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Running head: MOTIVATION TO LEAD AND LEADER EMERGENCE

# Motivation to Lead: Antecedents and Resulting Leader Emergence

A Thesis Submitted in Partial Fulfillment of the Requirements for

The Master of Science Degree in Industrial/Organizational Psychology

By Ying Hong July 1, 2005

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# Motivation to Lead: Antecedents and the Resulting Leader Emergence

By: Ying Hong

## Abstract

Leadership is a prolific research area, yet very few studies examine the self-motivating process of leadership development. The newly proposed concept, motivation to lead (MTL; Chan & Drasgow, 2001), was employed to understand individual differences in leadership potential. 309 undergraduate students (222 women and 87 men, mean age = 21.0) completed questionnaires in the first session. 264 participants came back to the second session in which they were divided into 42 groups to participate in leaderless discussions. Two external raters observed and rated the group members' leadership emergence behaviour. Results indicate that cognitive ability (as measured by university quality point average; QPA), some Big-Five personality factors, including Extroversion, Agreeableness, and Emotional stability, others-emotions appraisal, use of emotion, and interpersonal emotional intelligence predict individual differences in MTL. Motivation to lead, on the other hand, most proximally predicts leader emergence. In addition, affective-identity MTL mediates the relationship between gender, QPA, Extroversion, and leadership emergence, and suppressed the effects of Agreeableness and interpersonal emotional intelligence on leadership emergence.

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## Introduction

Over the past two centuries, a wide range of leadership research has been conducted with a common purpose: to understand the emergence, nature, and consequences of leadership (Bass, 1990a). Chronologically, the focus of research has transited from "great-man" theories, which purport that history is shaped by a few influential persons (e.g., Galton, 1869; James, 1880), and trait theories in which leaders are differentiated from non-leaders through certain qualities and attributes (e.g., Stogdill, 1948), to behavioural theories emphasizing leaders' reinforcement of subordinate behaviour (e.g., White & Lippett, 1960), situational theories, which state that leaders are formed as a result of circumstances (e.g., Hersey & Blanchard, 1977), and contingency theories, which propose that the effectiveness of task-oriented or relations-oriented leaders will depend on different conditions (e.g., Fieldler, 1967; Fisher, 1985). Most recently, research moves on to leader-member relationship theories, which assume an exchange relationship between leaders and followers (Graen & Uhl-Bien, 1995), transformational and transactional leadership theories (e.g., Barling, Slater, & Kelloway, 2000, Bass, 1990b), and leadership competency theories (Tett, Guterman, Bleier, & Murphy, 2000). However, these topics have a common theme in that they are more attentive to ultimate outcomes such as leadership performance, leadership effectiveness, and leadership contingencies such as external influences on leadership emergence, than to the causes or the internal process of leadership development. Efforts to understand more causal mechanisms of leadership development are sparse.

The aims of this study are twofold. The first part of this study explores leadership formation and development processes, so as to understand why some individuals are more motivated to be leaders than others. Are there common factors that predict high

motivation to lead? For instance, the effects of emotional intelligence (EI) on motivation to lead haven't been examined in past research. The second part of the present study addresses the immediate effects of motivation to lead in a laboratory setting. The goal is to understand if people having high motivation to lead actually turn out to be leaders in group activities. These issues haven't been explored before and an understanding of these questions would help shed light on leadership selection and development in organizations.

## Motivation to Lead (MTL)

The concept of motivation to lead was proposed by Chan and Drasgow (2001). The authors define motivation to lead as "an individual-differences construct that affects a leader's or leader-to-be's decisions to assume leadership training, roles, and responsibilities and that affects his or her intensity of effort at leading and persistence as a leader" (p. 482). Thus, motivation to lead is expected to be associated with desirable leadership behaviour - individuals with high motivation to lead are more likely to emerge and sustain as a leader and endeavor to be a good leader. Specifically, Chan and Drasgow (2001) propose three dimensions of motivation to lead: (1) affective-identity MTL, which refers to an individual's natural tendency to lead others or like to lead others; (2) social-normative MTL, the tendency to lead because of a sense of duty or responsibility; and (3) noncalculative MTL, where people agree to lead without calculating costs and benefits. Affective-identity MTL is the most self-explanatory dimension, as it reflects the valances an individual places on a leadership role, and most directly reflects leadership self-efficacy and experience (Chan & Drasgow, 2001). Social-normative MTL is associated with one's general attitudes about social norms towards being a leader. People's perceptions of or reactions towards leadership roles can be either positive or negative; the latter

