in the current studies is somewhat consistent with the results of both Weinberger's (2004) and Beshears' (2004) dissertation studies. Weinberger (2004) reported no support for a relationship between MSCEIT scores and MLQ scores,

and Beshears' (2004) reported a significant relationship between MSCEIT scores and only the inspirational motivation dimension of transformational leadership. Both of these researchers and several others (Barbuto & Burbach, 2006; Brown et al., 2006; Hoffman & Frost, 2006) suggested areas of research could be improved upon by examining the relationship between ability-based emotional intelligence and measures of transformational leadership other than self-report. The current studies aimed to do this using several behavioral measures of transformational leadership designed specifically for these studies. However, these behavioral measures failed to obtain meaningful factor support, did not load on to the transformational leadership construct in the structural equation model, and thus were not included in the final model against which the fit of the data was compared. Thus, it is possible that ability-based emotional intelligence and behavioral measures of transformational leadership would be significantly related, but the current studies were not able to test this notion.

The relationship between emotional intelligence and emotional competence was also tested in the current studies. Boyatzis and colleagues have previously described emotional competence as a group of learned capabilities based on emotional intelligence that led to outstanding performance in the workplace (Boyatzis et al., 2000). Similarly, Goleman defined emotional competence as the result of emotional intelligence, the manifestation of emotional intelligence that then translates into effective performance, and he postulated that each domain of emotional intelligence forms the foundation for emotional competence (Goleman, 1995; 1998). Cherniss (2010) has suggested that emotional intelligence and emotional competence are linked and that establishing that

link while making the clear distinction between them will provide much needed clarity in this field of research.

However, the results of the current studies revealed mixed support for a relationship between emotional intelligence and emotional competence. The structural equation model tested in the current studies revealed a nonsignificant path between emotional intelligence and emotional competence, suggesting that emotional intelligence does not predict emotional competence. This finding contradicts the suggestion by leading emotional intelligence researchers that emotional intelligence provides the foundation for emotional competence (see Cherniss, 2001; 2010). On the other hand, the regression analyses on the medical resident sample revealed that emotional intelligence predicted emotional competence, when controlling for managerial competence and the conscientiousness and extraversion factors of personality.

There were also mixed findings for the predicted relationship between emotional competence and transformational leadership. The structural equation model revealed a significant path between emotional competence and transformational leadership. This finding is the first empirical evidence of a meaningful relationship between emotional competence and transformational leadership. Previously, there have only been intuitive links and research to suggest a link is possible. Fineman (1997) described emotional or affective competence as often including behaviors such as being personally involved, being sensitive to people's feelings, and being sensitive to values. These behaviors are intuitively similar to the behaviors associated with transformational leadership (Dulewicz & Higgs, 2000). Several researchers have established empirical links between emotional competence and aspects of leadership, such as performance and potential among leaders

(Cavallo & Brienza, 2004), career advancement (Dulewicz & Higgs, 2000), and overall leadership effectiveness ratings (Dulewicz et al., 2005). Yet, regression analyses on the medical resident sample revealed that emotional competence did not predict transformational leadership.

Therefore, these findings reveal that among an undergraduate sample, there was no support for a relationship between emotional intelligence and emotional competence, but there was evidence to support a relationship between emotional competence and transformational leadership. Conversely, among a sample of medical residents, there was support for a predictive relationship between emotional intelligence and emotional competence, but no support for a relationship between emotional competence and transformational leadership. Thus, the relationships between emotional intelligence, emotional competence, and transformational leadership appear to be functioning differently in the two samples included in these studies.

There were several major differences between these two samples. The undergraduate sample, on average, was significantly younger, less likely to have worked part-time or full-time, and less likely to have experience managing others. The effects of all of these demographic variables on emotional intelligence, emotional competence, and transformational leadership were explored, and it was revealed that individuals with management experience did report significantly higher levels of emotional competence than individuals with no management experience. There were no other effects of these demographic variables on emotional intelligence, emotional competence or transformational leadership. Thus, age and work experience do not explain why the relationships between emotional intelligence, emotional competence, and

transformational leadership differ between the undergraduate and medical resident samples.

To further explore the effect of management experience, the data from all individuals with management experience across Main Studies 1 and 2 ( $N = 111$ ) was tested and found to have bad fit with the final structural equation model obtained for the current studies. The data from all individuals without management experience ( $N = 192$ ) was also tested and found to have bad fit. The structural paths across the two sets of data were also tested and found to be invariant. Therefore, although individuals with management experience tended to obtain higher scores on the emotional competence measure, management experience does not explain why the relationships between emotional intelligence, emotional competence, and transformational leadership appeared to function differently between the undergraduate and medical resident samples.

Thus, it seems the variables measured in the current studies do not explain the inconsistent findings between the undergraduate and medical resident samples. It is worth noting that the sample of medical residents was quite small ( $N = 32$ ) and simply may not represent the larger population. It is also possible that an unmeasured characteristic of these samples is impacting the results.

Cherniss (2010) has recently suggested that situational factors or context, such as the nature of a work setting, may play a large role in both how emotional intelligence is displayed and how it affects emotional competence and transformational leadership. In the current studies, the undergraduate participants completed these measures in a lab setting for credit in their introductory psychology class, while the medical residents completed these measures at work and knew their managers would be assessing their

leadership as part of the study. Medical residents may have taken their participation more seriously, knowing their managers were participating, and thus responded differently. Therefore, it is possible this contextual difference contributed to the inconsistent results across the two samples. However, the manipulation of context in future studies or the replication of this methodology in multiple work settings is needed to determine the effect of context. Additional possible contextual effects of the current studies are discussed in more detail below.

In addition to the interesting findings regarding the relationships between emotional intelligence, emotional competence, and transformational leadership, there were several additional noteworthy findings from the current studies. Exploratory and confirmatory factor analyses led to several interesting findings for the new competence and transformational leadership measures. Furthermore, in addition to the effect of management experience on emotional competence scores, results revealed that management experience, personality, and intellectual and managerial competence scores impacted the results in several ways. These findings and their implications are discussed in detail below.

#### Emotional, Intellectual, and Managerial Competence Measures

The existing literature provides several ways to define and measure emotional competence, yet all of the existing measures have been criticized for including too many constructs and for low reliability. A more parsimonious and reliable measure of emotional competence was needed. Therefore, a new emotional competence measure was created for the current studies. This new measure was based upon a measure created by Dulewicz and Higgs (2000).

Intellectual competence and managerial competence were included as control variables in the current studies, in order to determine the relative value of emotional competence in the relationship between ability-based emotional intelligence and transformational leadership, while controlling for the effect of intellectual and managerial intelligence competencies. The existing measures of each of these competencies, created by Dulewicz and Higgs (2000), also had low levels of reliability. Therefore, new measures were designed to assess these control variables as well.

Exploratory factor analyses on the new emotional, intellectual, and managerial competence measures were conducted and led to the refinement of these measures. The emotional competency measure designed for this study originally contained 15 underlying factors measured by a total of 73 items. Upon completion of exploratory factor analysis, the emotional competency measure contained 8 factors measured by a total of 37 items. Items measuring the emotional competencies of integrity, motivating others, persuasiveness, decisiveness, sensitivity, adaptability, flexibility, ascendancy were retained. Items measuring achievement orientation loaded on to the same factor as motivating others, and a review of the items revealed that it was appropriate to include these as measures of the motivating others competency. One adaptability item loaded on to the same factor as the items measuring stress tolerance, and a review of the item revealed that it was appropriate to combine these two competencies. The perceptive listening, resilience, energy, negotiation, and impact competencies were dropped due to the lack of factor structure support.

The intellectual and managerial competency measures designed for this study originally each contained 12 underlying factors measured by a total of 57 and 52 items,

respectively. Upon completion of exploratory factor analysis, the intellectual competency measure contained 6 factors measured by a total of 37 items, and the managerial competency measure contained 8 factors measured by a total of 30 items. The intellectual competence items measuring creativity, risk-taking, and external awareness and the managerial competence items measuring developing subordinates, initiative, reading, written communication, independence, delegating, and appraising were retained. In addition, the intellectual competence items measuring planning and organizing loaded on to one factor, the items measuring judgment and detail consciousness, loaded on to one factor, and the items measuring information collection and problem analysis loaded on to one factor. The managerial competence items measuring oral expression and presentation loaded on to one factor. A review of the items in each of these pairs of intellectual and managerial competencies revealed that it was appropriate to combine them, respectively. The intellectual competencies of numerical interpretation, helicopter, and organizational awareness competencies and the managerial competencies of business sense, self-management, and tenacity were dropped as a result of lack of factor structure support.

The refined emotional, intellectual, and managerial competence measures obtained significantly higher factor loadings and reliability coefficients than the original Dulewicz and Higgs' measures. Confirmatory factor analysis supported the fit of the 3-factor model, despite high intercorrelations between the measures, and convergent validity evidence for each competence measure was obtained. Intellectual competence obtained adequate discriminant validity from emotional and managerial competence. Although, the emotional and managerial competence measures did not obtain adequate discriminant validity, the results of the structural equation model testing revealed that

emotional competence significantly predicts transformational leadership, even when controlling for managerial competence, suggesting that each competence explains unique variance transformational leadership, and thus suggesting they are distinct constructs. Therefore, in sum, the new measures of emotional, intellectual, and managerial competence improve upon previously criticized measures by providing significant improvements in reliability and validity. Thus, the current studies provide some initial support for the use of these new measures in future research and indicate progress in the measurement of these constructs.

#### Transformational Leadership Measures

Similar to the criticisms of previous measures of emotional, intellectual, and managerial competence, researchers have criticized the exclusive reliance on self-report and questionnaire-based measures of transformational leadership and suggested that the research empirically linking many variables to transformational leadership may be flawed due to mono-method bias (e.g. Beshears, 2004). Specifically, researchers called for examinations of emotional intelligence and the actual behaviors associated with transformational leadership in order to better understand the relationship between these two variables (Barbuto & Burbach, 2006). Therefore, as previously noted, behavioral exercises were designed for the current studies to improve upon previous research in this area.

The behavioral exercises were specifically designed to provide a relevant context for undergraduate participants while assessing actual transformational leadership behaviors. Participants in Main Study 1 were given the opportunity to exhibit transformational leadership behaviors by completing two written exercises and one

simulated presentation. The overall content was kept consistent with validated assessment centers that have been used in private consulting, but was modified to provide a context relevant to undergraduate students. Participants in Main Study 2 completed one written exercise in which they could write about any situation in which they had led a group through a change. Previous researchers have used similar scenarios (e.g. sharing vision related to a project, enthusiastically delivering an inspirational speech to a team) to manipulate transformational leadership behaviors of a confederate in a lab setting (Howell & Frost, 1989; Frese, Beimeel, & Schoenborn, 2003). However, the current studies were the first to measure the transformational leadership behaviors of participants.

Although the new behavioral measures of transformational leadership displayed high levels of reliability, the factor structures of each measure were not meaningful. Three factors were extracted for the self-ratings and simulated presentation ratings of transformational leadership, and the first and second writing exercises yielded eight and six factors, respectively. The factors extracted were inconsistent across all four measures. Even when a 3-factor solution was forced on the writing exercise ratings, the factors extracted from each of these measures were inconsistent. Based on these findings, the transformational leadership measures were not aggregated for model testing. Furthermore, when examined individually in the measurement model, the writing exercises and simulated presentation ratings did not load highly on the transformational leadership construct when the measurement model was tested, and therefore these measures were not included in the final structural model.

Despite the goal in the current studies to improve upon previous research by obtaining behavioral measures of transformational leadership, the behavioral measures

designed for the current studies failed to obtain factor structure support. Several possible reasons for the lack of support for these measures are discussed below. In sum, however, the current studies do not support for the use of these new behavioral measures of transformational leadership in future research.

#### Demographic and Control Variable Findings

In addition to the hypothesized model testing and evaluation of the new measures designed for these studies, the demographic variables assessed were explored for possible effects and several interesting findings were revealed. Results revealed that women scored significantly higher on the ability-based emotional intelligence and emotional competence measures when compared to men. The gender differences in ability-based emotional intelligence scores were somewhat surprising, given that Mandell and Pherwani (2003) examined gender as a moderator between emotional intelligence and transformational leadership and found no evidence for it. However, Brackett and colleagues (2006) found evidence of an interaction, in which men who scored higher on the MSCEIT were less likely to use destructive strategies in emotional situations and had higher social competence ratings, but no differences were found among women. These mixed findings for the effect of gender on ability-based emotional intelligence suggest that further research is warranted.

Gender did not have an effect on any of the remaining measures, nor did age, ethnicity, part-time, or full-time work experience. However, as previously noted, management experience had an effect on emotional competence scores. In addition, individuals with management experience also reported higher scores on most of the managerial competence factors and on all of the intellectual competence factors than

those individuals with no management experience. The findings for the effects management experience make sense intuitively and are supported by previous research. Positive relationships between emotional, intellectual, and managerial competence and the career advancement of managers have been established in previous research (Dulewicz & Higgs, 2000). Therefore, it is not surprising that individuals who have been exposed to a broader array of work experiences (i.e. through management of other individuals) report higher scores on the emotional, intellectual, and managerial competence measures.

However, it is interesting that individuals with management experience, but not individuals with full-time work experience, report higher scores on the emotional, intellectual and managerial competence measures. Although there is no previous research to support differential effects of management experience on emotional, intellectual, and managerial competence, it is possible that emotional, intellectual, and managerial competence play a larger role in management roles rather than the work of an individual contributor. It is also possible that individuals with higher levels of emotional, intellectual, and managerial competence are more likely to have advanced from individual contributor to management roles in organizations. However, the current studies are the first to use these new competence measures, and therefore, the effect of management experience needs to be further investigated to provide more clarity.

In addition to the demographic variables measures, several control variables were measured in the current studies to determine their predictive value for transformational leadership in relation to emotional intelligence and emotional competence. The conscientiousness and openness to experience factors of personality were found to predict

transformational leadership, and were included and controlled for in the structural equation model. The additional variance explained by personality is not surprising when considering previous findings. Personality has been linked to transformational leadership (Bono & Judge, 2004; Beshears, 2004).

Managerial competence was also found to predict transformational leadership among the undergraduate sample, and this study is the first to provide empirical evidence of a relationship between managerial competence and transformational leadership. This finding is not surprising when considering the factors underlying managerial competence, particularly the delegating and developing subordinates factors. Furthermore, the results are consistent with Dulewicz and Higgs' (2000) finding that managerial competence explained 16% of the variance in managerial advancement. However, similar to the relationship between emotional competence and transformational leadership, the regression analyses on the medical resident sample did not provide support for managerial competence as a predictor of transformational leadership. It is possible the same unmeasured variable or contextual effect is driving these contradictory results as well, and this should be investigated in future research.

#### Limitations and Future Research

Although the current studies provide support for the reliability and factor structure for the new measures of emotional, intellectual, and manager competence, these measures rely exclusively on self-ratings. Furthermore, the new measures of each competence were the only measure of each variable in the current studies. The advantage of using structural equation modeling to analyze data is the capability to use multiple observed measures of one latent variable, as it is difficult to adequately capture a construct using only one scale.

Therefore, future research should include both the new measures of emotional, intellectual, and managerial competence as well as actual behavioral measures of these constructs to obtain more comprehensive measurement of these latent variables.

However, obtaining behavioral measures is not easily done, as shown by the lack of support for the new behavioral measures of transformational leadership that were designed for the current studies. Although the results of a pilot study revealed that subject matter experts tended to agree the behavioral exercises would provide participants with adequate opportunity to exhibit transformational leadership behaviors, the evaluation of the measurement model revealed the behavioral measures needed to be dropped. Thus, transformational leadership was measured using only self-ratings.

There are several reasons why the behavioral measures may have failed to obtain consistent factor support. The first exercise required participants to recall a situation from their own lives in which they led a group through a change and to write about that situation in detail. However, the quality of the data depended upon the likelihood that each participant actually had the experience of leading the group through a change and was able to articulate in written format the behaviors they exhibited to effectively lead that change.

The second writing exercise provide participants with a situation in which they were to imagine themselves leading a group through a change, but again the quality of the data was dependent upon their ability to describe the behaviors they would exhibit. Furthermore, given the fairly short period of time participants were given to complete all three exercises (35 minutes in total), it is possible that allowing more time for each of the exercises would improve the quality of these measures.

The simulated presentation gave participants a broader array of ways to exhibit transformational leadership behavior, through both verbal and nonverbal communication. However, few participants spoke for longer than 2 to 3 minutes, despite having been given instructions to deliver a 5-minute speech. It is possible that participants were nervous about having to give a speech in front of an objective evaluator, and therefore rushed through their presentations. Again, participants may have needed a longer period of time to provide the detail needed in the writing and presentations to better display transformational leadership behaviors. Furthermore, English is not the first language for many Baruch students, and this could have hampered participants' oral and written communication skills. Future research could obtain information regarding English proficiency and control for this factor in analyses.

It is also possible that the behavioral measures of transformational leadership failed to obtain factor structure support because the participants completing them do not have the experience necessary to display transformational leadership behaviors. I took great strides to enhance the mundane realism of the study, designing a scenario similar to a leader/follower dynamic that would be realistic for an undergraduate population and likely to elicit transformational leadership behaviors. Yet, the laboratory setting does not capture all the elements of a real leader/follower situation. The first writing exercise required participants to recall a situation in which they led a group through a change or transformation, but two-thirds of the participants had no management experience. Therefore, these participants may not have faced many situations in which they would lead a group through a change, and thus, may not have ever learned about or practiced effective ways to lead that change.

The second writing exercise and the presentation were designed to provide the participant a real-time opportunity to think about how they would lead a group through a change and then provide behavioral examples of the tactics they would exhibit. However, the participants were aware that their writing and presentation was for an evaluator rather than an actual group of students that they are responsible for leading. The participants and the evaluator did not share work history or past experiences, unlike a leader and a follower would in an organization. Similar methodology was used in Study 2, an applied setting, but the participants in Study 2 were also students, may not have had many leadership opportunities. Again, as previously noted, that the sample of medical residents was quite small ( $N = 32$ ), may not represent the larger population, and was not a large enough sample to analyze the data using structural equation modeling.

In light of the effects of management experience on the emotional, intellectual, and managerial competence measures, and to address these limitations, a recommended next step in this line of research would be to have a manager population in an actual organization complete the ability-based emotional intelligence, emotional competence, and managerial competence measures and to obtain both self- and manager ratings of transformational leadership. It is quite possible that an organization would agree to development activities or an action-learning program in which employees in leadership roles lead their work colleagues through change. Real email exchanges could be obtained and coded, and group presentations and meetings could be observed and evaluated to provide behavioral measures of the leaders' transformational leadership. Employees' ability-based emotional intelligence and emotional competence scores and the directly

observed transformational leadership behaviors may reveal more consistent results than those obtained in the current studies.

#### Implications for organizations and medical education

In addition to the future research suggested above that would increase the applicability of this research, the current findings can be applied to organizations in several different ways. The initial support for the new measures of emotional, intellectual, and managerial competence provides some clarity about the definitions of these constructs, therefore perhaps increasing the capability to measure and link them to other organizational outcomes. If stronger support can be obtained for a relationship between ability-based emotional intelligence and emotional competence, this would increase the utility of the measures assessing each construct. Scores on the MSCEIT are very similar to scores on a cognitive ability test, and while informative about one's capability to accurately identify, use, and regulate one's and others' emotions, the results of the MSCEIT are arguably difficult to apply directly to improving performance at work. It is more likely that the emotional competency behaviors, rather than ability-based emotional intelligence, would be directly observable in the workplace.