happens when exercising leadership is considered to be manipulative or exploitive (McClelland, 1975). Noncalculative MTL is associated with an individual's expected outcomes of leadership. The underlying assumption of noncalculative MTL is that assuming a leadership role sometimes entails certain costs and responsibilities, such as dealing with difficult people from different levels and being directly responsible for team performances. Thus, one needs to overcome these concerns (Day, Sin, & Chen, 2004). As such, noncalculative MTL captures the altruistic aspect of leadership orientation. These three MTL dimensions are correlated, suggesting general motivation to be a leader (Chan & Drasgow, 2001), which directly predicts leadership behaviours in most circumstances. In a validation study (Chan, Rounds, & Drasgow, 1999), the three MTL constructs were orthogonal to vocational interests, including realistic, investigative, artistic, social, enterprising, and conventional interests (Holland, 1973). This indicates that these new MTL dimensions are distinct from traditional vocational interest measures and provide meaningful information.

There are several relevant motivation to lead concepts. For instance, Fiedler (1967) argues that the least-preferred coworker (LPC) is one of the traits that are related to leadership motivation. High-LPC leaders generally rate a person that they are least able to work with as quite nice and competent. Such leaders emphasize establishing good interpersonal relations and are motivated to seek such relationships. A low-LPC leader, on the other hand, describes his/her least-preferred person in a very negative way. Such a leader is less able to give rational evaluation and is generally more task-oriented (Fiedler, 1967; Fieldler & Garcia, 1987). Other conceptually related terminologies include need for achievement, leadership motive pattern (McClelland, 1975), need for power (McClelland, 1985), motivation to manage (Miner, 1977), and leadership aspirations (Singer, 1991). However, these

concepts are often associated with a certain aspect of leadership tendency such as people-orientedness or personal achievement. A review by House and Aditya (1997) reveals that these two tendencies do not consistently contribute to leadership performance. In some studies motivation to manage is influential only in large and hierarchical companies (e.g., Miner, 1977), whereas in others, achievement motivation is more important in small and informal situations (House & Aditya, 1997). The reasons for these findings are that an over-emphasis on individual achievement or power would hinder a leader to delegate responsibilities in large organizations where such skills are important (House & Aditya, 1997), whereas individuals with high power motivation can be too impulsive or aggressive to manage good interpersonal relationships, especially in small companies where personal interactions are often involved (Bass, 1990a; House & Aditya, 1997; McClelland, 1985). Thus, these achievement- or power-oriented individuals might not be able to perform effectively under certain contexts. The most comprehensive theory appears to be the motivation to lead concept developed by Chan and Drasgow (2001). Their concept is most directly reflective of general leadership tendencies, and is most comprehensive, meaningful, and context-independent (Chan & Drasgow, 2001). It covers leadership motivations that are triggered by personal affect, social norms, or other expected outcomes. Also, it is distinct from traditional vocational interest taxonomies (Chan, Rounds, & Drasgow, 1999).

The motivation to lead concept is also distinct from the others in that while MTL is assumed to be stable overtime, it can change with leadership experience and training, resulting in enhanced leadership self-efficacy (Chan & Drasgow, 2001). Consequently, antecedents to motivation to lead may not only encompass relatively stable traits such as cognitive ability and personality traits, the "two grand constructs

of modern psychology" (Zeidner & Mathews, 2000; p. 581), as examined in Chan and Drasgow's (2001) study, but also include changeable factors such as emotional intelligence (Cooper, 1997), which hasn't been linked to MTL. This study explores these three major and distant antecedents to MTL because cognitive ability is the most commonly used and cost-effective tool in personnel selection, whereas personality and emotional intelligence are also becoming popular in personnel practices (Catano, Cronshaw, Wiesner, Hackett, & Methot, 2001). An understanding of these measures in predicting motivation to lead will shed light on leadership selection and development processes in organizations. In Chan and Drasgow's (2001) study, leadership experience and leadership self-efficacy are also included as antecedents to MTL. These constructs are not included in this study because leadership self-efficacy may be highly related to one's affective-identity motivation to lead (Chan & Drasgow, 2001) and the inclusion of this variable may be superfluous. Also, aside from being predictors to motivation to lead, leadership experience and self-efficacy could be outcomes of high motivation to lead and leadership emergence. People who are motivated to be leaders and tend to emerge as a leader often possess more experience as a leader and consequently develop their self-competency as a leader. The understanding of such a cause and effect relationship is beyond the scope of this study. Finally, since individuals possess diverse backgrounds, it is almost impossible to quantify individual leadership experience in a comparable manner.

In sum, the first part of this study examines the antecedents of motivation to lead with an emphasis on a personnel management perspective, including cognitive ability, personality, and emotional intelligence; the purpose is to understand how individual differences in their motivation towards being leaders are formed, and how these differences could shed light on leader selection and development practices. The

second part of this study explores the direct effect of motivation to lead on leadership emergence, a relationship that hasn't been explored in previous research. The importance of MTL is examined in terms of whether it predicts leadership emergence above and beyond the antecedents, and also whether it mediates the relationship between the antecedents and leader emergence. In the current study, all three dimensions of MTL are employed and analyzed separately. The affective-identity aspect of MTL gains special attention, as it is associated with an individual's willingness and natural tendency to assume a leader role (Chan & Drasgow, 2001) instead of being driven by social norms or benefits of being a leader. Such a tendency will most likely lead to leadership self-development and persistence, especially in situations where leadership emergence is totally voluntary.

## Antecedents to MTL

A review of past research by Singer (1991) suggests that the valence model (Vroom, 1964) and self-efficacy model (Bandura, 1977; 1982) are useful in explaining leadership aspirations. According to Vroom's (1964) valance model, an individual who is motivated to be a leader typically believes that a leadership role is rewarding and that it is possible for them to be a leader. This belief is reflected in social-normative MTL and noncalculative MTL. In addition, according to Bandura's (1977) self-efficacy model, an individual should also have appropriate self-efficacy to be a leader, which is mostly mirrored in affective-identity MTL. As such, antecedents of motivation to lead are expected to include factors that lead to the belief in positive outcomes of being a leader and factors that lead to a sense of leadership self-efficacy. For instance, an individual with high leadership self-efficacy is likely to be characterized as having high cognitive ability or high emotional intelligence, and appropriate characteristics such as Extroversion that would facilitate their leadership

performance. Also, to perceive being a leader as a rewarding outcome, an individual may have certain personality attributes such as conscientiousness, agreeableness, and openness to experience that are associated with need for achievement, sense of control, and compliance with social norms. In this study, antecedents to motivation to lead are hypothesized to include the following factors: cognitive ability, personality, and emotional intelligence.

*Cognitive Ability*

Cognitive abilities, intelligence, or general mental abilities (GMA) generally refer to various intellectual capacities such as verbal and numerical ability, reasoning, memory, problem solving, and processing information (Catano et al., 2001). It is associated with a person's ability to understand concepts and solve complex tasks (Catano et al., 2001; Locke, 2005), and is recognized as the most valid predictor of academic success (Busato, Prins, Elshout, & Hamaker, 2000; Farsides & Woodfield, 2003; Mayer, Salovey, & Caruso, 2000; Newsome, Day, & Catano, 2000; Offermann, Bailey, Vasilopoulos, Seal, & Sass, 2004) and job performance (Hunter & Hunter, 1984). Schmidt and Hunter (1998) found in their meta-analysis that the predictive validity of GMA was especially high for complex or advanced jobs: .58 for professional-managerial jobs, .56 for advanced technical jobs, and .51 for medium complexity jobs. In addition, GMA predicts job related learning, and is less expensive than other tools with equivalent validities. As a result, it remains the primary selection measure for most organizations (Schmidt & Hunter, 1998; Catano et al., 2001). In addition, intelligence is also associated with many other social advantages such as socioeconomic self-sufficiency, affluence, educational achievement, marital stability, legitimacy, and lawful behaviours (Herrnstein & Murray, 1994).