Furthermore, if stronger support can be obtained for the relationship between emotional competence and transformational leadership, then perhaps increasing emotional competence behaviors will in turn increase transformational leadership behaviors. These emotional competence behaviors could then be incorporated into many different organizational performance initiatives, such as competency models, performance appraisals, development plans and training programs. However, because the

current studies provide mixed support for the relationship between emotional intelligence and emotional competence, further research is warranted.

In addition to the contributions listed above, the inclusion of a physician sample, albeit a small sample, further increases the value of the current studies. There has been a recent increase in interest in the role of emotional intelligence among physicians (Wagner, 2006). The nature of the work, caring for others with unpredictable conditions and in unanticipated circumstances, requires both cognitive and emotional energy to control and manage the emotions of oneself and others. These are behaviors that would likely result from emotional intelligence (Wagner, 2006). Although the regression analyses did not support the hypothesized mediating role of emotional competence, they did support a predictive relationship between emotional intelligence and emotional competence. A much larger sample of medical residents is needed in order to determine if the relationships between these variables differs among this population, but the results from the current studies suggest further investigation would be worthwhile.

Furthermore, the healthcare industry has changed a great deal in recent years; the doctor-patient relationship is now one of much more collaboration and shared decision-making than in the past (Amundson, 2005). Patients are more proactive in their own healthcare, and this shift has led to an increased need for physicians to possess superior interpersonal communications skills (Elam & Stratton, 2006). Yet, according to Elam and Stratton (2006), public dissatisfaction with physician interpersonal communication is high, and patients feel their physicians do not listen to them and fail to demonstrate appropriate levels of caring, empathy, or even tact, indicating an area of needed improvement in physician training.

There are also reasons to assume a physician with higher emotional intelligence would be more effective in his/her job. Physicians' need to be able to understand their patients on an individual and emotional level in order to establish a solid patient-doctor relationship; this likely requires emotional intelligence. Emotionally intelligent physicians may also experience more effective interactions with this health care staff overall as well as reduced burnout/stress as a result of their enhanced self-awareness (Serio & Epperly, 2006). Given these aspects of their work, it would be worthwhile to further investigate the role of emotional intelligence and emotional competence among a larger sample of medical residents and physicians. It seems likely that a physician-only sample would yield similar results, and it would be interesting to explore the relationships between emotional intelligence, emotional competence, and other work-related outcomes such as patient satisfaction and overall successful treatment of patients.

### Summary

Although the hypothesized mediating role of emotional competence between emotional intelligence and transformational leadership was not supported, it is important to note the current studies improve upon previous research in several ways. Previous research has revealed inconsistent evidence for a relationship between ability-based emotional intelligence and transformational leadership, and that lack of consistent evidence has been most often attributed to inconsistent or the use of mixed-model measures of emotional intelligence and exclusive use of questionnaire based measures of transformational leadership. There has been an assumed relationship between ability-based emotional intelligence and emotional competence but no empirical evidence for this relationship. There has also been no direct test of a relationship between emotional

competence and transformational leadership. In addition, previous measures of emotional competence have either been confounded or lacking in acceptable levels of reliability and clarity on the items used to measure the competencies. Thus, the current studies contribute to these areas of research through the use of a methodologically sound measure of ability-based emotional intelligence, the development of a new more methodologically sound measure of emotional competence, and direct tests of the relationships between emotional intelligence and emotional competence and emotional competence and transformational leadership. Furthermore, the current studies provide some initial support for new measures of intellectual and managerial competence.

However, the limitations of the current studies should also be kept in mind. It is difficult to draw conclusions about the applicability of these findings to an organizational setting because most of the participants were undergraduate students. Furthermore, only self-ratings of emotional, intellectual, and managerial competence were obtained, and only self-ratings of transformational leadership were tested in the structural equation model. Further research should be conducted using the new measures of emotional, intellectual, and managerial competence, and further attempts should be made to design behavioral measure of transformational leadership.

In conclusion, the results of these studies did not reveal support for a relationship between emotional intelligence and self-reported transformational leadership, and also did not provide support for emotional competence, measured by a new self-report measure, as a mediator. However, mixed findings for the relationship between emotional intelligence and emotional competence suggest further research is warranted and may provide some support for the claims made by Cherniss, Mayer, Goleman, and other

leading emotional intelligence researchers, that ability-based emotional intelligence provides the foundation for emotional competence. Furthermore, mixed support for the relationship between emotional competence and transformational leadership, and reliance on self-report measures of these constructs in the present study, also support the need for further research and measure development in order to clarify this relationship. Taken together, the findings of this research suggest that further exploration of the relationships among ability-based emotional intelligence, emotional competence, and transformational leadership is warranted and that the newly developed measures of emotional, intellectual, and managerial competence may offer a promising approach to measuring these constructs.

## Chapter 11

### Appendices

#### Appendix A – Informed Consent Form – Pilot Study 1

In this study, you will complete several assessments measuring emotions and leadership behaviors. You will then complete two writing exercises and give a 5-minute presentation to two evaluators. Any risks associated with involvement in this study are comparable to the risks of everyday life. After the study, the purpose of the research and the hypotheses being tested will be explained to you. Your participation in this study will provide you with a better understanding about how research is conducted. Your responses will be kept confidential and your name will not be associated with any data that you provide. You should be at least 18 years old to participant. It will take you approximately 2 hours to complete the entire experiment. You may terminate your participation at any point without penalty. You may also request a copy of this consent form for your records. If you have any questions or concerns regarding your participation in this experiment, please contact Kristen L. Kirkland by email at [kristenkirkland3434@hotmail.com](mailto:kristenkirkland3434@hotmail.com). If you have any questions about your rights as a volunteer, please contact Keisha Peterson, the administrator of the Baruch College Institutional Review Board, at 646-312-3785, [Keisha.Peterson@baruch.cuny.edu](mailto:Keisha.Peterson@baruch.cuny.edu); 55 Lexington Avenue, Box B 8-215 New York, NY 10010.

By signing below, I acknowledge that I have read and understood the initial procedures to be followed and consent to participation in this study.

Name (print)

Signature

Date

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Witness

Name (print)

Signature

Date

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Appendix B – Pilot Study 1 Evaluation Form of Emotional, Intellectual, and Managerial Competency Measures

*Instructions:* Please rate the extent to which you agree that each behavioral item provides a measure of the competency in parentheses.

1.) Am truthful (*integrity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

2.) Can be relied upon to keep your word (*integrity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

3.) Do not have double standards (*integrity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

4.) Do not compromise on ethical or legal matters (*integrity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

5.) Am trustworthy (*integrity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

6.) Listen dispassionately, intently, and carefully so that key points can be recalled and taken into account (*perceptive listening*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

7.) Ask questions when necessary to ensure understanding (*perceptive listening*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

8.) Have the patience to hear people out (*perceptive listening*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix B - Continued

9.) Can accurately restate the opinions of others even when I disagree (*perceptive listening*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

10.) Practice attentive and active listening (*perceptive listening*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

11.) Inspire others to achieve goals to ensure clear understanding of what needs to be achieved (*motivating others*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

12.) Create a climate in which people want to do their best (*motivating others*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

13.) Can motivate many kinds of direct reports and team or project members (*motivating others*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

14.) Invites input from each person (*motivating others*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

15.) Shares ownership and visibility (*motivating others*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

16.) Makes each individual feel his/her work is important (*motivating others*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

17.) Show commitment, enthusiasm, encouragement, and support (*achievement oriented*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

18.) Set challenging but achievable goals and standards of performance for self (*achievement oriented*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix B - Continued

19.) Set challenging but achievable goals and standards of performance for others (*achievement oriented*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

20.) Enjoy working hard (*achievement oriented*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

21.) Am action-oriented and full of energy for the things I see as challenging (*achievement oriented*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

22.) Can persuade others to give their agreement (*persuasiveness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

23.) In the face of conflict, use personal influence to achieve consensus (*persuasiveness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

24.) Can persuade others to give their commitment (*persuasiveness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

25.) In the face of conflict, use personal influence to achieve agreement (*persuasiveness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

26.) Maintain composure and effectiveness in the face of adversity, setbacks, opposition, or unfairness (*resilience*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

27.) Stay cool under pressure (*resilience*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

28.) Do not become defensive or irritated when times are tough (*resilience*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix B - Continued

29.) Considered mature (*resilience*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

30.) Can be counted on to hold things together during tough times (*resilience*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

31.) Show readiness to take decisions and take action (*decisiveness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

32.) Make up your mind (*decisiveness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

33.) Can make a quick decision (*decisiveness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

34.) Can make a decision with incomplete information (*decisiveness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

35.) Can make a decision under tight deadlines and pressure (*decisiveness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

36.) Show an understanding of the feelings and needs of other (*sensitivity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

37.) Willing to provide personal support or take other actions as appropriate (*sensitivity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

38.) Demonstrates real empathy with the joys and pains of others (*sensitivity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

39.) Show concern about the work and non-work problems of employees (*sensitivity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix B – Continued

40.) Asks about employees plans, problems and desires (*sensitivity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

41.) Exhibit energy (*energy*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

42.) Exhibit vitality (*energy*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

43.) Exhibit commitment (*energy*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

44.) Pursue everything with energy and drive (*energy*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

45.) Pursue everything with a need to finish (*energy*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

46.) Alert and responsive to the need for change (*adaptability*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

47.) Encourage new initiatives (*adaptability*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

48.) Encourage implementation of new policies, structures, and practices (*adaptability*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

49.) Can comfortably handle uncertainty (*adaptability*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

50.) Can shift gears comfortably (*adaptability*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix B – Continued

51.) Adopt a flexible style when interacting with others (*flexibility*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

52.) Take others' views into account and change position when appropriate (*flexibility*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

53.) Experiments to find solutions (*flexibility*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

54.) Open to change (*flexibility*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

55.) Will try anything to find solutions (*flexibility*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

56.) Can handle stress (*stress tolerance*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

57.) Not knocked off balance by the unexpected (*stress tolerance*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

58.) Do not show frustration when resisted or blocked (*stress tolerance*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

59.) Seen as a settling influence in a crisis (*stress tolerance*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

60.) Can negotiate skillfully in tough situations with internal groups (*negotiating*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

61.) Can negotiate skillfully in tough situations with external groups (*negotiating*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix B - Continued

62.) Can settle differences with minimum noise (*negotiating*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

63.) Can win concessions without damaging relationships (*negotiating*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

64.) Clearly assign responsibility for tasks and decisions (*impact*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

65.) Set clear objectives and measures (*impact*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

66.) Monitors process, progress and results (*impact*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

67.) Design feedback loops into work (*impact*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

68.) Relish leading (*ascendancy*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

69.) Take unpopular stands if necessary (*ascendancy*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

70.) Encourage direct and tough debate (*ascendancy*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

71.) Is not afraid to end debate and move on (*ascendancy*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

72.) Looked to for direction in a crisis (*ascendancy*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix B – Continued

73.) Face adversity head on (*ascendancy*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

74.) Systematically seek all possible relevant information from a variety of sources (*information collection*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

75.) Deal with concepts and complexity comfortably (*information collection*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

76.) Others would describe you as intellectually sharp, capable, and agile (*information collection*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

77.) Others would describe you as bright and intelligent (*information collection*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

78.) Quickly grasp the essence and underlying structure of anything (*information collection*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

79.) Identify problems (*problem analysis*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

80.) Identify possible or actual causes (*problem analysis*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

81.) Use rigorous logic and methods to solve problems (*problem analysis*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

82.) Probe all fruitful sources for answers (*problem analysis*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

83.) Can see hidden problems (*problem analysis*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix B - Continued

84.) Make sensible decisions or recommendations by weighing evidence (*judgment*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

85.) Consider reasonable assumptions (*judgment*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

86.) Consider ethical dimensions (*judgment*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

87.) Consider factual information (*judgment*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

88.) Assimilate numerical and statistical information accurately (*numerical interpretation*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

89.) Understand the derivation of numerical and statistical information (*numerical interpretation*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

90.) Make sensible interpretations based on numerical and statistical information (*numerical interpretation*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

91.) Draw sound interpretations based on numerical and statistical information (*numerical interpretation*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

92.) Insist that sufficiently detailed information is taken into account (*detail consciousness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

93.) Insist that sufficiently reliable information is taken into account (*detail consciousness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

94.) Insist that sufficiently detailed information is reported when necessary (*detail consciousness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix B – Continued

95.) Insist that sufficiently reliable information is reported when necessary (*detail consciousness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

96.) Provide information so that people can make accurate decisions (*detail consciousness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

97.) Rise above the immediate problem or situation (*helicopter*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

98.) See wider issues and implications (*helicopter*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

99.) Able to relate disparate facts (*helicopter*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

100.) Able to see relevant relationships between disparate facts (*helicopter*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

101.) Can easily pose future scenarios (*helicopter*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

102.) Aware of the company's strengths and weaknesses (*organizational awareness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

103.) Aware of the likely impact of the management decisions on an organization (*organizational awareness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

104.) Know how to get things done through formal channels in the organization (*organizational awareness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix B – Continued

105.) Know how to get things done through informal networks in the organization (*organizational awareness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

106.) Understand the origin and reasoning behind key policies, procedures, and practices (*organizational awareness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

107.) Aware of the various factors that determine a company's opportunities and threats (e.g., shareholder, stakeholder, market, technological, environmental, and regulatory factors) (*external awareness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

108.) Able to imagine possible future states and characteristics of the company in a future environment (*external awareness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

109.) Know the competition (*external awareness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

110.) Aware of how strategies and tactics work in the marketplace (*external awareness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

111.) Knowledge in current and possible future policies, trends, technology or information affecting the market (*external awareness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

112.) Generate imaginative solutions and innovations (*creativity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

113.) Recognizes imaginative solutions and innovations (*creativity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

114.) Come up with new and unique ideas (*creativity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix B – Continued

115.) Easily make connections among previously unrelated notions (*creativity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

116.) Others see you as original and value-adding in a brainstorming session (*creativity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

117.) Is prepared to take action that involves calculated risks in order to achieve a desired benefit or advantage innovations (*risk-taking*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

118.) Willing to stand up and be counted (*risk-taking*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

119.) Willing to be the only champion for an idea or position (*risk-taking*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

120.) Don't shirk personal responsibility (*risk-taking*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

121.) Accurately scope out length and difficulty of tasks and projects (*planning*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

122.) Set objectives and goals (*planning*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

123.) Break down work into the process steps (*planning*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

124.) Develop schedules and tasks/people assignments (*planning*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix B – Continued

125.) Anticipate and adjust for problems and roadblocks (*planning*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

126.) Measure performance against goals and evaluates results (*planning*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

127.) Can marshal resources (people, funding, material, support) to get things done (*organizing*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

128.) Can orchestrate multiple activities at once to accomplish a goal (*organizing*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

129.) Use resources effectively and efficiently (*organizing*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

130.) Arrange information and files in a useful manner (*organizing*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

131.) Distinguishes between what should be done by others from what should be done by him/herself (*delegating*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

132.) Allocates decision-making or other tasks to appropriate colleagues or subordinates (*delegating*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

133.) Can delegate both routine and important tasks and decisions (*delegating*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

134.) Tend to trust people to perform (*delegating*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix B – Continued

135.) Let direct reports and others finish their own work (*delegating*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

136.) Speak clearly (*oral expression*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

137.) Speak audibly (*oral expression*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

138.) Have good diction (*oral expression*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

139.) Speak concisely (*oral expression*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

140.) Avoid jargon (*oral presentation*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

141.) Tailor content to audience needs (*oral presentation*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

142.) Command attention and can manage group process during the presentation (*oral presentation*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

143.) Can change tactics midstream in the presentation when something isn't working (*oral presentation*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

144.) Has the ability to identify opportunities to increase company's business advantage (*business sense*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

145.) Know how businesses work (*business sense*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix B – Continued

146.) Knowledge in current and possible future policies, trends, technology or information affecting the organization (*business sense*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

147.) Sensitive to how people and organizations function (*business sense*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

148.) Written matter is readily intelligible (*written communication*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

149.) Ideas, information and opinions are conveyed accurately (*written communication*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

150.) Ideas, information and opinions are conveyed clearly (*written communication*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

151.) Ideas, information and opinions are conveyed concisely (*written communication*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

152.) Can get messages across that have the desired effect (*written communication*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

153.) A good judge of talent (*appraising*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

154.) Can articulate strengths and limitations of people inside the organization (*appraising*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

155.) Can articulate strengths and limitations of people outside the organization (*appraising*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix B - Continued

156.) Can accurately project what people are likely to do across a variety of situations (*appraising*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

157.) Provide challenging and stretching tasks and assignments (*developing subordinates*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

158.) Hold frequent development discussions with direct reports (*developing subordinates*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

159.) Aware of each direct report's career goals (*developing subordinates*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

160.) Construct compelling development plans and execute them (*developing subordinates*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

161.) Personally committed to and actively works to continuously improve yourself (*self-management*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

162.) Understand that different situations and levels may call for different skills and approaches (*self-management*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

163.) Work to deploy strengths (*self-management*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

164.) Work on compensating for weaknesses and limits (*self-management*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

165.) Can identify the main idea communicated in a written document (*reading*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix B – Continued

166.) Can understand figurative language in a written document (*reading*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

167.) Can draw accurate conclusions from a written document (*reading*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

168.) Can identify mood in a written document (*reading*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

169.) Know what you want from a career and actively work on it (*initiative*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

170.) Are career knowledgeable (*initiative*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

171.) Make things happen for yourself (*initiative*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

172.) Market yourself for opportunities (*initiative*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

173.) Do not wait for other to open doors (*initiative*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

174.) Know personal strengths, weaknesses, opportunities, and limits (*independence*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

175.) Seek feedback (*independence*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

176.) Gain insight from mistakes (*independence*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix B - Continued

177.) Open to criticism (*independence*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

178.) Do not get defensive when receiving feedback (*independence*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

179.) Can be counted on to exceed goals successfully (*tenacity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

180.) Is constantly and consistently one of the top performers (*tenacity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

181.) Very bottom-line oriented (*tenacity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

182.) Steadfastly pushes self and others for results (*tenacity*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix C – Pilot Study 1 Evaluation Form of Transformational Leadership Behavioral Exercise – Written Exercise 1

*Instructions:* Please rate the extent to which you agree that the first written exercise provided you with the opportunity to exhibit each of the behaviors described below.

*(Transformational leadership factor assessed by each item is listed in italics and parentheses)*

1.) Re-examine critical assumptions to question whether they are appropriate (*intellectual stimulation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

2.) Talk about his/her most important values and beliefs (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

3.) Seek differing perspectives when solving problems (*intellectual stimulation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

4.) Talk optimistically about the future (*inspirational motivation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

5.) Instill pride in others for being associated with him/her (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

6.) Talk enthusiastically about what needs to be accomplished (*inspirational motivation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

7.) Specify the importance of having a strong sense of purpose (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

8.) Spend time teaching and coaching (*individualized consideration*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix C – Continued

9.) Go beyond self-interest for the good of the group (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

10.) Treat others as an individual rather than just as a member of the group (*individualized consideration*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

11.) Act in ways that build others' respect (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

12.) Consider the moral and ethical consequences of decisions (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

13.) Display a sense of power and confidence (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

14.) Articulate a compelling vision of the future (*inspirational motivation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

15.) Consider individuals as having different needs, abilities, and aspirations from others (*individualized consideration*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

16.) Get others to look at problems from many different angles (*intellectual stimulation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

17.) Help others to develop their strengths (*individualized consideration*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

18.) Suggest new ways of looking at how to complete assignments (*intellectual stimulation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix C – Continued

19.) Emphasize the importance of having a collective sense of mission (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

20.) Express confidence that goals will be achieved (*inspirational motivation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix D – Pilot Study 1 Evaluation Form of Transformational Leadership Behavioral Exercises – Written Exercise 2

*Instructions:* Please rate the extent to which you agree that the second written exercise provided you with the opportunity to exhibit each of the behaviors described below.

*(Transformational leadership factor assessed by each item is listed in italics and parentheses)*

1.) Re-examine critical assumptions to question whether they are appropriate *(intellectual stimulation)*

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

2.) Talk about his/her most important values and beliefs *(idealized influence)*

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

3.) Seek differing perspectives when solving problems *(intellectual stimulation)*

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

4.) Talk optimistically about the future *(inspirational motivation)*

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

5.) Instill pride in others for being associated with him/her *(idealized influence)*

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

6.) Talk enthusiastically about what needs to be accomplished *(inspirational motivation)*

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

7.) Specify the importance of having a strong sense of purpose *(idealized influence)*

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

8.) Spend time teaching and coaching *(individualized consideration)*

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix D – Continued

9.) Go beyond self-interest for the good of the group (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

10.) Treat others as an individual rather than just as a member of the group (*individualized consideration*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

11.) Act in ways that build others' respect (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

12.) Consider the moral and ethical consequences of decisions (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

13.) Display a sense of power and confidence (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

14.) Articulate a compelling vision of the future (*inspirational motivation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

15.) Consider individuals as having different needs, abilities, and aspirations from others (*individualized consideration*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

16.) Get others to look at problems from many different angles (*intellectual stimulation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

17.) Help others to develop their strengths (*individualized consideration*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

18.) Suggest new ways of looking at how to complete assignments (*intellectual stimulation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix D – Continued

19.) Emphasize the importance of having a collective sense of mission (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

20.) Express confidence that goals will be achieved (*inspirational motivation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix E – Pilot Study 1 Evaluation Form of Transformational Leadership Behavioral Exercises – Simulated Presentation

*Instructions:* Please rate the extent to which you agree that the simulated presentation exercise provided you with the opportunity to exhibit each of the behaviors described below.

*(Transformational leadership factor assessed by each item is listed in italics and parentheses)*

1.) Re-examine critical assumptions to question whether they are appropriate (*intellectual stimulation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

2.) Talk about his/her most important values and beliefs (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

3.) Seek differing perspectives when solving problems (*intellectual stimulation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

4.) Talk optimistically about the future (*inspirational motivation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

5.) Instill pride in others for being associated with him/her (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

6.) Talk enthusiastically about what needs to be accomplished (*inspirational motivation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

7.) Specify the importance of having a strong sense of purpose (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

8.) Spend time teaching and coaching (*individualized consideration*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix E – Continued

9.) Go beyond self-interest for the good of the group (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

10.) Treat others as an individual rather than just as a member of the group (*individualized consideration*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

11.) Act in ways that build others' respect (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

12.) Consider the moral and ethical consequences of decisions (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

13.) Display a sense of power and confidence (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

14.) Articulate a compelling vision of the future (*inspirational motivation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

15.) Consider individuals as having different needs, abilities, and aspirations from others (*individualized consideration*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

16.) Get others to look at problems from many different angles (*intellectual stimulation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

17.) Help others to develop their strengths (*individualized consideration*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

18.) Suggest new ways of looking at how to complete assignments (*intellectual stimulation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix E – Continued

19.) Emphasize the importance of having a collective sense of mission (*idealized influence*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

20.) Express confidence that goals will be achieved (*inspirational motivation*)

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix F – Informed Consent Form – Pilot Study 2

In this study, you will review several assessments measuring emotions and leadership behaviors. You will then review materials for two writing exercises and a simulated presentation. Any risks associated with involvement in this study are comparable to the risks of everyday life. After the study, the purpose of the research and the hypotheses being tested will be explained to you. Your participation in this study will provide you with a better understanding about how research is conducted. Your responses will be kept confidential and your name will not be associated with any data that you provide. You should be at least 18 years old to participant. It will take you approximately ½ hour to complete the entire experiment. You may terminate your participation at any point without penalty; you will still receive full credit. You may also request a copy of this consent form for your records. If you have any questions or concerns regarding your participation in this experiment, please contact Kristen L. Kirkland by email at [kristenkirkland3434@hotmail.com](mailto:kristenkirkland3434@hotmail.com). If you have any questions about your rights as a volunteer, please contact Keisha Peterson, the administrator of the Baruch College Institutional Review Board, at 646-312-3785, [Keisha.Peterson@baruch.cuny.edu](mailto:Keisha.Peterson@baruch.cuny.edu); 55 Lexington Avenue, Box B 8-215 New York, NY 10010.

By signing below, I acknowledge that I have read and understood the initial procedures to be followed and consent to participation in this study.

Name (print)

Signature

Date

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Witness

Name (print)

Signature

Date

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Appendix G – Informed Consent Form – Study 1

In this study, you will complete several assessments measuring emotions and leadership behaviors. You will then complete two writing exercises and give a 5-minute presentation to an evaluator. Any risks associated with involvement in this study are comparable to the risks of everyday life. After the study, the purpose of the research and the hypotheses being tested will be explained to you. Your participation in this study will provide you with a better understanding about how research is conducted. Your responses will be kept confidential and your name will not be associated with any data that you provide. You should be at least 18 years old to participant. It will take you approximately 2 hours to complete the entire experiment. You may terminate your participation at any point without penalty; you will still receive full credit. You may also request a copy of this consent form for your records. If you have any questions or concerns regarding your participation in this experiment, please contact Kristen L. Kirkland by email at [kristenkirkland3434@hotmail.com](mailto:kristenkirkland3434@hotmail.com). If you have any questions about your rights as a volunteer, please contact Keisha Peterson, the administrator of the Baruch College Institutional Review Board, at 646-312-3785, [Keisha.Peterson@baruch.cuny.edu](mailto:Keisha.Peterson@baruch.cuny.edu); 55 Lexington Avenue, Box B 8-215 New York, NY 10010.

By signing below, I acknowledge that I have read and understood the initial procedures to be followed and consent to participation in this study.

Name (print)

Signature

Date

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Witness

Name (print)

Signature

Date



## Appendix I – Cognitive Ability Scale - Wonderlic Sample Items

*Instructions: This set of questions is from the Wonderlic Personnel Test (WPT). This test is a general test of problem solving ability that many consider to be the best measure of intelligence. The WPT provides the individual's ability to cope with the complexities of any particular occupation. Please either write or circle your answer.*

1) Look at the row of numbers below. What number should come next? \_\_\_\_\_

8                      4                      2                      1                       $\frac{1}{2}$                        $\frac{1}{4}$

2) CREDIT                      CREDENCE

These words:

A: Have similar meanings.

B: Have opposite meanings.

C: Have neither similar nor opposite meanings.

3) A boy is 17 years old and his sister is twice as old. When the boy is 23 what will be the age of his sister?

\_\_\_\_\_

4) Assume the first two statements are true.

The boy plays baseball.

All baseball players wear hats.

The boy wears a hat

Is the third statement:

True

False

Not Certain

5) Paper sells for 21 cents per pad. What will four pads cost? \_\_\_\_\_

6) VINTAGE                      NOVELTY

These words:

A: Have similar meanings.

B: Have opposite meanings.

C: Have neither similar nor opposite meanings.

7) How many of the five pairs listed below are exact duplicates? \_\_\_\_\_

Nieman, K. M.

Neiman, K. M.

Thomas, G. K.

Thomas, C. K.

Hoff, J. P.

Hoff, J. P

Pino, L. R.

Pina, L. R.

Warner, T. S.

Wanner, T. S.

8) Randolph has 8 ties, 6 pairs of pants, and 4 dress shirts. How many days could he possibly go without wearing the same combination of these three items? \_\_\_\_\_

## Appendix I – Continued

9) PRESENT                      RESERVE

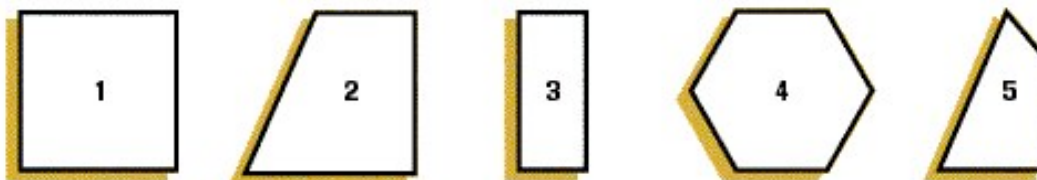
These words:

A: Have similar meanings.

B: Have opposite meanings.

C: Have neither similar nor opposite meanings.

10) One of the number figures in the following drawing is most different from the others. What is the number in that figure? \_\_\_\_\_



11) PUNISH                      SKIRMISH

These words:

A: Have similar meanings.

B: Have opposite meanings.

C: Have neither similar nor opposite meanings.

12) A train travels 20 feet in  $\frac{1}{5}$  second. At this same speed, how many feet will it travel in three seconds?  
\_\_\_\_\_

13) When rope is selling at \$.10 a foot, how many feet can you buy for sixty cents? \_\_\_\_\_

14) CONVERT                      INVERT

These words:

A: Have similar meanings.

B: Have opposite meanings.

C: Have neither similar nor opposite meanings.

15) What is the next number in the sequence?

5                      10                      20                      40                      \_\_\_\_\_

16) John is a mechanic. He makes \$8.50 an hour, plus \$3 extra for every oil change he performs. Last week he worked 36 hours and performed 17 oil changes. How much money did he make?

## Appendix I – Continued

17) ABSTAIN                      RETAIN

These words:

A: Have similar meanings.

B: Have opposite meanings.

C: Have neither similar nor opposite meanings.

18) Which of the following numbers represents the smallest amount?

3.26

0.54

89.00

0.09

19) The ninth month of the year is:

- a) October
- b) January
- c) June
- d) September
- e) May

20) Which number in the following group of numbers represents the smallest amount? \_\_\_\_\_

7

.8

31

.33

2

21) In printing an article of 48,000 words, a printer decides to use two sizes of type. Using the larger type, a printed page contains 1,800 words. Using a smaller type, a page contains 2,400 words. The article is allotted 21 full pages in a magazine. How many pages must be in smaller type? \_\_\_\_\_

22) A box of staples has a length of 6 cm, a width of 7 cm, and a volume of 378 cm cubed. What is the height of the box? \_\_\_\_\_

23) What is the next number in the sequence?

3

8

18

38

\_\_\_\_\_

24) RESUME                      ASSUME

These words:

A: Have similar meanings.

B: Have opposite meanings.

C: Have neither similar nor opposite meanings.

25) The hours of daylight and darkness in September are nearest equal to the hours of daylight and darkness in:

- a) June
- b) March
- c) May
- d) November

## Appendix J – NEO Five-Factor Inventory

*Instructions: Please rate the extent of your level of agreement or disagreement with the following statements. Please circle your answer.*

1.) I am not a worrier. (*neuroticism*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

2.) I tend to be cynical and skeptical of others' intentions. (*agreeableness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

3.) I often get angry at the way people treat me. (*neuroticism*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

4.) I rarely feel lonely or blue. (*neuroticism*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

5.) Some people think I'm selfish and egotistical. (*agreeableness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

6.) I try to perform all the tasks assigned to me conscientiously. (*conscientiousness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

7.) I would rather cooperate with others than compete with them. (*agreeableness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

8.) I often feel helpless and want someone else to solve my problems. (*neuroticism*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

9.) I believe letting students hear controversial speakers can only confuse or mislead them. (*openness to experience*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

10.) I like to have a lot of people around me. (*extraversion*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix J – Continued

11.) If necessary, I am willing to manipulate people to get what I want. (*agreeableness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

12.) I try to be courteous to everyone I meet. (*agreeableness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

13.) Sometimes I'm not as dependable or reliable as I should be. (*conscientiousness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

14.) I have a clear set of goals and work toward them in an orderly fashion. (*conscientiousness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

15.) I waste a lot of time before settling down to work. (*conscientiousness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

16.) I'm hard-headed and tough-minded in my attitudes. (*agreeableness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

17.) I rarely feel fearful or anxious. (*neuroticism*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

18.) I believe that most people will take advantage of you if you let them. (*agreeableness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

19.) I usually prefer to do things alone. (*extraversion*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

20.) I am not a very methodical person. (*conscientiousness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

21.) I am seldom sad or depressed. (*neuroticism*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix J – Continued

22.) Some people think of me as cold and calculating. (*agreeableness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

23.) At times I have been so ashamed I just wanted to hide. (*neuroticism*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

24.) Once I find the right way to do something, I stick to it. (*openness to experience*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

25.) I am a productive person who always gets the job done. (*conscientiousness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

26.) When I'm under a great deal of stress, sometimes I feel like I'm going to pieces. (*neuroticism*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

27.) I am not a cheerful optimist. (*extraversion*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

28.) I believe we should look to our religious authorities for decisions on moral issues. (*openness to experience*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

29.) I often feel tense and jittery. (*neuroticism*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

30.) I am intrigued by the patterns I find in art and nature. (*openness to experience*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

31.) I generally try to be thoughtful and considerate. (*agreeableness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix J – Continued

32.) I often feel as if I'm bursting with energy. (*extraversion*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

33.) I often try new and foreign foods. (*openness to experience*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

34.) If I don't like people, I let them know it. (*agreeableness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

35.) I work hard to accomplish my goals. (*conscientiousness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

36.) I really enjoy talking to people. (*extraversion*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

37.) Poetry has little or no effect on me. (*openness to experience*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

38.) I never seem to be able to get organized. (*conscientiousness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

39.) When I make a commitment, I can always be counted on to follow through. (*conscientiousness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

40.) I often feel inferior to others. (*neuroticism*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

41.) I like to be where the action is. (*extraversion*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

42.) I don't consider myself especially "light-hearted." (*extraversion*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix J – Continued

43.) I would rather go my own way than be a leader of others. (*extraversion*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

44.) I seldom notice the moods or feelings that different environments produce. (*openness to experience*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

45.) Most people I know like me. (*agreeableness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

46.) I have little interest in speculating on the nature of the universe or the human condition. (*openness to experience*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

47.) I am a cheerful, high-spirited person. (*extraversion*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

48.) Sometimes when I am reading poetry or looking at a work of art, I feel a chill or wave of excitement. (*openness to experience*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

49.) My life is fast-paced. (*extraversion*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

50.) I strive for excellence in everything I do. (*conscientiousness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

51.) I have a lot of intellectual curiosity. (*openness to experience*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

52.) Too often, when things go wrong, I get discouraged and feel like giving up. (*neuroticism*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix J – Continued

53.) I am a very active person. (*extraversion*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

54.) I often get into arguments with my family and co-workers. (*agreeableness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

55.) I laugh easily. (*extraversion*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

56.) I feel completely worthless. (*neuroticism*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

57.) I don't like to waste my time daydreaming. (*openness to experience*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

58.) I often enjoy playing with theories or abstract ideas. (*openness to experience*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

59.) I keep my belongings neat and clean. (*conscientiousness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

60.) I'm pretty good about pacing myself so as to get things done on time. (*conscientiousness*)

0	1	2	3	4
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

## Appendix K – Marlow-Crowne Social desirability scale

*Instructions:* This scale consists of statements that describe behaviors. Read each item and then whether this item is true or false for you. (*circle your answer*)

- |   |      |       |
|---|------|-------|
| 1. It is sometimes hard for me to go on with my work if I am not encouraged.  | True | False |
| 2. I sometimes feel resentful when I don't get my way.  | True | False |
| 3. On a few occasions, I have given up doing something because I thought too little of my ability.                  | True | False |
| 4. There have been times when I felt like rebelling against people in authority even though I knew they were right. | True | False |
| 5. No matter who I'm talking to, I'm always a good listener.  | True | False |
| 6. There have been occasions when I took advantage of someone.  | True | False |
| 7. I'm always willing to admit it when I make a mistake.  | True | False |
| 8. I sometimes try to get even rather than forgive and forget.  | True | False |
| 9. I am always courteous, even to people who are disagreeable.  | True | False |
| 10. I have never been irked when people expressed ideas very different from my own.                                 | True | False |
| 11. There have been times when I was quite jealous of the good fortune of others.                                   | True | False |
| 12. I am sometimes irritated by people who ask favors of me.  | True | False |
| 13. I have never deliberately said something that hurt someone's feelings.  | True | False |

## Appendix L – Positive Affect Items from the PANAS Scale

*Instructions:* This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer below. Indicate to what extent you generally feel this way. Use the following scale to record your answers.

### 1.) Interested

1	2	3	4	5
Very slightly or not at all	A little	Moderately	Quite a bit	Extremely

### 2.) Excited

1	2	3	4	5
Very slightly or not at all	A little	Moderately	Quite a bit	Extremely

### 3.) Strong

1	2	3	4	5
Very slightly or not at all	A little	Moderately	Quite a bit	Extremely

### 4.) Enthusiastic

1	2	3	4	5
Very slightly or not at all	A little	Moderately	Quite a bit	Extremely

### 5.) Proud

1	2	3	4	5
Very slightly or not at all	A little	Moderately	Quite a bit	Extremely

### 6.) Alert

1	2	3	4	5
Very slightly or not at all	A little	Moderately	Quite a bit	Extremely

### 7.) Inspired

1	2	3	4	5
Very slightly or not at all	A little	Moderately	Quite a bit	Extremely

### 8.) Determined

1	2	3	4	5
Very slightly or not at all	A little	Moderately	Quite a bit	Extremely

## Appendix L - Continued

## 9.) Attentive

1	2	3	4	5
Very slightly or not at all	A little	Moderately	Quite a bit	Extremely

## 10.) Active

1	2	3	4	5
Very slightly or not at all	A little	Moderately	Quite a bit	Extremely

## Appendix M – Intellectual, and Managerial Intelligence Competencies Scale adapted from Dulewicz and Higgs (2000)

*Instructions:* Please rate the extent to which you tend to exhibit the behaviors defined below in leadership situations. Please circle your answer.