Past leadership research has examined the effects of cognitive ability as well as

its interaction with personality (Sackett, Gruys, & Ellingson, 1998) in predicting leadership performance. It is intuitive and logical to expect a positive relationship between a leader's intellectual ability and performance, as there are intellectual facets of leadership functions, such as interpreting and processing information, planning, developing strategies and decision making (Bass, 1990a). Lord and Hall (1992) postulate that intelligent leaders are capable of fast and "rational information processing" (p. 138), which contributes to organizational decision making and performance (see also Kickul & Neuman, 2000). House and Aditya (1997) also argue that intelligence is an important trait for effective leaders. Indeed, cognitive ability is one of the most frequently used criteria for selecting and promoting leaders (Fieldler & Garcia, 1987). Subsequently, the predictive validity of GMA for managerial and complex jobs is consistently very high (Schmidt & Hunter, 1998).

Past research also indicates a positive relationship between cognitive ability and leadership emergence (Atwater, Dionne, Avolio, Camobreco, & Lau, 1999; Lord, De Vader, & Alliger, 1986) or leadership perceptions (Lord & Maher, 1991). Those who emerge or are perceived as leaders are often more intelligent than their subordinates (Bass, 1990a). One reason is that intelligence or creativity is often a benchmark in people's implicit theories of exemplary leaders (Judge, Colbert, & Ilies, 2004). Those who have complex knowledge structures and can quickly understand perspectives and situations are more likely to emerge as a leader (Wolff, Pescosolido, & Druskat, 2002; Zaccaro, Gilbert, Thor, & Mumford, 1991). Taggar, Hackett, and Saha (1999) found that general cognitive ability most significantly predicted leadership emergence in autonomous work teams, which was rated by team members. Taken together, these suggest that individuals with high cognitive ability are more likely to emerge as a leader or be perceived as a leader by others.

According to Bandura's self-efficacy model, cognitive ability may also affect leader emergence and perceptions through enhancing one's overall self-confidence and leadership self-efficacy, which in turn, are directly reflected in their affective-identity motivation to lead. Such self-confidence together with motivation to lead will result in a higher probability of leadership emergence (Miner, 1977). Indeed, leaders generally possess higher scholastic records than their followers (Bass, 1990a). Thus, one goal of this study is to examine the effects of cognitive ability on affective-identity motivation to lead and leadership emergence. There is no evidence to suggest that cognitive ability is associated with a leader's values or outcome beliefs toward leadership; thus no hypotheses are proposed about cognitive ability as an antecedent of noncalculative and social-normative motivation to lead.

There have also been some scholars, however, who argue that cognitive ability is not necessarily related to work performance or leadership emergence. For example, Sackett et al. (1998) report that cognitive ability and personality are uncorrelated and personality is the major factor that predicts leadership performance. Some researchers argue that the relationship between intelligence and leadership is curvilinear instead of linear. Those at the highest end of intelligence are often self-occupied, and followers find it difficult to understand them (Bass, 1990a). Also, some other studies did not find a significant relationship between cognitive ability and motivation to lead (Chan & Drasgow, 2001; Sanchez, 2004). Nonetheless, this study re-examines this relationship, as there is theoretical reason to believe that cognitive ability is related to affective-identity MTL and leadership emergence.

Hypothesis 1: Individuals with higher cognitive ability will have higher affective-identity motivation to lead and are more likely to emerge as leaders, beyond the effects of demographic variables.

*Personality*

Over the past century, psychologists have explored hundreds of underlying components, trying to understand individual differences in personality (Mayer, 1995). However, in recent decades the Big-Five model of personality (Digman, 1990; Goldberg, 1990; Goldberg, 1992; McCrae & Costa, 1996) has emerged as the most frequently used, parsimonious, yet adequately comprehensive classification of personality taxonomy (Saucier & Goldberg, 1996). The Big-Five model argues that the various personality traits can be grouped into five broad factors: Extroversion or Surgency, Agreeableness, Conscientiousness, Neuroticism or Emotional stability, and Intellect or Openness to experience (McCrae & Costa, 1996). Extraversion refers to the tendency to be warm, sociable, gregarious, energetic, assertive, and active. Agreeableness represents the tendency to be kind, cooperative, trusting, altruistic, and generous. Conscientiousness comprises attributes such as organized, dutiful, responsible, hardworking, competent, and reliable. Emotional stability is the tendency to be calm, relaxed, stable, and secure. Intellect or Openness to experience is the disposition to be intelligent, imaginative, creative, and aesthetic (McCrae & Costa, 1996).