*(Competency type, specific competency being measured and item source are noted in italics parentheses)*

1.) Systematically seek all possible relevant information from a variety of sources (*intellectual, information collection, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

2.) Deal with concepts and complexity comfortably (*intellectual, information collection, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

3.) Gather information quickly (*intellectual, information collection, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

4.) Incorporate new information in an intelligence way (*intellectual, information collection, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

5.) Quickly grasp the underlying structure of an idea (*intellectual, information collection, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

6.) Anticipate problems (*intellectual, problem analysis, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

7.) Identify possible or actual causes of problems (*intellectual, problem analysis, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

8.) Use logic and methods to solve problems (*intellectual, problem analysis, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix M – Continued

9.) Probe all sources for answers (*intellectual, problem analysis, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

10.) See hidden problems in tasks or projects before they occur (*intellectual, problem analysis, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

11.) Make sensible decisions or recommendations by weighing evidence (*intellectual, judgment, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

12.) Consider reasonable assumptions (*intellectual, judgment, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

13.) Consider ethical dimensions (*intellectual, judgment, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

14.) Consider factual information (*intellectual, judgment, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

15.) Understand numerical data accurately (*intellectual, numerical interpretation, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

16.) Understand the origin of statistical information (*intellectual, numerical interpretation, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

17.) Make sensible interpretations based on numerical and statistical information (*intellectual, numerical interpretation, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

18.) Draw sound interpretations based on numerical and statistical information (*intellectual, numerical interpretation, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix M – Continued

19.) Ensure that others take detailed information into account (*intellectual, detail consciousness, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

20.) Ensure that others take reliable information into account (*intellectual, detail consciousness, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

21.) Report detailed information when necessary (*intellectual, detail consciousness, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

22.) Insist that sufficiently reliable information is reported when necessary (*intellectual, detail consciousness, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

23.) Provide information so that people can make accurate decisions (*intellectual, detail consciousness, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

24.) Rise above the immediate problem or situation (*intellectual, helicopter, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

25.) See wider issues and implications (*intellectual, helicopter, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

26.) Relate contrasting facts (*intellectual, helicopter, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

27.) See relevant relationships between contrasting facts (*intellectual, helicopter, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix M – Continued

28.) Easily create future scenarios (*intellectual, helicopter, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

29.) Aware of the company's strengths and weaknesses (*intellectual, organizational awareness, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

30.) Aware of the likely impact of the management decisions on an organization (*intellectual, organizational awareness, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

31.) Know how to get things done in an organization using formal methods (*intellectual, organizational awareness, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

32.) Know how to get things done in an organization using personal connections (*intellectual, organizational awareness, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

33.) Understand the origin and reasoning behind key policies, procedures, and practices (*intellectual, organizational awareness, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

34.) Aware of the various factors that determine a company's opportunities and threats (e.g., shareholder, stakeholder, market, technological, environmental, and regulatory factors) (*intellectual, external awareness, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

35.) Imagine possible future states and characteristics of the company in a future environment (*intellectual, external awareness, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

36.) Know the competition (*intellectual, external awareness, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix M – Continued

37.) Aware of how strategies and tactics work in business settings (*intellectual, external awareness, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

38.) Knowledge of current and possible future policies, trends, or technology that affect business (*intellectual, external awareness, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

39.) Generate imaginative solutions and innovations (*intellectual, creativity, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

40.) Recognize creative solutions and innovations (*intellectual, creativity, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

41.) Come up with new and unique ideas (*intellectual, creativity, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

42.) Easily make connections among previously unrelated notions (*intellectual, creativity, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

43.) Add original ideas and value in a brainstorming session (*intellectual, creativity, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

44.) Prepared to take action that involves calculated risks in order to achieve a desired benefit or advantage innovations (*intellectual, risk-taking, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

45.) Willing to express beliefs (*intellectual, risk-taking, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix M – Continued

46.) Willing to be the only champion for an idea or position (*intellectual, risk-taking, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

47.) Do not avoid personal responsibility (*intellectual, risk-taking, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

48.) Accurately scope out length and difficulty of tasks and projects (*intellectual, planning, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

49.) Set objectives and goals for projects (*intellectual, planning, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

50.) Break down work into process steps and set milestones (*intellectual, planning, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

51.) Develop schedules and assign people to tasks (*intellectual, planning, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

52.) Anticipate and adjust for problems and roadblocks (*intellectual, planning, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

53.) Measure performance against goals and evaluate results (*intellectual, planning, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

54.) Gather resources (people, funding, material, support) to get things done (*intellectual, organizing, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix M – Continued

55.) Coordinate multiple activities at once to accomplish a goal (*intellectual, organizing, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

56.) Use resources effectively and efficiently (*intellectual, organizing, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

57.) Arrange information and files in a useful manner (*intellectual, organizing, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

58.) Distinguish between what should be done by others from what you should do (*managerial, delegating, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

59.) Delegate decision-making or other tasks to appropriate colleagues or subordinates (*managerial, delegating, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

60.) Delegate both routine and important tasks and decisions (*managerial, delegating, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

61.) Tend to trust people to perform (*managerial, delegating, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

62.) Let team members that work for you finish their own work (*managerial, delegating, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

63.) Speak clearly (*managerial, oral expression, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

64.) Speak audibly (*managerial, oral expression, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix M – Continued

65.) Have good diction (*managerial, oral expression, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

66.) Speak concisely (*managerial, oral expression, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

67.) Avoid language that is used by a profession or culture that may not be familiar to people outside that profession or culture (*managerial, oral presentation, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

68.) Modify content to audience needs (*managerial, oral presentation, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

69.) Command attention during a presentation (*managerial, oral presentation, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

70.) Change tactics midstream in a presentation when something isn't working (*managerial, oral presentation, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

71.) Identify opportunities to increase company's business advantage (*managerial, business sense, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

72.) Know how your businesses work (*managerial, business sense, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

73.) Know current and possible future policies, trends, technology or information affecting the organization (*managerial, business sense, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

74.) Sensitive to how people and organizations function (*managerial, business sense, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix M – Continued

75.) Written matter is readily understandable (*managerial, written communication, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

76.) Ideas, information and opinions are conveyed accurately (*managerial, written communication, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

77.) Ideas, information and opinions are conveyed clearly (*managerial, written communication, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

78.) Ideas, information and opinions are conveyed in as few words as possible (*managerial, written communication, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

79.) Get messages across that achieve personal goals (*managerial, written communication, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

80.) Judge talent well (*managerial, appraising, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

81.) Articulate strengths and limitations of people inside the organization (*managerial, appraising, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

82.) Articulate strengths and limitations of people outside the organization (*managerial, appraising, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

83.) Accurately predict what people are likely to do across a variety of situations (*managerial, appraising, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix M – Continued

84.) Provide challenging and stretching tasks and assignments that will develop the skills of employees (*managerial, developing subordinates, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

85.) Hold regular development discussions with individuals who work for you (*managerial, developing subordinates, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

86.) Aware of the career goals of the individual who work for you (*managerial, developing subordinates, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

87.) Construct compelling development plans and execute them (*managerial, developing subordinates, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

88.) Personally committed to continuously improve yourself (*managerial, self-management, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

89.) Understand that different situations and levels may call for different skills and approaches (*managerial, self-management, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

90.) Work to deploy strengths (*managerial, self-management, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

91.) Work on compensating for weaknesses and limits (*managerial, self-management, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

92.) Identify the main idea communicated in a written document (*managerial, reading, Palagi*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix M – Continued

93.) Understand figurative language in a written document (*managerial, reading, Palagi*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

94.) Draw accurate conclusions from a written document (*managerial, reading, Palagi*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

95.) Identify mood in a written document (*managerial, reading, Palagi*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

96.) Know what you want from a career and actively work on it (*managerial, initiative, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

97.) Know your career options and where you would like to take your career (*managerial, initiative, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

98.) Make things happen for yourself (*managerial, initiative, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

99.) Market yourself for opportunities (*managerial, initiative, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

100.) Do not wait for other people to provide opportunities for you (*managerial, initiative, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

101.) Know personal strengths, weaknesses, opportunities, and limits (*managerial, independence, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

102.) Seek feedback (*managerial, independence, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix M – Continued

103.) Gain insight from mistakes (*managerial, independence, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

104.) Open to criticism (*managerial, independence, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

105.) Do not get defensive when receiving feedback (*managerial, independence, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

106.) Exceed goals successfully (*managerial, tenacity, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

107.) Constantly and consistently one of the top performers (*managerial, tenacity, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

108.) Very results focused (*managerial, tenacity, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

109.) Push self and others for results (*managerial, tenacity, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix N – Emotional Competence Scale adapted from Dulewicz and Higgs (2000)

*Instructions:* Please rate the extent to which you tend to exhibit the behaviors defined below in leadership situations. Please circle your answer.

*(Competency type, specific competency being measured and item source are noted in italics parentheses)*

1.) Am truthful (*emotional, integrity, Dulewicz and Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

2.) Hold true to your word (*emotional, integrity, Dulewicz and Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

3.) Do not exhibit hypocritical behaviors (example – say others shouldn't do something but then do it yourself) (*emotional, integrity, Dulewicz and Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

4.) Do not compromise on ethical or legal matters (*emotional, integrity, Dulewicz and Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

5.) Am trustworthy (*emotional, integrity, Dulewicz and Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

6.) Listen intently, and carefully so that key points can be recalled and taken into account (*emotional, perceptive listening, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

7.) Ask questions when necessary to ensure understanding (*emotional, perceptive listening, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

8.) Possess the patience to listen people to (*emotional, perceptive listening, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

9.) Accurately restate the opinions of others even when I disagree (*emotional, perceptive listening, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix N - Continued

10.) Practice active listening (show nonverbal body language that you are listening) (*emotional, perceptive listening, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

11.) Inspire others to achieve goals (*emotional, motivating others, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

12.) Create an environment in which people want to work their hardest (*emotional, motivating others, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

13.) Motivate many kinds of team or project members (*emotional, motivating others, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

14.) Invite input from each person (*emotional, motivating others, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

15.) Share ownership of a project with others on the team (*emotional, motivating others, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

16.) Make each individual feel his/her work is important (*emotional, motivating others, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

17.) Show commitment, enthusiasm, and encouragement in the face of challenging assignments (*emotional, achievement oriented, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

18.) Set challenging but achievable goals and standards of performance for self (*emotional, achievement oriented, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix N - Continued

19.) Create goals for others that are challenging but achievable (*emotional, achievement oriented, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

20.) Enjoy working hard (*emotional, achievement oriented, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

21.) Am action-oriented and full of energy for the things I see as challenging (*emotional, achievement oriented, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

22.) Persuade others to give their agreement (*emotional, persuasiveness, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

23.) Use persuasion to achieve agreement in the face of conflict (*emotional, persuasiveness, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

24.) Persuade others to give their commitment (*emotional, persuasiveness, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

25.) In the face of conflict, use personal influence to achieve harmony (*emotional, persuasiveness, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

26.) Maintain composure and effectiveness in the face of setbacks, opposition, or unfairness (*emotional, resilience, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

27.) Stay calm under pressure (*emotional, resilience, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix N – Continued

28.) Do not become defensive or irritated when facing challenging situations (*emotional, resilience, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

29.) Demonstrate maturity (*emotional, resilience, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

30.) Hold things together during challenging situations (*emotional, resilience, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

31.) Show readiness to make decisions (*emotional, decisiveness, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

32.) Choose a plan of action (*emotional, decisiveness, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

33.) Make a quick decision (*emotional, decisiveness, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

34.) Make a decision with incomplete information (*emotional, decisiveness, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

35.) Make a decision under tight deadlines and pressure (*emotional, decisiveness, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

36.) Demonstrate an understanding of the feelings and needs of other (*emotional, sensitivity, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

37.) Provide personal support to team members who need it (*emotional, sensitivity, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix N – Continued

38.) Demonstrates genuine empathy about the joys and pains of others (*emotional, sensitivity, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

39.) Show concern about the work and non-work problems of employees (*emotional, sensitivity, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

40.) Ask about employees plans, problems and desires (*emotional, sensitivity, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

41.) Display energetic approach to projects (*emotional, energy, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

42.) Display liveliness and excitement when approaching a task (*emotional, energy, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

43.) Display commitment to tasks and projects (*emotional, energy, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

44.) Pursue everything with energy (*emotional, energy, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

45.) Pursue everything with a need to complete the task or project (*emotional, energy, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

46.) Respond to the need for change (*emotional, adaptability, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

47.) Encourage new initiatives (*emotional, adaptability, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix N – Continued

48.) Encourage implementation of new policies, structures, and practices (*emotional, adaptability, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

49.) Handle ambiguity comfortably (*emotional, adaptability, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

50.) Easily change direction on a project (*emotional, adaptability, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

51.) Exhibit flexibility when interacting with other people (*emotional, flexibility, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

52.) Take others' views into account and change position when appropriate (*emotional, flexibility, Dulewicz & Higgs*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

53.) Experiment to find solutions (*emotional, flexibility, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

54.) Open to change (*emotional, flexibility, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

55.) Try anything to find solutions (*emotional, flexibility, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

56.) Handle stress (*emotional, stress tolerance, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

57.) Not confused by the unexpected (*emotional, stress tolerance, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix N – Continued

58.) Do not show frustration when resisted or blocked (*emotional, stress tolerance, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

59.) Calm others in a crisis (*emotional, stress tolerance, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

60.) Negotiate skillfully in tough situations within teams (*emotional, negotiating, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

61.) Negotiate tough situations with external clients (*emotional, negotiating, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

62.) Settle differences with minimum noise (*emotional, negotiating, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

63.) Win concessions without damaging relationships (*emotional, negotiating, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

64.) Clearly assign responsibility for tasks and decisions (*emotional, impact, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

65.) Set clear objectives and goals (*emotional, impact, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

66.) Monitor process, progress and results (*emotional, impact, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

67.) Design process so that people receive feedback about their work (*emotional, impact, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix N – Continued

68.) Enjoy leading (*emotional, ascendancy, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

69.) Take unpopular stands if necessary (*emotional, ascendancy, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

70.) Encourage direct and tough debate (*emotional, ascendancy, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

71.) Not afraid to end debate and move on (*emotional, ascendancy, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

72.) Provide direction in a crisis (*emotional, ascendancy, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

73.) Face adversity directly (*emotional, ascendancy, Lombardo & Eichinger*)

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

## Appendix O – Transformational Leadership Scale of the Multi Factor Leadership Questionnaire (MLQ) – Self-Rating Form

*Instructions:* This questionnaire is to describe your leadership style as you perceive it. Judge how frequently each statement fits you.

*(Transformational leadership factor measured by each item is indicated in italics and parentheses.)*

1.) I re-examine critical assumptions to question whether they are appropriate (*intellectual stimulation*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

2.) I talk about my most important values and beliefs (*idealized influence*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

3.) I seek differing perspectives when solving problems (*intellectual stimulation*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

4.) I talk optimistically about the future (*inspirational motivation*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

5.) I instill pride in others for being associated with me (*idealized influence*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

6.) I talk enthusiastically about what needs to be accomplished (*inspirational motivation*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

7.) I specify the importance of having a strong sense of purpose (*idealized influence*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

8.) I spend time teaching and coaching (*individualized consideration*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

9.) I go beyond self-interest for the good of the group (*idealized influence*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

## Appendix O – Continued

10.) I treat others as individuals rather than just as a member of the group (*individualized consideration*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

11.) I act in ways that build others' respect for me (*idealized influence*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

12.) I consider the moral and ethical consequences of decisions (*idealized influence*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

13.) I display a sense of power and confidence (*idealized influence*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

14.) I articulate a compelling vision of the future (*inspirational motivation*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

15.) I consider an individual as having different needs, abilities, and aspirations from others (*individualized consideration*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

16.) I get others to look at problems from many different angles (*intellectual stimulation*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

17.) I help others to develop their strengths (*individualized consideration*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

18.) I suggest new ways of looking at how to complete assignments (*intellectual stimulation*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

19.) I emphasize the importance of having a collective sense of mission (*inspirational motivation*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

## Appendix O – Continued

20.) I express confidence that goals will be achieved (*inspirational motivation*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

## Appendix P – Instructions for Writing Exercise

Please spend a few minutes thinking about a time when you successfully led a group through a change. Here are some examples to help you brainstorm:

- You served in a leadership or officer position at school or in a club and had to convince the help your class or group go through a change in rules or policy
- You encouraged your family members to communicate more openly with one another about a conflict
- You played on a sports team and led the team to try a new defense or offense strategy
- You spoke up about your beliefs in a group situation when others disagreed and helped the group to see your point of view
- You convinced your friends to change their plans to attend a social event in order to get them to go along with your own plans

Please provide a detailed written account of this situation. Make sure to spend time writing about exactly what you did to help lead this group effectively to make a change. Describe your behaviors in detail. There are some guiding questions on the next page to make sure you include all of the necessary details.

**You have ten (10) minutes to write about this time you led a group through a change on the NEXT PAGE.**

**PLEASE WRITE CLEARLY SO THAT THE EXPERIMENTER CAN READ YOUR HANDWRITING!**

Appendix P – Instructions for Writing Exercise

**What was the change?**

**How did you lead the change?**

**Was it successful?**

**What specific behaviors did you exhibit to bring about the change?**

## Appendix Q – Transformational Leadership Behavioral Coding Checklist for Written Exercises

*Instructions:* Please check any of the following behaviors described in the participant's writing exercise

*(Transformational leadership factor assessed by each item is listed in italics and parentheses)*

- \_\_\_\_\_ Re-examined critical assumptions to question whether they are appropriate (*intellectual stimulation*)
- \_\_\_\_\_ Talked about my most important values and beliefs (*idealized influence*)
- \_\_\_\_\_ Sought out differing perspectives when solving problems (*intellectual stimulation*)
- \_\_\_\_\_ Talked optimistically about the future (*inspirational motivation*)
- \_\_\_\_\_ Instilled pride in others for being associated with him/her (*idealized influence*)
- \_\_\_\_\_ Talked enthusiastically about what needs to be accomplished (*inspirational motivation*)
- \_\_\_\_\_ Specified the importance of having a strong sense of purpose (*idealized influence*)
- \_\_\_\_\_ Spent time teaching and coaching (*individualized consideration*)
- \_\_\_\_\_ Went beyond self-interest for the good of the group (*idealized influence*)
- \_\_\_\_\_ Treated others as individuals rather than just as a member of the group (*individualized consideration*)
- \_\_\_\_\_ Acted in ways that build others' respect for him/her (*idealized influence*)
- \_\_\_\_\_ Considered the moral and ethical consequences of decisions (*idealized influence*)
- \_\_\_\_\_ Displayed a sense of power and confidence (*idealized influence*)
- \_\_\_\_\_ Articulated a compelling vision of the future (*inspirational motivation*)
- \_\_\_\_\_ Considered an individual as having different needs, abilities, and aspirations from others (*individualized consideration*)
- \_\_\_\_\_ Got others to look at problems from many different angles (*intellectual stimulation*)
- \_\_\_\_\_ Helped others to develop their strengths (*individualized consideration*)
- \_\_\_\_\_ Suggested new ways of looking at how to complete assignments (*intellectual stimulation*)
- \_\_\_\_\_ Emphasized the importance of having a collective sense of mission (*idealized influence*)
- \_\_\_\_\_ Expressed confidence that goals will be achieved (*inspirational motivation*)

## Appendix R – Introductory Psychology Class Group Project Information Packet

This packet contains information that will help prepare you for **your writing exercise and the 5-minute presentation** that you will deliver to an evaluator. For the purpose of this exercise, you should assume that you were designated as the team leader of the group project for your introductory psychology class. The group project involves you and your 4 group members choosing a topic of your interest, designing a psychology experiment to research your topic of interest, implementing your experiment, analyzing the data, and presenting the findings to the class at the end of the semester.

The professor of the class randomly assigned the groups at the beginning of the semester, before anyone in the class had gotten to know one another, and she randomly chose one member of each group to be the group leader. You were chosen as the leader of your group, and you were excited to get the opportunity.

It is now the 5<sup>th</sup> week of the semester. At this point, your group had chosen to create a study to examine the relationship between stereotypes and hiring decisions at a local retail store. Each member of the group had specific research articles they were gathering to read and summarize, and the group had met to outline how you would collect your data. The plan was to have employees at the company where one of your parents worked fill out a questionnaire about stereotype beliefs. You were also going to have access to hiring data through the HR group. The group seemed really excited about the project, and everyone seemed to be working well together and pulling their weight.

However, this week, the group hit a couple of major roadblocks. The company that was going to provide the data just announced a huge round of layoffs and doesn't think it would be appropriate to provide hiring data at this time for research purposes. The good news is that you have access to another potential source of data, but it requires changing the entire focus of the research project, which the group may not want to do. In addition, you have received an email from 2 group members complaining that the other 2 group members are no longer completely fulfilling their responsibilities to the team.

**Review all of the materials attached.** You will find profile descriptions of each member of your group as well as the 2 emails from group members complaining about the performance of the other 2 group members.

## Appendix R – Continued

Then, **you will write a sample of an email that you would send to the group to inform them of the needed changes and to let them know that the group needs to meet to discuss these changes.** The purpose of the email is to inform the group that you no longer have access to the hiring data, but that you have a new potential data source. You also want to explain how this will affect the group's progress and reassure them that the project will still be successful if everyone works together. The goal is to convince them that the topic change is the best decision and to keep their motivation levels high. You may also want to address the issues related to the performance and contribution of the team members.

**You will have five (5) minutes to review this information packet and ten (10) minutes to write this email on the paper provided.**

Then, upon completing the email, you will have five (5) minutes to prepare a five (5) minute presentation about the reasons that changing the research topic is a good idea, how you will lead the group through the change, how you will help them excited and motivated about the new project, and how you will lead them to success. At the completion of the five (5) minute time period, you give your presentation to an evaluator, as though he/she were a member of your team. The evaluator will observe your behaviors and leadership techniques. **You may take notes (there is paper provided for you) and use them during your presentation, and you may use any of the attached materials when giving your presentation.**

### **Project Group Member Profiles**

- Tomas Gibbs - a smart, conscientious, hard-working student. Tomas is planning to major in psychology, he is even thinking about going to graduate school in psychology, and he has always made As and Bs. His desire to succeed leads you to believe that he might be willing to take on the work of others, just to make sure it gets done correctly.
- Shadee Williams - a talented creative student who seemed really excited about the project for the first 4 weeks. However, over the last week she has seemingly become distracted at group meetings. You have noticed her not paying attention during group conversations, but haven't seen her performance decrease.
- Juran Henrich – an organized, motivated student who seems very driven and willing to carry the load of her responsibilities. Juran approaches her work in a very methodical way. She likes to create schedules and clearly defined tasks and to stay on a timeline. You have noticed that her need to keep things so structured has led to increased stress at times.
- Jason Gross – a smart student who always offers a unique perspective to the group discussion and provided a lot of creative ideas during the original brainstorming session about the research topic. However, over the last two weeks, appears to be losing interest and willing to allow others to take on his work.

## Appendix R - Continued

**Psychology Research Group Project Email 1**

<Sender: Juran Henrich>[Juran@baruch.cuny.edu]

<Recipient: You>[you@baruch.cuny.edu]

<Subject: Jason Gross>

Hi, I really don't want to be annoying, its just that I thought you should know that Jason has really not been doing his part over the last couple of weeks. We are on such a tight schedule with this project, and I know that we are supposed to be starting the data collection next week. But Jason hasn't finished summarizing his articles yet, and the few times I have tried to say something, he totally ignores me. I wouldn't care, but Shadee has started to do the same thing and I'd hate to see our whole group get behind on this project so early in the semester. Sorry to bother you with this- but I wasn't sure what to do. Advice??

Thanks,  
Juran

**Psychology Research Group Project Email 2**

<Sender: Tomas Gibbs>[tomas@baruch.cuny.edu]

<Recipient: You>[you@baruch.cuny.edu]

<Subject: Our group project – need to talk to you>

Hi, I wanted to write, because I know the professor asked us to try to resolve any group problems within our group... Since you are the group leader, I figured I would talk to you first.

I am so excited about this project. The idea of looking at stereotyping and hiring decisions is so fascinating to me. But here is the problem - I am getting really tired of pulling more than my fair share of the weight on this project. I would like to think that our group works together, that everyone does his/her part. That is not the case.

For one thing, Jason has really been slacking off lately. But worse than that, Shadee is starting to do the same thing. I don't know what their deal is... Juran does her part, but I feel like I will end up carrying the weight of the other two, in addition to my own responsibilities. Not a good situation. I don't know how long I can put up with this. How we can improve things?

Thanks,  
Tomas Gibbs

Appendix R - Continued

### **Paper for Writing Exercise 2**

**Use this paper to write a sample of an email that you would send to the group.**

**Remember the points of the email should include:**

- **Inform them group has to change topics and the group needs to meet to discuss these changes**
- **You no longer have access to the hiring data, but you have a new potential data source**
- **How this will affect the group's progress**
- **Reassure them that the project will still be successful if everyone works together**
- **Convince them the topic change is the best decision**
- **May want to address the issues related to the performance and contribution of each team members.**

You have **ten (10) minutes** to write this email in the space below. Remember that you will be using this information to make a **five (5) minute** presentation when you complete this email. There is a page for you to use to make notes for your presentation.

**PLEASE REMEMBER TO WRITE CLEARLY SO THAT THE EXPERIMENTER CAN READ YOUR HANDWRITING!**

## Appendix S – Transformational Leadership Scale of the Multi Factor Leadership Questionnaire (MLQ) – Rater Form

*Instructions:* This questionnaire is used to describe the leadership style of the medical resident you are evaluation as you perceive it. Judge how frequently each statement fits this individual.

*(Transformational leadership factor assessed by each item is listed in italics and parentheses)*

1.) Re-examines critical assumptions to question whether they are appropriate (*intellectual stimulation*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

2.) Talk about his/her most important values and beliefs (*idealized influence*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

3.) Seeks differing perspectives when solving problems (*intellectual stimulation*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

4.) Talks optimistically about the future (*inspirational motivation*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

5.) Instill pride in others for being associated with him/her (*idealized influence*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

6.) Talks enthusiastically about what needs to be accomplished (*inspirational motivation*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

7.) Specifies the importance of having a strong sense of purpose (*idealized influence*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

8.) Spends time teaching and coaching (*individualized consideration*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

9.) Goes beyond self-interest for the good of the group (*idealized influence*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

## Appendix S – Continued

10.) Treats others as an individual rather than just as a member of the group (*individualized consideration*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

11.) Acts in ways that build others' respect (*idealized influence*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

12.) Considers the moral and ethical consequences of decisions (*idealized influence*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

13.) Displays a sense of power and confidence (*idealized influence*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

14.) Articulates a compelling vision of the future (*inspirational motivation*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

15.) Considers individuals as having different needs, abilities, and aspirations from others (*individualized consideration*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

16.) Gets others to look at problems from many different angles (*intellectual stimulation*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

17.) Helps others to develop their strengths (*individualized consideration*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

18.) Suggests new ways of looking at how to complete assignments (*intellectual stimulation*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

19.) Emphasizes the importance of having a collective sense of mission (*idealized influence*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

## Appendix S – Continued

20.) Expresses confidence that goals will be achieved (*inspirational motivation*)

0	1	2	3	4
Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always

## Appendix T – Written Debriefing Form – Study 1

**Summary of Research**

Thank you again for participating in this study. The purpose of this study was to examine the relationship between emotional intelligence and transformational leadership behaviors, and to determine how emotional competence affects that relationship. Transformational leadership is often described as a form of leadership that is based on trust, admiration, and an emotional connection between the leader and the followers. Therefore, it is not surprising that many researchers have examined and expected to find a positive relationship between emotional intelligence and transformational leadership. However, the research in this area has shown mixed results. Some researchers have suggested that the mixed results are due to problems with the definition of emotional intelligence and lacking understanding of other variables that might affect the relationship. Emotional competence has been suggested as a variable that might affect the relationship between emotional intelligence and transformational leadership, but the role of emotional competence has never been examined. Therefore, the study in which you participated will examine the effect of emotional competence on the relationship between emotional intelligence and transformational leadership.

All participants in this study completed the same measures of emotional intelligence, emotional competence, transformational leadership, cognitive ability, personality, social desirability, positive affect, and intellectual and managerial competence. All participants also completed the same writing exercises and the presentation. The emotional intelligence, emotional competence, and transformational leadership measures provide measures of the main variables of interest in this study. The writing exercises and role play provide actual measures of your transformational leadership behaviors to supplement the transformational leadership ratings you provided. The cognitive ability, personality, social desirability, positive affect, and intellectual and managerial competence measures provide a way for the researchers to statistically control for these factors. Having measures of all of these variables allows us to determine how much impact emotional competence has on the relationship between emotional intelligence and transformational leadership, above and beyond cognitive ability, personality, social desirability, positive affect, and intellectual and managerial competence. It allows us to isolate the impact of emotional competence.

In this study, we are predicting that participants reporting higher levels of emotional intelligence will report and exhibit higher levels of emotional competence, which will in turn predict transformational leadership behaviors. This lab study will be followed by a similar study using medical students and their supervisors.

We are very grateful for your participation. We encourage you to contact us in the future if you have future questions. You may contact your experimenter, \_\_\_\_\_, or the principal investigator of the study, Kristen Kirkland (kristenkirkland3434@hotmail.com).

## Appendix U – Informed Consent Form – Study 2 - Residents

In this study, you will complete several assessments measuring emotions and leadership behaviors. Following the completion of your participation today, the researchers will obtain ratings of your leadership behaviors from your supervisor. Any risks associated with involvement in this study are comparable to the risks of everyday life. After the study, the purpose of the research and the hypotheses being tested will be explained to you. Your participation in this study will provide you with a better understanding about how research is conducted. Your responses and your leadership ratings will be kept confidential and your name will not be associated with any data that you provide. You should be at least 18 years old to participate. It will take you approximately 1.5 hours to complete the entire experiment. You may terminate your participation at any point without penalty. You may also request a copy of this consent form for your records. If you have any questions or concerns regarding your participation in this experiment, please contact Kristen L. Kirkland by email at [kristenkirkland3434@hotmail.com](mailto:kristenkirkland3434@hotmail.com). If you have any questions about your rights as a volunteer, please contact Keisha Peterson, the administrator of the Baruch College Institutional Review Board, at 646-312-3785, [Keisha.Peterson@baruch.cuny.edu](mailto:Keisha.Peterson@baruch.cuny.edu); 55 Lexington Avenue, Box B 8-215 New York, NY 10010.

By signing below, I acknowledge that I have read and understood the initial procedures to be followed and consent to participation in this study.

Name (print)	Signature	Date
_____	_____	_____

Witness

Name (print)	Signature	Date
_____	_____	_____

## Appendix V – Informed Consent Form – Study 2 – Resident Supervisors

In this study, you will complete an evaluation form measuring the leadership behaviors of the resident that you supervise. Any risks associated with involvement in this study are comparable to the risks of everyday life. After the study, the purpose of the research and the hypotheses being tested will be explained to you. Your participation in this study will provide you with a better understanding about how research is conducted. These leadership ratings will be kept confidential and your name will not be associated with any data that you provide. You should be at least 18 years old to participant. It will take you approximately ½ hour to complete the entire experiment. You may terminate your participation at any point without penalty. You may also request a copy of this consent form for your records. If you have any questions or concerns regarding your participation in this experiment, please contact Kristen L. Kirkland by email at [kristenkirkland3434@hotmail.com](mailto:kristenkirkland3434@hotmail.com). If you have any questions about your rights as a volunteer, please contact Keisha Peterson, the administrator of the Baruch College Institutional Review Board, at 646-312-3785, [Keisha.Peterson@baruch.cuny.edu](mailto:Keisha.Peterson@baruch.cuny.edu); 55 Lexington Avenue, Box B 8-215 New York, NY 10010.

By signing below, I acknowledge that I have read and understood the initial procedures to be followed and consent to participation in this study.

Name (print)	Signature	Date
_____	_____	_____

Witness

Name (print)	Signature	Date
_____	_____	_____

## Appendix W – Written Debriefing Form – Study 2 – Residents

**Summary of Research**

Thank you again for participating in this study. The purpose of this study was to examine the relationship between emotional intelligence and transformational leadership behaviors, and to determine how emotional competence affects that relationship. Transformational leadership is often described as a form of leadership that is based on trust, admiration, and an emotional connection between the leader and the followers. Therefore, it is not surprising that many researchers have examined and expected to find a positive relationship between emotional intelligence and transformational leadership. However, the research in this area has shown mixed results. Some researchers have suggested that the mixed results are due to problems with the definition of emotional intelligence and lacking understanding of other variables that might affect the relationship. Emotional competence has been suggested as a variable that might affect the relationship between emotional intelligence and transformational leadership, but the role of emotional competence has never been examined. Therefore, the study in which you participated will examine the effect of emotional competence on the relationship between emotional intelligence and transformational leadership.

All participants in this study completed the same measures of emotional intelligence, emotional competence, transformational leadership, cognitive ability, personality, social desirability, positive affect, and intellectual and managerial competence. All participants also completed the same writing exercise. The emotional intelligence, emotional competence, and transformational leadership measures provide measures of the main variables of interest in this study. The writing exercise provides actual measures of your transformational leadership behaviors to supplement the transformational leadership ratings you provided. We also asked your supervisor to provide ratings of the frequency with which you exhibit the behaviors associated with transformational leadership. These ratings will also supplement the measure transformational leadership that you completed. The cognitive ability, personality, social desirability, positive affect, and intellectual and managerial competence measures provide a way for the researchers to statistically control for these factors. Having measures of all of these variables allows us to determine how much impact emotional competence has on the relationship between emotional intelligence and transformational leadership, above and beyond cognitive ability, personality, social desirability, positive affect, and intellectual and managerial competence. It allows us to isolate the impact of emotional competence.

In this study, we are predicting that participants reporting higher levels of emotional intelligence will report and exhibit higher levels of emotional competence, which will in turn predict transformational leadership behaviors. This study was preceded by a similar study in a lab environment using undergraduate students.

We are very grateful for your participation. We encourage you to contact us in the future if you have future questions. You may contact your experimenter, \_\_\_\_\_, or the principal investigator of the study, Kristen Kirkland (kristenkirkland3434@hotmail.com).

## Appendix X – Written Debriefing Form – Study 2 – Resident Supervisors

**Summary of Research**

Thank you again for participating in this study. The purpose of this study was to examine the relationship between emotional intelligence and transformational leadership behaviors, and to determine how emotional competence affects that relationship. Transformational leadership is often described as a form of leadership that is based on trust, admiration, and an emotional connection between the leader and the followers. Therefore, it is not surprising that many researchers have examined and expected to find a positive relationship between emotional intelligence and transformational leadership. However, the research in this area has shown mixed results. Some researchers have suggested that the mixed results are due to problems with the definition of emotional intelligence and lacking understanding of other variables that might affect the relationship. Emotional competence has been suggested as a variable that might affect the relationship between emotional intelligence and transformational leadership, but the role of emotional competence has never been examined. Therefore, the study in which you participated will examine the effect of emotional competence on the relationship between emotional intelligence and transformational leadership.

The medical residents that participated in this study completed the same measures of emotional intelligence, emotional competence, transformational leadership, cognitive ability, personality, social desirability, positive affect, and intellectual and managerial competence. All participants also completed a writing exercise. The emotional intelligence, emotional competence, and transformational leadership measures provide measures of the main variables of interest in this study. The writing exercise provides actual measures of transformational leadership behaviors to supplement the transformational leadership self-ratings that the residents provided. We also asked you, the supervisor, to provide your ratings of the frequency with which the resident you supervise exhibits the behaviors associated with transformational leadership. These ratings will also supplement the ratings of transformational leadership provided by the residents. The cognitive ability, personality, social desirability, positive affect, and intellectual and managerial competence measures provide a way for the researchers to statistically control for these factors. Having measures of all of these variables allows us to determine how much impact emotional competence has on the relationship between emotional intelligence and transformational leadership, above and beyond cognitive ability, personality, social desirability, positive affect, and intellectual and managerial competence. It allows us to isolate the impact of emotional competence.

In this study, we are predicting that participants reporting higher levels of emotional intelligence will report and exhibit higher levels of emotional competence, which will in turn predict transformational leadership behaviors. This study was preceded by a similar study in a lab environment using undergraduate students.

We are very grateful for your participation. We encourage you to contact us in the future if you have future questions. You may contact your experimenter, \_\_\_\_\_, or the principal investigator of the study, Kristen Kirkland (kristenkirkland3434@hotmail.com).

**Chapter 12****Tables**

Table 1

*Cronbach's Alphas for the Intellectual Competence Factors (N = 271)*

Variable	Item N	Alpha
Information collection and problem analysis	9	.90
Judgment and detail conscious	7	.87
External awareness	5	.85
Creativity	5	.88
Risk-taking	3	.66
Planning and organizing	8	.90

Table 2

*Cronbach's Alphas for the Management Competence Factors (N = 271)*

Variable	Item N	Alpha
Delegating	3	.77
Oral expression and presentation	6	.88
Written communication	2	.62
Appraising	3	.82
Developing subordinates	4	.85
Reading	4	.86
Initiative	4	.86
Independence	4	.83

Table 3

*Cronbach's Alphas for the Emotional Competence Factors (N = 271)*

Variable	Item N	Alpha
Integrity	3	.82
Motivating others	10	.92
Persuasiveness	4	.83
Decisiveness	3	.67
Sensitivity	5	.86
Flexibility	4	.76
Adaptability and stress tolerance	4	.75
Ascendancy	4	.81

Table 4

*Proportion of Variance Explained by the Resulting Factors – Emotional Competence*

Factor Number	Eigenvalue Total	Percentage of Variance
1	26.02	35.65
2	3.36	4.61
3	2.65	3.63
4	2.27	3.10
5	1.90	2.60
6	1.84	2.52
7	1.55	2.12
8	1.46	1.99
9	1.43	1.96
10	1.35	1.85
11	1.28	1.76
12	1.20	1.64
13	1.14	1.55

Table 5

*Items Loading on Emotional Competence Factors*

Factor Number	Items Loading on Factor
1	67
2	1, 2, 5, 6, 8
3	11, 12, 13, 14, 16, 17, 18, 19, 20, 21
4	36, 37, 38, 39, 40
5	33, 34, 35
6	None
7	22, 23, 24, 25
8	52, 53, 54, 55
9	3, 4
10	47, 48, 69, 70, 72, 73
11	9
12	28, 49, 50, 56, 57, 58
13	62, 63, 64

Table 6

*Standardized Item Factor Loadings – 8 Emotional Competencies*

Item Number	Factor Number and Name	Standardized Factor Loading <sup>1</sup>
1	2 – Integrity	.77
2	2 – Integrity	.81
5	2 – Integrity	.73
11	3 – Motivating Others	.54
12	3 – Motivating Others	.61
13	3 – Motivating Others	.70
14	3 – Motivating Others	.44
16	3 – Motivating Others	.44
17	3 – Motivating Others	.75
18	3 – Motivating Others	.66
19	3 – Motivating Others	.52
20	3 – Motivating Others	.75
21	3 – Motivating Others	.72
36	4 – Sensitivity	.60
37	4 – Sensitivity	.55
38	4 – Sensitivity	.62
39	4 – Sensitivity	.70
40	4 – Sensitivity	.61

<sup>1</sup> Standardized factor loadings were statistically significant at  $p < .001$ .