The Big-Five factors are repeatedly used by researchers and practitioners to understand individual differences in both life and work. For instance, in some studies pertaining to personality and life, Emotional stability, Extroversion, and Agreeableness contribute to subjective well-being (DeNeve & Cooper, 1998). Conscientiousness is demonstrated to relate to longevity (Friedman et al., 1995). The Big-Five factors are also correlated with academic success, e.g., individuals that are conscientious (Busato et al, 2000), open to experience, and agreeable (Farsides & Woodfield, 2003) tend to have higher grades. Many studies have also found a

relationship between personality and job performance, especially the Conscientiousness factor, as it is associated with being hard-working, competent, and organized (Catano et al., 2001). In a meta-analysis Schmidt and Hunter (1998) found significant incremental validity of Conscientiousness in predicting job related-learning and performance above and beyond cognitive ability.

The personality trait method is also used as an approach to understand leadership (Bass, 1990a) and leadership potential (Stricker & Rock, 1998). Kenny and Zaccaro (1983) found that around 48% to 82% of the variance in leadership emergence can be explained by personality facets. There is evidence of relationships between all Big-Five factors and leadership behaviour. Kickul and Neuman (2000) found that high Extroversion and Openness to experience predicted high ratings of emergent leadership behaviour by team members. Taggar et al. (1999) found that a high degree of Conscientiousness, Extroversion, and Emotional stability significantly predicted leadership emergence in autonomous work teams. Hogan, Curphy, and Hogan (1994) reviewed the extensive literature that used the Big-Five approach to understand leadership. The results reveal that individuals with high Surgency/Extroversion, Agreeableness, Emotional stability, Conscientiousness, and Openness to experience are all likely to be leaders. Similar results were found in Judge, Bono, Ilies, & Gerhardt's (2002) meta-analysis and Bass's (1990a) review. All these findings suggest a possible connection between the Big-Five personality facets and leadership potential.

Consequently, the current study examines how personality influences leadership potential and leadership emergence. Theories advocating a cognitive basis of personality state that the Big-Five traits shape behavioural differences through an individual's general beliefs, expectancies, attitudes, and subjective values about the

self and the outside world (Langston & Sykes, 1997; McCrae & Costa, 1996). In the current study, the Big-Five factors are associated with different subjective beliefs and attitudes, such as efficacy beliefs, outcome beliefs, and value beliefs (Langston & Sykes, 1997), towards being a leader. The most salient effect would be that extroverts, those individuals who are sociable, assertive, and energetic, and individuals that are conscientious might possess a higher tendency to self-monitor and have higher self-efficacy in interpersonal interaction (Bass, 1990a; Chan & Drasgow, 2001). Similarly, individuals who are agreeable and emotionally stable are more likely to perceive themselves as capable of and interested in leading others. These beliefs and attitudes, in turn, can be reflected in affective-identity MTL, noncalculative MTL, and social-normative MTL, which directly affect leadership behaviour.

These propositions are partly supported in the studies of Chan and Drasgow (2001) and Sanchez (2004), whereby Extroversion is directly related to affective-identity MTL, Agreeableness and Emotional stability are related to noncalculative MTL, Agreeableness and Conscientiousness are related to social-normative MTL (Chan & Drasgow, 2001). These findings suggest that people who are outgoing and sociable are more likely to see themselves as having leadership qualities, that people who value harmony and are obliging are less calculative, and that people who have a sense of social duty tend to score highly on social-normative MTL (Chan & Drasgow, 2001). In part, this study seeks to replicate these results.

Hypothesis 2: Personality predicts motivation to lead and leader emergence above and beyond the effects of demographic and control variables and cognitive ability. In particular, all Big-Five factors positively predict affective-identity MTL and leadership emergence; Agreeableness, Emotional stability, and Conscientiousness positively predict noncalculative and social-normative MTL.

*Emotional Intelligence*

Emotional intelligence (EI) is a relatively new concept it yet has become popular and widely used in organizational research and practice (Mayer, Salovey, & Caruso, 2000; Van Rooy & Viswesvaran, 2004). Similar to cognitive ability and personality, there is neither a single name nor a universal definition of emotional intelligence that can be accepted by all. Some researchers even argue that it does not belong to the intelligence realm (Locke, 2005). Besides "emotional intelligence", other relevant terminologies include emotional literacy, emotional quotient, personal intelligence, social intelligence, and interpersonal intelligence (Dulewicz & Higgs, 2000). Offermann et al. (2004) argue that emotional competency is a more appropriate terminology as it incorporates both emotional abilities and the resulting products.