Table 6 – Continued

Item Number	Factor Number and Name	Standardized Factor Loading <sup>1</sup>
33	5 – Decisiveness	.70
34	5 – Decisiveness	.80
35	5 – Decisiveness	.70
22	7 – Persuasiveness	.82
23	7 – Persuasiveness	.89
24	7 – Persuasiveness	.83
25	7 – Persuasiveness	.50
52	8 – Flexibility	.44
53	8 – Flexibility	.71
54	8 – Flexibility	.56
55	8 – Flexibility	.57
69	10 – Ascendancy	.77
70	10 – Ascendancy	.55
72	10 – Ascendancy	.42
73	10 – Ascendancy	.52
49	12 – Adaptability and Stress Tolerance	.46
56	12 – Adaptability and Stress Tolerance	.54
57	12 – Adaptability and Stress Tolerance	.68
58	12 – Adaptability and Stress Tolerance	.65

<sup>1</sup> Standardized factor loadings were statistically significant at  $p < .001$ .

Table 7

*Proportion of Variance Explained by the Resulting Factors – Intellectual Competence*

Factor Number	Eigenvalue Total	Percentage of Variance
1	22.40	39.30
2	2.68	4.70
3	2.04	3.58
4	1.90	3.34
5	1.78	3.13
6	1.29	2.25
7	1.20	2.11
8	1.19	2.08
9	1.12	1.96
10	1.08	1.89

Table 8

*Proportion of Variance Explained by the Resulting Factors – Managerial Competence*

Factor Number	Eigenvalue Total	Percentage of Variance
1	21.20	40.77
2	2.50	4.80
3	1.88	3.62
4	1.61	3.09
5	1.45	2.79
6	1.37	2.63
7	1.27	2.44
8	1.21	2.32
9	1.08	2.08

Table 9

*Items Loading on Intellectual Competence Factors*

Factor Number	Items Loading on Factor
1	39, 40, 41, 42, 43
2	49, 50, 51, 52, 53, 54, 56, 57
3	11, 12, 13, 14, 20, 21, 23
4	15, 16, 17, 18, 19
5	1, 2, 3, 4, 5, 6, 7, 8, 9
6	45, 46, 47
7	33, 34, 35, 37, 38
8	28
9	24, 32
10	26, 27

Table 10

*Items Loading on Managerial Competence Factors*

Factor Number	Items Loading on Factor
1	6, 7, 8, 9, 10, 11
2	16, 27, 28, 29, 30
3	39, 40, 41, 43
4	34, 35, 36, 37, 38
5	21, 22
6	45, 46, 47, 48
7	1, 2, 3, 12, 13
8	18, 19
9	24, 25, 26

Table 11

*Standardized Item Factor Loadings – 6 Intellectual Competencies*

Item Number	Factor Number and Name	Standardized Factor Loading <sup>1</sup>
1	5 – Information Collection and Problem Analysis	.68
2	5 – Information Collection and Problem Analysis	.68
3	5 – Information Collection and Problem Analysis	.66
4	5 – Information Collection and Problem Analysis	.59
5	5 – Information Collection and Problem Analysis	.44
6	5 – Information Collection and Problem Analysis	.40
7	5 – Information Collection and Problem Analysis	.54
8	5 – Information Collection and Problem Analysis	.44
9	5 – Information Collection and Problem Analysis	.48
11	3 – Judgment and Detail Consciousness	.58
12	3 – Judgment and Detail Consciousness	.63
13	3 – Judgment and Detail Consciousness	.74
14	3 – Judgment and Detail Consciousness	.49
20	3 – Judgment and Detail Consciousness	.47
21	3 – Judgment and Detail Consciousness	.44
23	3 – Judgment and Detail Consciousness	.53
33	7 – External Awareness	.61
34	7 – External Awareness	.65

<sup>1</sup> Standardized factor loadings were statistically significant at  $p < .001$ .

Table 11 – Continued

Item Number	Factor Number and Name	Standardized Factor Loading <sup>1</sup>
35	7 – External Awareness	.54
37	7 – External Awareness	.49
38	7 – External Awareness	.44
39	1 – Creativity	.64
40	1 – Creativity	.51
41	1 – Creativity	.74
42	1 – Creativity	.61
43	1 – Creativity	.65
45	6 – Risk-taking	.52
46	6 – Risk-taking	.78
47	6 – Risk-taking	.63
49	2 – Planning and Organizing	.64
50	2 – Planning and Organizing	.78
51	2 – Planning and Organizing	.74
52	2 – Planning and Organizing	.65
53	2 – Planning and Organizing	.51
54	2 – Planning and Organizing	.57
56	2 – Planning and Organizing	.57
57	2 – Planning and Organizing	.50

<sup>1</sup> Standardized factor loadings were statistically significant at  $p < .001$ .

Table 12

*Standardized Item Factor Loadings – 8 Managerial Competencies*

Item Number	Factor Number and Name	Standardized Factor Loading <sup>1</sup>
1	7 – Delegating	.44
2	7 – Delegating	.73
3	7 – Delegating	.60
6	1 – Oral Expression and Presentation	.79
7	1 – Oral Expression and Presentation	.80
8	1 – Oral Expression and Presentation	.76
9	1 – Oral Expression and Presentation	.63
10	1 – Oral Expression and Presentation	.47
11	1 – Oral Expression and Presentation	.54
21	5 – Written Communication	.80
22	5 – Written Communication	.52
24	9 – Appraising	.59
25	9 – Appraising	.54
26	9 – Appraising	.60
27	2 – Developing Subordinates	.58
28	2 – Developing Subordinates	.84
29	2 – Developing Subordinates	.86
30	2 – Developing Subordinates	.77

<sup>1</sup> Standardized factor loadings were statistically significant at  $p < .001$ .

Table 12 – Continued

Item Number	Factor Number and Name	Standardized Factor Loading <sup>1</sup>
35	4 – Reading	.67
36	4 – Reading	.82
37	4 – Reading	.74
38	4 – Reading	.75
39	3 – Initiative	.50
40	3 – Initiative	.51
41	3 – Initiative	.43
43	3 – Initiative	.60
45	6 – Independence	.75
46	6 – Independence	.75
47	6 – Independence	.78
48	6 – Independence	.68

<sup>1</sup> Standardized factor loadings were statistically significant at  $p < .001$ .

Table 13

*Proportion of Variance Explained by the Resulting Transformational Leadership (Self-Ratings) Factors*

Factor Number	Eigenvalue	Percentage
	Total	of Variance
1	9.15	45.73
2	1.22	6.10
3	1.08	5.41

Table 14

*Items Loading on Transformational Leadership Factors – Self-Ratings*

Factor Number	Items Loading on Factor
1	2, 4, 5, 6, 7, 13, 14, 20
2	8, 9, 16, 17, 18, 19
3	12, 15

Table 15

*Standardized Item Factor Loadings – Transformational Leadership – Self-Ratings*

Item Number and MLQ Factor	Factor Number	Standardized Factor Loading <sup>1</sup>
2 – Idealized Influence	1	.44
4 – Inspirational Motivation	1	.69
5 – Idealized Influence	1	.85
6 – Inspirational Motivation	1	.66
7 – Idealized Influence	1	.49
13 – Idealized Influence	1	.82
14 – Inspirational Motivation	1	.72
20 – Inspirational Motivation	1	.55
8 – Individualized Consideration	2	.74
9 – Idealized Influence	2	.73
16 – Intellectual Stimulation	2	.49
17 – Individualized Consideration	2	.76
18 – Intellectual Stimulation	2	.55
19 – Idealized Influence	2	.62
12 – Idealized Influence	3	.85
15 – Individualized Consideration	3	.51

<sup>1</sup> Standardized factor loadings were statistically significant at  $p < .001$ .

Table 16

*Proportion of Variance Explained by the Resulting Transformational Leadership**(Writing Exercise 1) Factors*

Factor Number	Eigenvalue	Percentage
	Total	of Variance
1	3.08	15.39
2	2.09	10.47
3	1.69	8.43
4	1.53	7.67
5	1.36	6.79
6	1.31	6.56
7	1.10	5.50
8	1.02	5.11

Table 17

*Items Loading on Transformational Leadership Factors – Writing Exercise 1*

Factor Number	Items Loading on Factor
1	4, 6, 14, 20
2	5, 9, 11, 17
3	10, 15
4	2, 12
5	7, 19
6	18
7	3
8	8, 13

Table 18

*Standardized Item Factor Loadings – Transformational Leadership – Writing Exercise 1*

Item Number and MLQ Factor	Factor Number	Standardized Factor Loading <sup>1</sup>
4 – Inspirational Motivation	1	.79
6 – Inspirational Motivation	1	.60
14 – Inspirational Motivation	1	.72
20 – Inspirational Motivation	1	.71
5 – Idealized Influence	2	.69
9 – Idealized Influence	2	.74
11 – Idealized Influence	2	.79
17 – Individualized Consideration	2	.45
10 – Individualized Consideration	3	.87
15 – Individualized Consideration	3	.77
2 – Idealized Influence	4	.73
12 – Idealized Influence	4	.78
7 – Idealized Influence	5	.79
19 – Idealized Influence	5	.83
18 – Intellectual Stimulation	6	.87
3 – Intellectual Stimulation	7	.85
8 – Individualized Consideration	8	.50
13 – Idealized Influence	8	.86

<sup>1</sup> Standardized factor loadings were statistically significant at  $p < .001$ .

Table 19

*Proportion of Variance Explained by the Resulting Transformational Leadership*

*(Writing Exercise 2) Factors*

Factor Number	Eigenvalue	Percentage
	Total	of Variance
1	5.23	26.15
2	2.07	10.36
3	1.52	7.58
4	1.13	5.66
5	1.07	5.37
6	1.10	5.05

Table 20

*Items Loading on Transformational Leadership Factors – Writing Exercise 2*

Factor Number	Items Loading on Factor
1	4, 6, 14, 20
2	1, 12, 16
3	10, 15, 18
4	8
5	3, 9
6	7, 19

Table 21

*Standardized Item Factor Loadings – Transformational Leadership – Writing Exercise 2*

Item Number and MLQ Factor	Factor Number	Standardized Factor Loading <sup>1</sup>
4 – Inspirational Motivation	1	.71
6 – Inspirational Motivation	1	.60
14 – Inspirational Motivation	1	.76
20 – Inspirational Motivation	1	.81
1 – Intellectual Stimulation	2	.78
12 – Idealized Influence	2	.71
16 – Intellectual Stimulation	2	.52
10 – Individualized Consideration	3	.75
15 – Individualized Consideration	3	.80
18 – Intellectual Stimulation	3	.45
8 – Individualized Consideration	4	.68
3 – Intellectual Stimulation	5	.72
9 – Idealized Influence	5	.72
7 – Idealized Influence	6	.70
19 – Idealized Influence	6	.57

<sup>1</sup> Standardized factor loadings were statistically significant at  $p < .001$ .

Table 22

*Proportion of Variance Explained by the Resulting Transformational Leadership*

*(Simulated Presentation) Factors*

Factor Number	Eigenvalue	Percentage
	Total	of Variance
1	8.66	43.28
2	2.83	14.15
3	1.53	7.65

Table 23

*Items Loading on Transformational Leadership Factors – Simulated Presentation*

Factor Number	Items Loading on Factor
1	3, 8, 10, 15, 17
2	4, 6, 7, 13, 14, 19, 20
3	1, 2, 5, 12, 16

Table 24

*Standardized Item Factor Loadings – Transformational Leadership – Simulated Presentation*

Item Number and MLQ Factor	Factor Number	Standardized Factor Loading <sup>1</sup>
3 – Intellectual Stimulation	1	.55
8 – Individualized Consideration	1	.68
10 – Individualized Consideration	1	.87
15 – Individualized Consideration	1	.94
17 – Individualized Consideration	1	.88
4 – Inspirational Motivation	2	.83
6 – Inspirational Motivation	2	.85
7 – Idealized Influence	2	.82
13 – Idealized Influence	2	.81
12 – Inspirational Motivation	2	.70
19 – Idealized Influence	2	.83
20 – Inspirational Motivation	2	.78
1 – Intellectual Stimulation	3	.86
2 – Idealized Influence	3	.75
5 – Idealized Influence	3	.61
12 – Idealized Influence	3	.74
16 – Intellectual Stimulation	3	.65

<sup>1</sup> Standardized factor loadings were statistically significant at  $p < .001$ .

Table 25

*Standardized Item Factor Loadings – Forced 3-Factor Solution – Writing Exercise 1*

Item Number and MLQ Factor	Factor Number	Standardized Factor Loading <sup>1</sup>
4 – Inspirational Motivation	1	.73
6 – Inspirational Motivation	1	.64
7 – Idealized Influence	1	.51
14 – Inspirational Motivation	1	.63
19 – Idealized Influence	1	.54
20 – Inspirational Motivation	1	.75
3 – Intellectual Stimulation	2	.41
9 – Idealized Influence	2	.54
11 – Idealized Influence	2	.63
12 – Idealized Influence	2	.56
16 – Intellectual Stimulation	2	.63
1 – Intellectual Stimulation	3	.42
8 – Individualized Consideration	3	.55
10 – Individualized Consideration	3	.69
15 – Individualized Consideration	3	.67
17 – Individualized Consideration	3	.52

<sup>1</sup> Standardized factor loadings were statistically significant at  $p < .001$ .

Table 26

*Standardized Item Factor Loadings – Forced 3-Factor Solution – Writing Exercise 2*

Item Number and MLQ Factor	Factor Number	Standardized Factor Loading <sup>1</sup>
3 – Intellectual Stimulation	1	.46
4 – Inspirational Motivation	1	.57
5 – Idealized Influence	1	.67
6 – Inspirational Motivation	1	.59
9 – Idealized Influence	1	.45
11 – Idealized Influence	1	.68
13 – Idealized Influence	1	.62
14 – Inspirational Motivation	1	.56
15 – Individualized Consideration	1	.56
16 – Intellectual Stimulation	1	.54
17 – Individualized Consideration	1	.59
18 – Intellectual Stimulation	1	.44
19 – Idealized Influence	1	.50
20 – Inspirational Motivation	1	.56
1 – Intellectual Stimulation	2	.67
12 – Idealized Influence	2	.42

<sup>1</sup> Standardized factor loadings were statistically significant at  $p < .001$ .

Table 27

*Means, t-values, and Significance Levels for Effect of Management Experience on Emotional Competence Factors*

Factor	Management Experience?	Mean	t-value	Sig.
Integrity	Yes	4.33	1.18	.06
	No	4.18		
Motivating Others	Yes	4.13	3.83	.00
	No	3.80		
Sensitivity	Yes	3.90	1.13	.26
	No	3.80		
Decisiveness	Yes	3.36	2.05	.04
	No	3.18		
Persuasiveness	Yes	3.85	2.25	.03
	No	3.64		
Flexibility	Yes	3.97	2.88	.00
	No	3.73		
Ascendancy	Yes	3.79	2.78	.00
	No	3.53		
Adaptability and Stress Tolerance	Yes	3.63	2.57	.01
	No	3.41		

*Note.* There were N = 179 with management experience and N = 92 with no management experience.

Table 28

*Means, t-values, and Significance Levels for Effect of Management Experience on Intellectual Competence Factors*

Factor	Management Experience?	Mean	t-value	Sig.
Information Collection and Problem Analysis	Yes	4.00	5.00	.00
	No	3.63		
Judgment and Detail Consciousness	Yes	3.99	2.91	.00
	No	3.77		
External Awareness	Yes	3.81	3.10	.00
	No	3.54		
Creativity	Yes	3.78	2.92	.00
	No	3.51		
Risk-taking	Yes	3.81	2.35	.02
	No	3.60		
Planning and Organizing	Yes	3.92	2.45	.02
	No	3.70		

*Note.* There were N = 179 with management experience and N = 92 with no management experience.

Table 29

*Means, t-values, and Significance Levels for Effect of Management Experience on Managerial Competence Factors*

Factor	Management Experience?	Mean	t-value	Sig.
Delegating	Yes	3.91	3.34	.00
	No	3.62		
Oral Expression and Presentation	Yes	3.95	2.35	.01
	No	3.74		
Written Communication	Yes	3.67	1.35	.17
	No	3.55		
Appraising	Yes	3.67	2.13	.03
	No	3.46		
Developing Subordinates	Yes	3.57	2.28	.02
	No	3.34		
Reading	Yes	3.89	3.24	.00
	No	3.60		
Initiative	Yes	3.98	2.57	.01
	No	3.72		
Independence	Yes	4.00	1.81	.07
	No	3.83		

*Note.* There were N = 179 with management experience and N = 92 with no management experience.

Table 30

*Linear Regression Results for Control Variables and Self-ratings of Transformational Leadership (N = 270)*

Parameter	B	SE	B	F	Sig.
Cognitive ability	.00	.01	-.06	-1.49	.14
Extraversion	.00	.00	.10	2.13	.03
Agreeableness	.00	.00	.05	1.03	.31
Conscientiousness	.00	.01	.15	2.79	.00
Openness to experience	.00	.01	.10	2.26	.03
Neuroticism	.00	.01	.04	.64	.52
Social desirability	.00	.01	.01	.47	.64
Positive affect	.00	.01	.04	.72	.57
Intellectual competence	.00	.00	.12	1.44	.15
Managerial competence	.00	.00	.49	6.28	.00

Table 31

*Linear Regression Results for Control Variables and Writing Exercise Ratings of Transformational Leadership (N = 270)*

Parameter	B	SE	B	F	Sig.
Cognitive ability	.00	.12	.14	2.25	.03
Extraversion	.00	.00	.03	.40	.69
Agreeableness	.00	.00	.12	1.82	.07
Conscientiousness	.00	.00	-.06	.70	.48
Openness to experience	.00	.00	.00	.11	.91
Neuroticism	.00	.00	.15	1.74	.08
Social desirability	.00	.01	.05	.63	.53
Positive affect	.00	.00	-.04	.50	.62
Intellectual competence	.00	.00	.07	.54	.59
Managerial competence	.00	.00	.02	.18	.86

Table 32

*Linear Regression Results for Control Variables and Simulated Presentation Ratings of Transformational Leadership (N = 270)*

Parameter	B	SE	B	F	Sig.
Cognitive ability	.00	.01	.27	4.29	.00
Extraversion	.00	.01	.00	.04	.97
Agreeableness	.00	.01	.02	.32	.75
Conscientiousness	.00	.01	.10	1.29	.20
Openness to experience	.00	.01	.10	1.45	.15
Neuroticism	.00	.01	.06	.75	.45
Social desirability	.00	.02	.05	.71	.47
Positive affect	.00	.01	-.08	.98	.33
Intellectual competence	.00	.00	-.05	.39	.70
Managerial competence	.00	.00	.03	.25	.80

Table 33

*Chi-square Results and Goodness of Fit Indices for the Three Competency Models*

Index	One- Factor	Two- Factor	Three- Factor
Chi-square	601.38	451.70	419.86
Degrees of freedom	189.00	188.00	186.00
Sig.	.00	.00	.00
Chi-square/df	3.18	2.40	2.26
Comparative fit index (CFI)	.87	.92	.93
Root mean squared error (RMSEA)	.09	.07	.07
Lower bound of 90 percent confidence interval	.08	.06	.06
Upper bound of 90 percent confidence interval	.10	.08	.08
Standardized root mean square residual (SRMR)	.06	.05	.05

Table 34

*Factor Loadings for the Best-Fitting Competence Model*

Path	B	SE	B	CR
Intellectual competence to:				
Planning and organizing	1.00	--	.85	-----
Risk-taking	.80	.07	.65	11.60 ***
Creativity	1.02	.07	.79	15.29 ***
External awareness	.95	.06	.78	15.12 ***
Judgment	.82	.05	.79	15.32 ***
Problem analysis	.71	.06	.76	14.43 ***
Managerial competence to:				
Independence	1.00	--	.69	-----
Initiative	1.20	.10	.79	11.94 ***
Reading	1.04	.09	.73	11.08 ***
Developing subordinates	1.07	.10	.68	10.35 ***
Appraising	1.04	.10	.71	10.85 ***
Written communication	.86	.09	.61	9.32 ***
Oral communication	.99	.09	.75	11.46 ***
Delegating	1.01	.09	.72	10.97 ***

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 34 – Continued

Path	B	SE	B	CR
Emotional competence to:				
Ascendancy	1.00	--	.74	-----
Stress tolerance	.81	.08	.67	10.71 ***
Flexibility	.80	.07	.69	10.99 ***
Sensitivity	.86	.08	.70	11.20 ***
Persuasiveness	.84	.08	.66	10.50 ***
Motivation	.96	.07	.82	13.20 ***
Integrity	5.11	.60	.54	8.51 ***

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 35

*Correlations between Competency Constructs*

Construct	1	2
1 Intellectual competence		
2 Managerial competence	.94 ***	
3 Emotional competence	.78 ***	.85 ***

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 36

*Chi-square Results and Goodness of Fit Indices for the Proposed Measurement Model*

Index	Value
Chi-square	898.93
Degrees of freedom	414.00
Sig.	.00
Chi-square/df	2.17
Comparative fit index (CFI)	.89
Root mean squared error (RMSEA)	.07
Lower bound of 90 percent confidence interval	.06
Upper bound of 90 percent confidence interval	.07
Standardized root mean square residual	.06

Table 37

*Chi-square Results and Goodness of Fit Indices for the Best-Fitting Transformational Leadership Measurement Model*

Index	Value
Chi-square	626.01
Degrees of freedom	310.00
Sig.	.00
Chi-square/df	2.02
Comparative fit index (CFI)	.92
Root mean squared error (RMSEA)	.06
Lower bound of 90 percent confidence interval	.05
Upper bound of 90 percent confidence interval	.07
Standardized root mean square residual (SRMR)	.05

Table 38

*Convergent Validity Results for the Transformational Leadership Measurement Model*

Variable	Standardized Factor Loading <sup>1</sup>	Composite Reliability <sup>2</sup>	Average variance extracted <sup>3</sup>
Intellectual competence		.95	.68
Planning and organizing	.85		
Risk-taking	.65		
Creativity	.78		
External awareness	.77		
Judgment	.79		
Problem analysis	.76		
Managerial competence		.94	.43
Independence	.69		
Initiative	.79		
Reading	.72		
Developing subordinates	.68		
Appraising	.71		
Written communication	.61		
Oral communication	.75		
Delegating	.72		

Table 38 - Continued

Variable	Standardized Factor Loading <sup>1</sup>	Composite Reliability <sup>2</sup>	Average variance extracted <sup>3</sup>
Emotional competence		.94	.53
Ascendancy	.73		
Stress tolerance	.66		
Flexibility	.69		
Sensitivity	.71		
Persuasiveness	.65		
Motivation	.83		
Integrity	.54		
Emotional intelligence		.95	.83
Managing emotions	.81		
Understanding emotions	.75		
Using emotions	.68		
Personality		.91	.84
Extraversion	.78		
Conscientiousness	.73		

<sup>1</sup> Standardized factor loadings were statistically significant at  $p < .001$ .

<sup>2</sup> Composite reliability = (square of summation of factor loadings)/[(square of summation of factor loadings) + (summation of error variances)].

<sup>3</sup> Average variance extracted = (summation of the square of factor loadings)/[(summation of the square of factor loadings) + (summation of error variances)].

Table 39

*Discriminant Validity Results for the Transformational Leadership Model*

Construct	1	2	3	4	5
1 Emotional intelligence	.83				
2 Intellectual competence	.14	.68			
3 Managerial competence	.09	.88	.43		
4 Emotional competence	.12	.61	.71	.53	
5 Personality	.21	.45	.38	.43	.84

*Note.* The values of the average variance extracted are on the diagonal; all other entries are the squared correlations.

Table 40

*Chi-square Results and Goodness of Fit Indices for the Transformational Leadership**Structural Models*

Index	Proposed	Final
Chi-square	666.13	371.43
Degrees of freedom	337.00	200.00
Sig.	.00	.00
Chi-square/df	1.98	1.86
Comparative fit index (CFI)	.92	.94
Root mean squared error (RMSEA)	.06	.06
Lower bound of 90 percent confidence interval	.05	.05
Upper bound of 90 percent confidence interval	.07	.07
Standardized root mean square residual (SRMR)	.05	.05

Table 41

*Path Coefficients for the Final Structural Model of Transformational Leadership*

Path	B	SE	B	CR
Emotional intelligence to transformational leadership	.00	.00	.02	.73 **
Emotional intelligence to emotional competence	.00	.00	.05	.81 ***
Managerial competence to emotional competence	.74	.09	.71	8.17 *
Personality to emotional competence	.02	.01	.20	2.47 **
Emotional competence to transformational leadership	.38	.12	.34	3.18
Managerial competence to transformational leadership	.41	.12	.35	3.47 *
Personality to transformational leadership	.02	.01	.17	2.44

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 42

*Chi-square Results and Goodness of Fit Indices for the Transformational Leadership Structural Models in Respondents with and without Management Experience*

Index	Has Experience	No Experience
Chi-square	571.79	870.92
Degrees of freedom	182.00	182.00
Sig.	.00	.00
Chi-square/df	3.14	4.79
Comparative fit index (CFI)	.68	.61
Root mean squared error (RMSEA)	.14	.14
Lower bound of 90 percent confidence interval	.13	.13
Upper bound of 90 percent confidence interval	.15	.15
Standardized root mean square residual (SRMR) <sup>1</sup>	--	--

<sup>1</sup> SRMR not available since there were missing values.

Table 43

*Multi-Group Analysis Findings*

Model	$\chi^2$	<i>df</i>	$\Delta\chi^2$	$\Delta df$
Unconstrained	1442.87	364		
Constrained	1452.64	370	9.77	6

*Note.* Critical  $\chi^2(6) = 12.59, p < .05$ .

Table 44

*Chi-square Results and Goodness of Fit Indices for the Transformational Leadership**Structural Model in the Combined Student and Medical Resident Sample*

Index	Value
Chi-square	1239.13
Degrees of freedom	182.00
Sig.	.00
Chi-square/df	6.81
Comparative fit index (CFI)	.65
Root mean squared error (RMSEA)	.14
Lower bound of 90 percent confidence interval	.13
Upper bound of 90 percent confidence interval	.15
Standardized root mean square residual (SRMR) <sup>1</sup>	--

<sup>1</sup> SRMR not available since there were missing values.

Table 45

*Linear Regression Results for Emotional Intelligence and Emotional Competence (N = 32)*

Parameter	B	SE	B	F	Sig.
Conscientiousness	-.01	.02	-.06	.29	.593
Extraversion	-.00	.02	-.01	.01	.924
Managerial competence	.52	.28	.24	3.48	.073
Emotional intelligence	.32	.04	.83	60.12	.000

*Note.* Only results for the second step are summarized.  $R^2$  for first step = .05. Adjusted  $R^2$  for first step = -.05.  $R^2$  for second step = .71. Adjusted  $R^2$  for second step = .66.

Table 46

*Linear Regression Results for Emotional Intelligence and Transformational Leadership**(N = 32)*

Parameter	B	SE	B	F	Sig.
Conscientiousness	.02	.04	.10	.21	.654
Extraversion	.00	.04	.00	.00	.994
Managerial competence	.01	.56	.04	.03	.860
Emotional intelligence	.04	.08	.09	.21	.651

*Note.* Only results for the second step are summarized.  $R^2$  for first step = .01. Adjusted  $R^2$  for first step = -.09.  $R^2$  for second step = .02. Adjusted  $R^2$  for second step = -.12.

Table 47

*Linear Regression Results for Emotional Intelligence, Emotional Competence, and Transformational Leadership (N = 32)*

Parameter	B	SE	B	F	Sig.
Conscientiousness	.01	.04	.08	.13	.721
Extraversion	.00	.04	-.00	.00	.994
Managerial competence	.27	.59	.11	.21	.653
Emotional intelligence	.14	.15	.34	.92	.346
Emotional competence	-.33	.38	-.30	.72	.403

*Note.* Only results for the second step are summarized.  $R^2$  for first step = .01. Adjusted  $R^2$  for first step = -.09.  $R^2$  for second step = .05. Adjusted  $R^2$  for second step = -.14.

Chapter 13

Figures

Figure 1

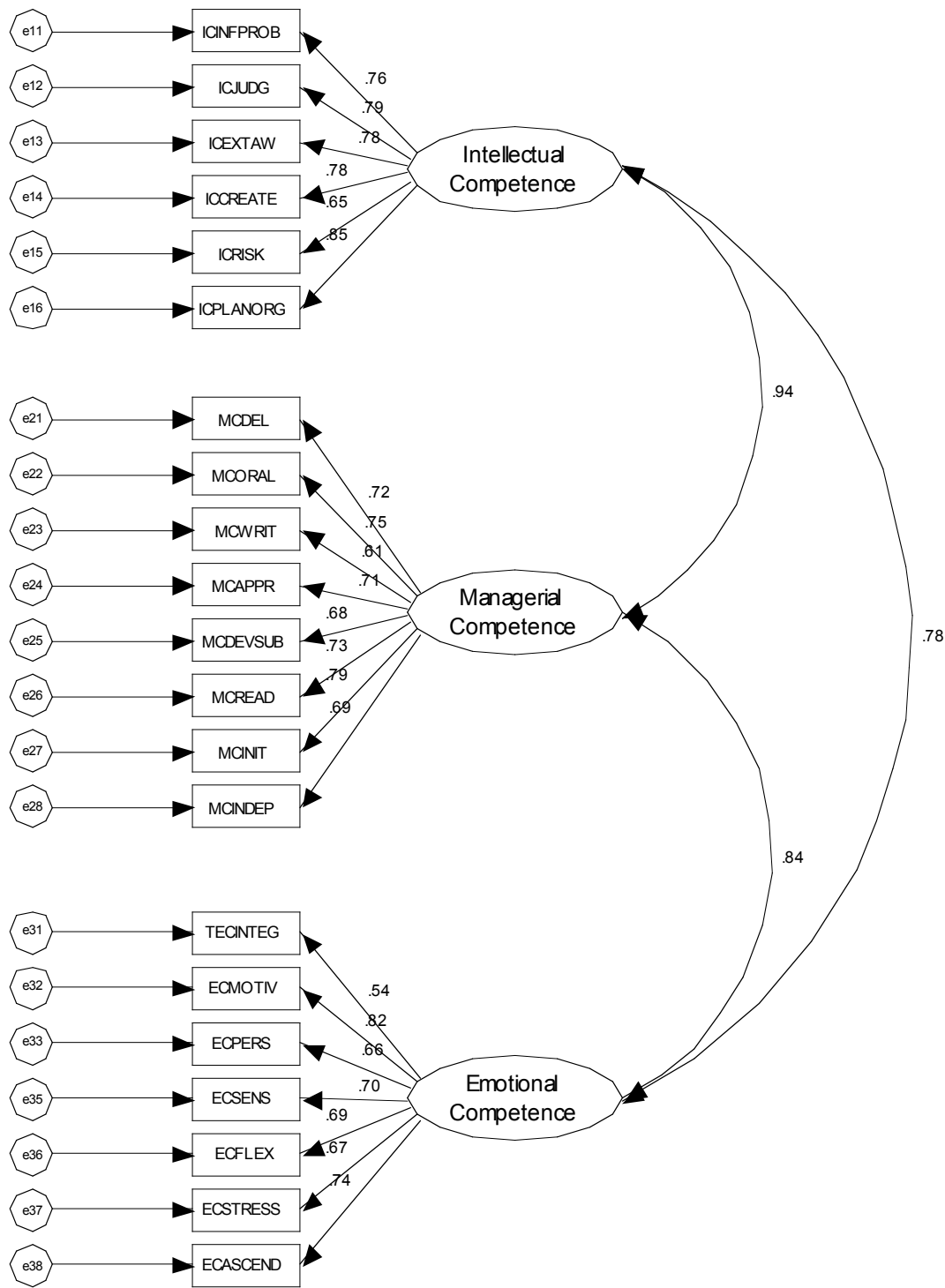


Figure 2

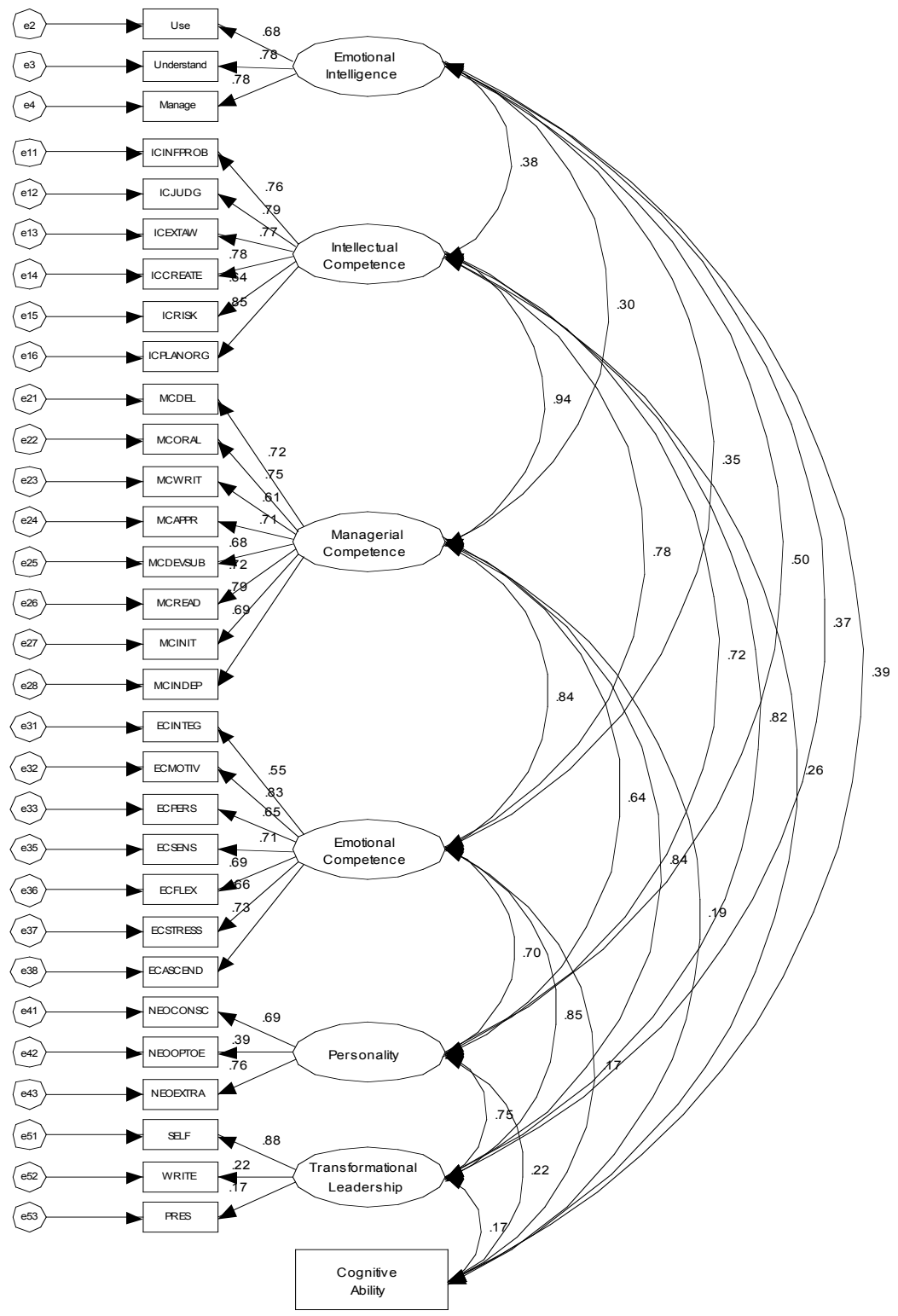


Figure 3

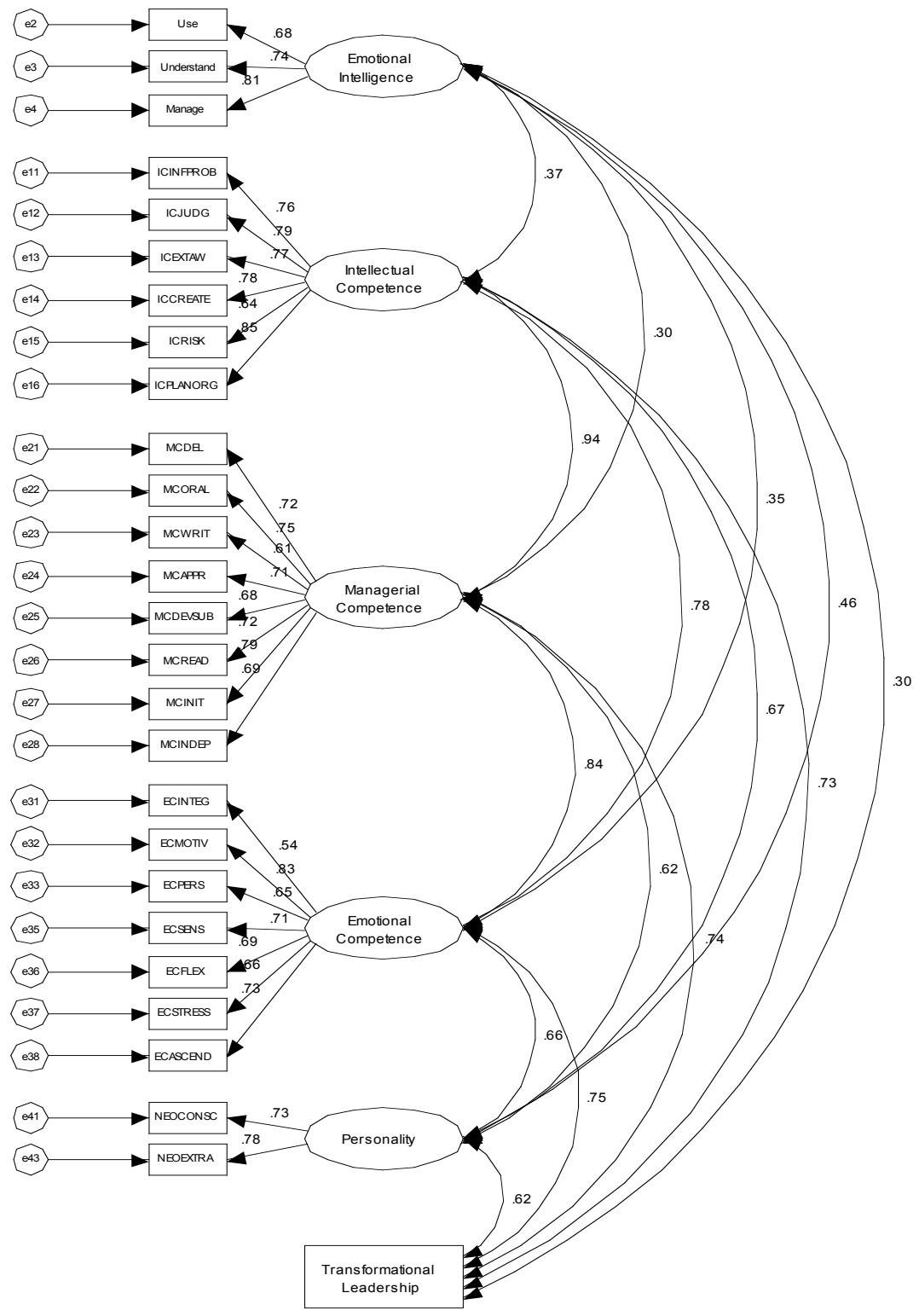


Figure 4

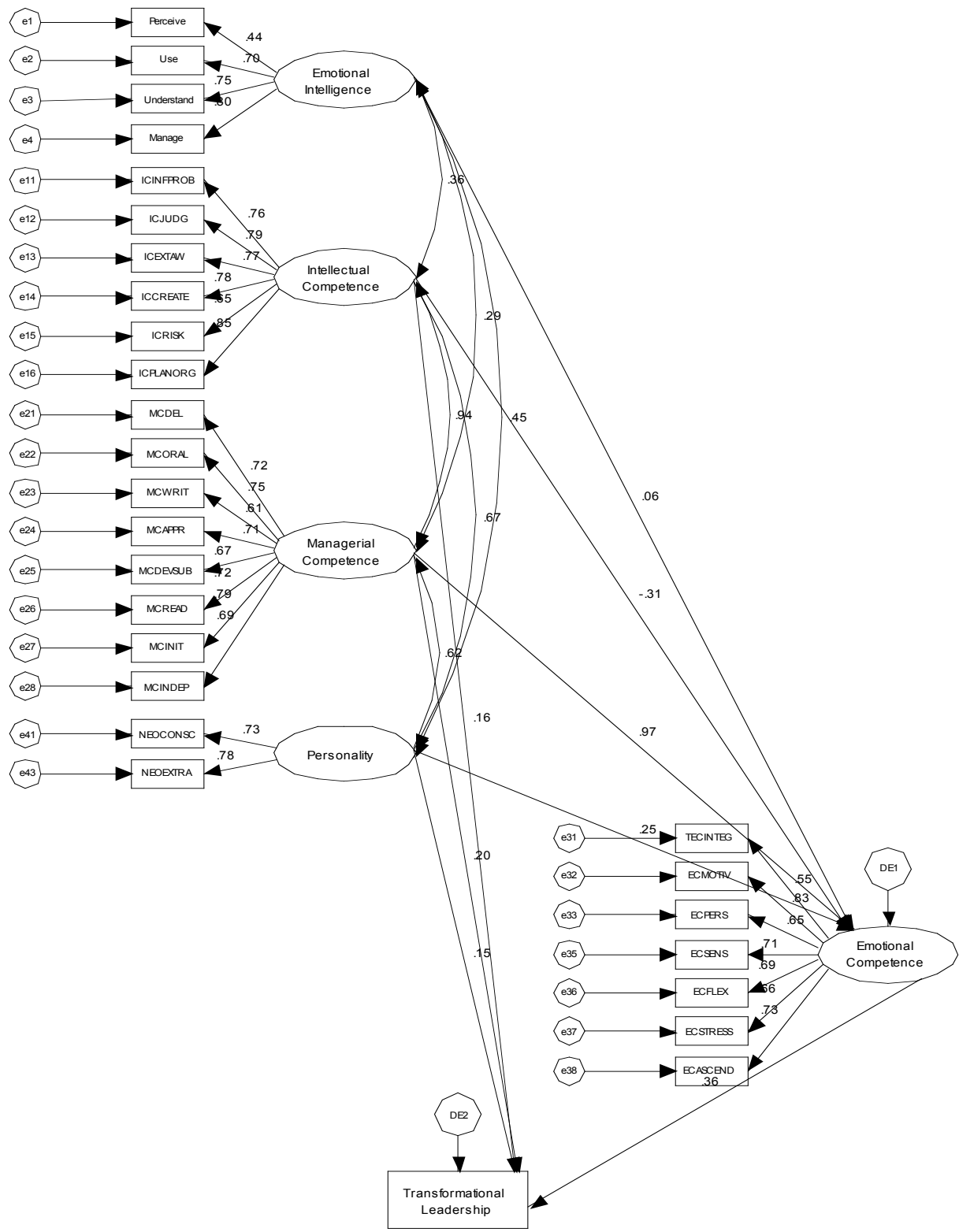


Figure 5

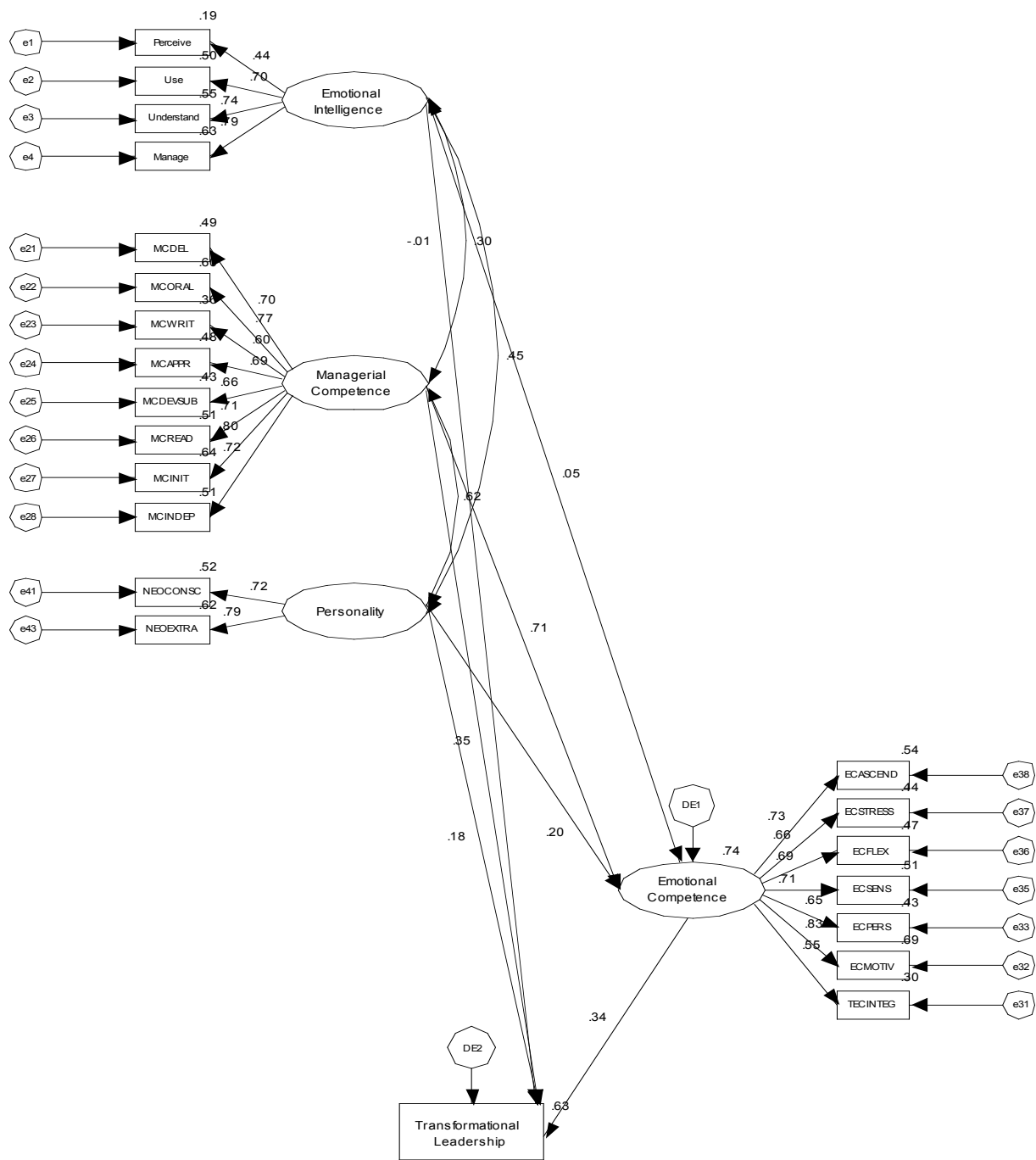


Figure 6

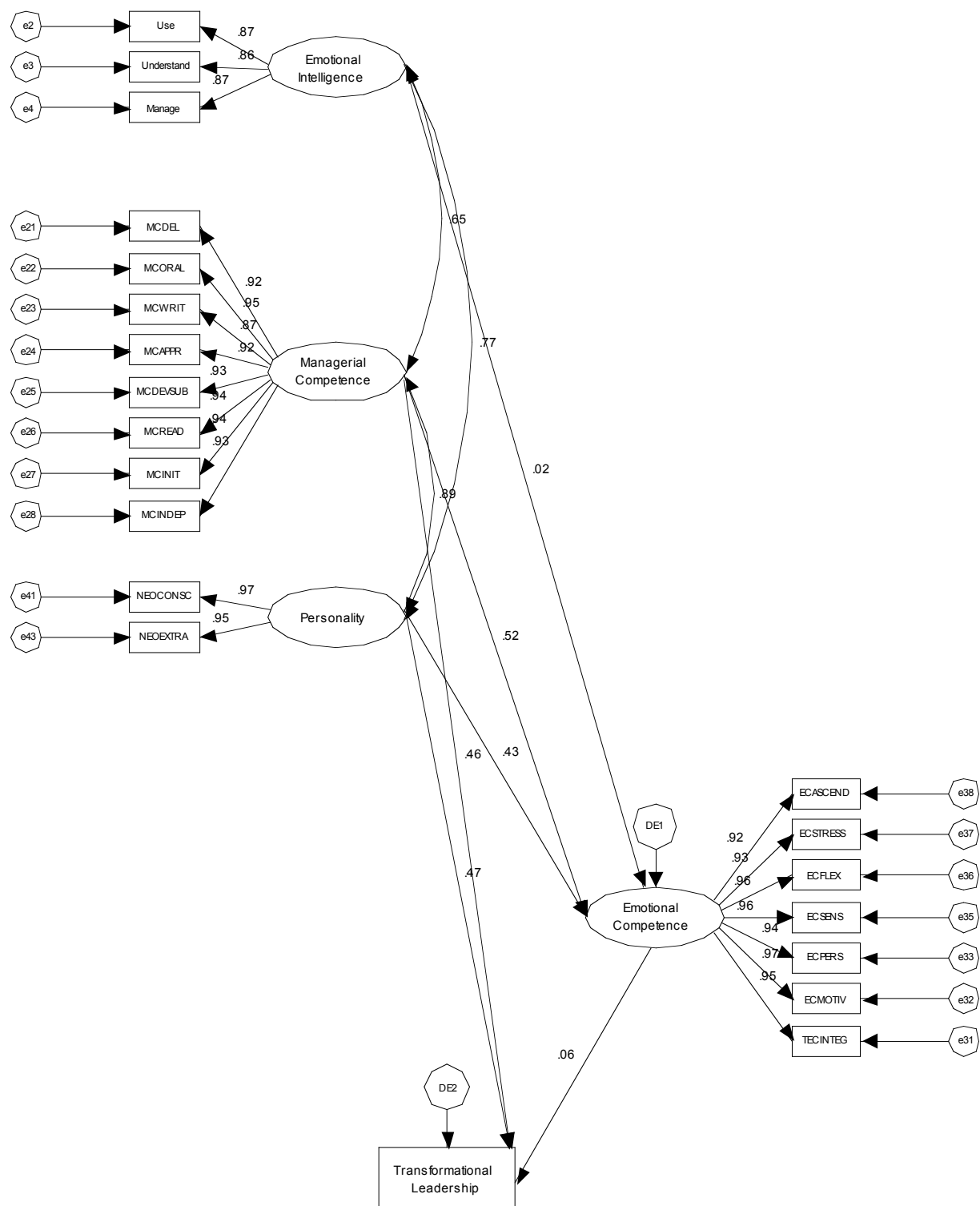


Figure 7

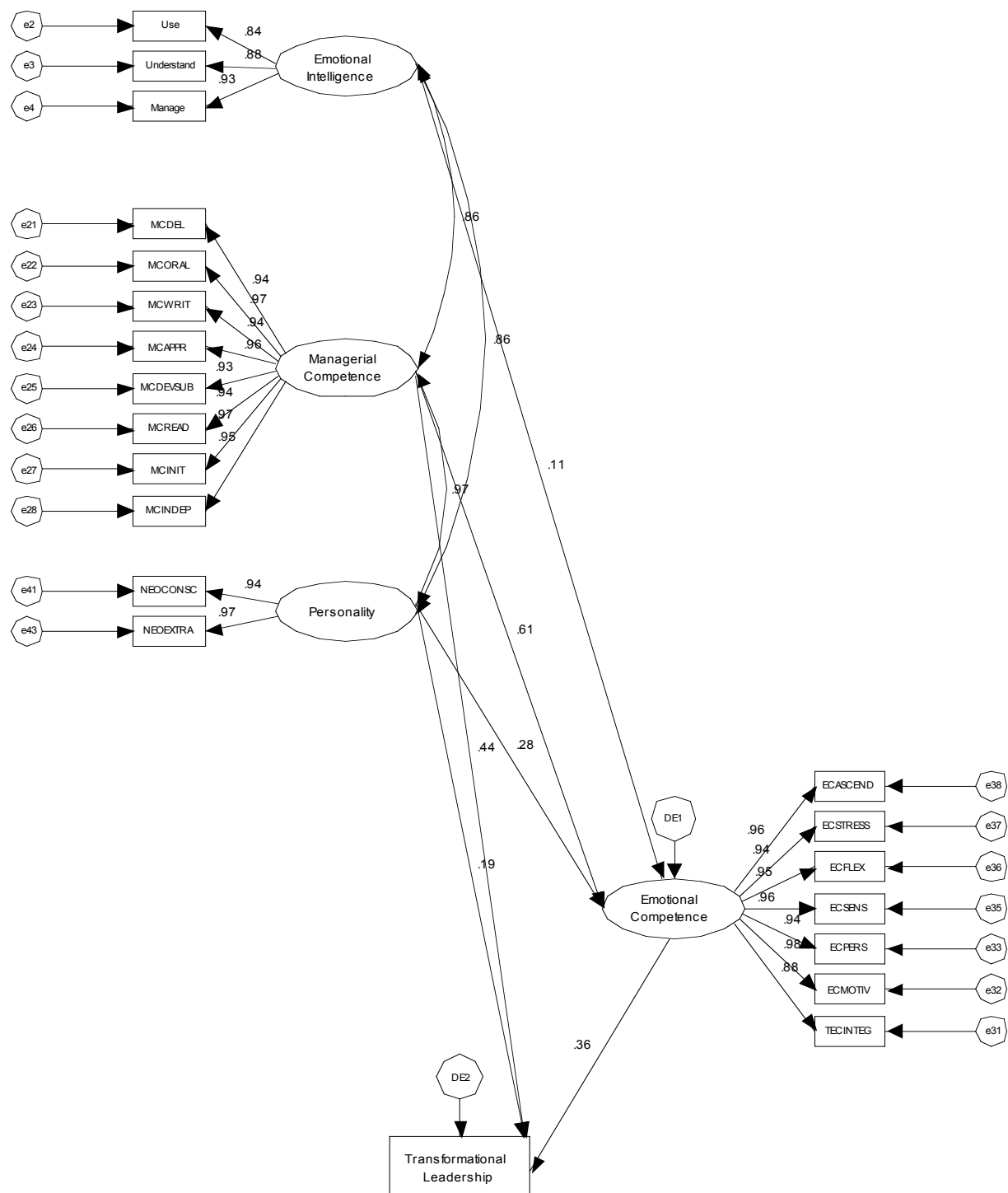
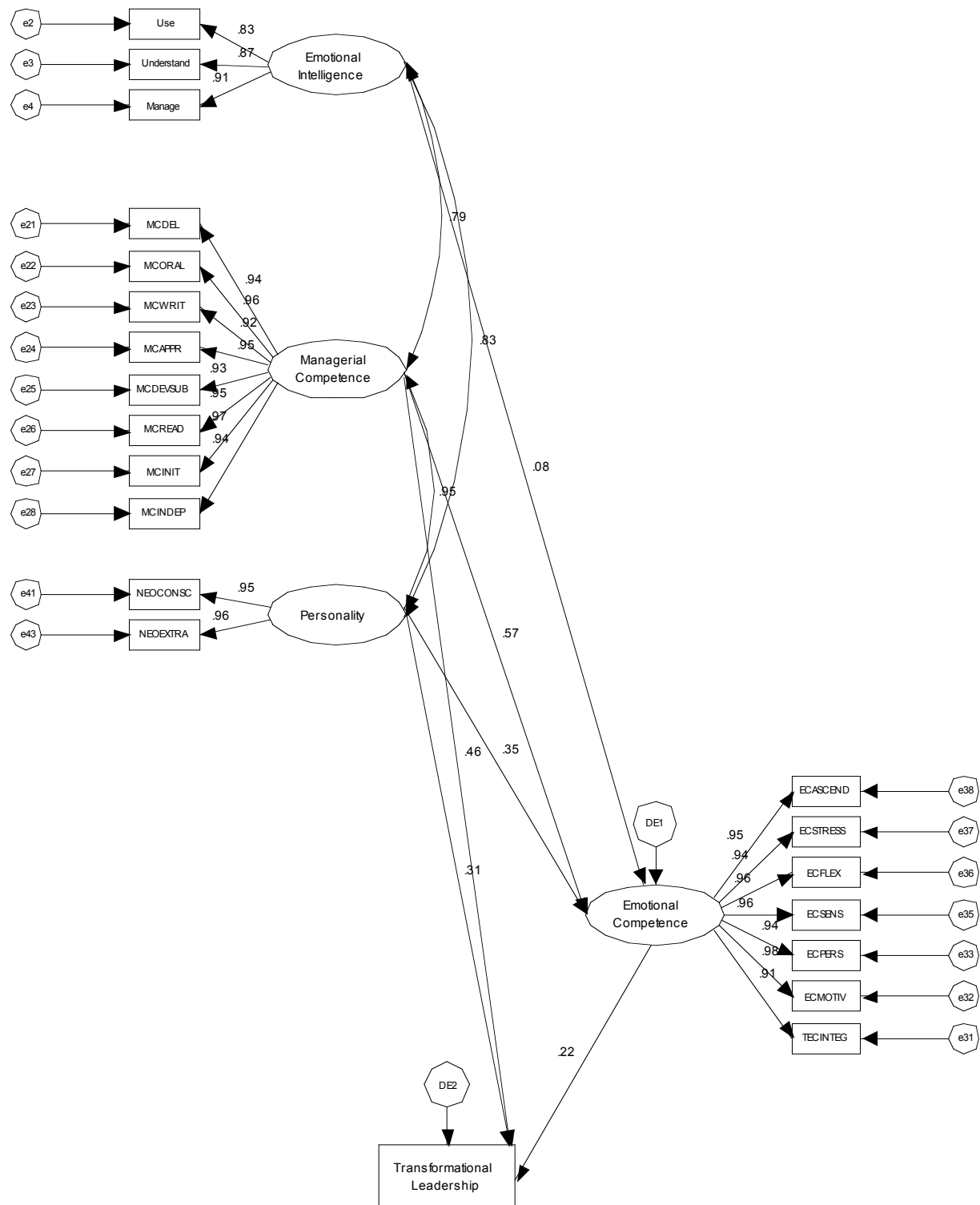


Figure 8



## Chapter 14

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