Among the various definitions, researchers generally describe emotional intelligence as the use of emotions of the self and of others to think and behave in effective ways (Caruso, Mayer, & Salovey, 2002; Weisinger, 1998). Van Rooy and Viswesvaran (2004) conceptualize a more comprehensive, ability-based definition of emotional intelligence as "the set of abilities (verbal and nonverbal) that enable a person to generate, recognize, express, understand, and evaluate their own, and others, emotions in order to guide thinking and action that successfully cope with environmental demands and pressures" (p. 72). In general, some definitions of emotional intelligence are broader than others, but the differences are often minor (Law, Wong, & Song, 2004).

However, in defining emotional intelligence, researchers are not only concerned about its comprehensiveness, but also whether it is a unique concept that differs substantially from cognitive ability and personality (Davis, Stankov, & Roberts, 1998). Some researchers argue that emotional intelligence still measures something related to

general intelligence and personality, and does not possess unique predictive validity. Research has found a positive relationship between emotional intelligence and cognitive ability, as measured by college grades (Schutte et al., 1998), and significant correlations between emotional intelligence and Neuroticism (the opposite of Emotional Stability), Extraversion, Agreeableness, and Openness, as measured in personality tests (Bagby, Parker, & Taylor, 1994; Day & Carroll, 2004). Van Rooy and Viswesvaran (2004) also found emotional intelligence to be correlated with both personality and general cognitive ability. Davis et al. (1998) found that emotional intelligence did not represent something beyond traditional cognitive ability and personality. Adverse impact exists with the measurement of emotional intelligence, such as discrimination against socially insensitive individuals (Landy, 2005). Some researchers even argue that emotional intelligence is not a valid concept, that it is "really some combination of assorted habits, skills and/or choices rather than an issue of intelligence" (Locke, 2005; p.426).

Proponents of emotional intelligence as a distinct concept, however, argue that although emotional intelligence is positively related to other intelligence and personality constructs, when properly defined, emotional intelligence is a meaningful construct that can be used to understand various behaviours and performances (Ashkanasy & Daus, 2005; Caruso et al., 2002; Law et al., 2004; Wong & Law, 2002). Actually, one of the appeals of emotional intelligence is that there is a large amount of variance unexplained by traditional cognitive ability and personality tests that emotional intelligence might be able to tap into (Goleman, 1995; Mayer, Salovey, & Caruso, 2000). As such, the adverse impact against minority groups in organizational settings could be reduced to some extent (Van Roovy & Viswesvaran, 2004). A meta-analysis by Van Rooy and Viswesvaran (2004) found that emotional intelligence

had incremental validity over the Big-Five personality factors in predicting performance.

Researchers postulate a number of different models based on different definitions of emotional intelligence (Mayer et al., 2000). Some are more connected with other abilities and traits (e.g., Bar-On, 1997) while others are more focused on abilities associated with emotions only (e.g., Goleman, 1995). In seeking a unique model of abilities associated with emotions which will capture a portion of variance unexplained by cognitive ability and personality, Davis et al. (1998) reviewed different emotional intelligence measures that were used in EI research and came up with a summary of four major EI dimensions:

1. Appraisal and expression of emotions in the self. This construct refers to an individual's ability to understand his or her thoughts and moods and to express them verbally and nonverbally.
2. Appraisal and recognition of emotions in others. This relates to a person's ability to perceive and re-experience others' emotions.
3. Regulation of emotions in the self and others. This refers to one's ability to adjust one's emotions and also to change others' unpleasant emotions.
4. Use of emotions to facilitate performance. This construct refers to the ability to control one's emotion, especially in difficult situations, to achieve better performance (Davis et al., 1998).

Emotional intelligence, when properly defined, appears to contribute to both work and life (Mayer et al., 2000). Cooper (1997) states that emotional intelligence increases one's capacity to trust and to be trusted, one's sense of integrity, and one's ability to make decisions in difficult situations. Emotional intelligence is also closely associated with individual motivation. For example, some measures of EI include

motivation as a construct (Dulewicz & Higgs, 1999). Researchers argue that because the abilities of self-appraisal and self-management of emotions increase one's overall confidence and goal-orientedness, emotional intelligence contributes to work performance (Offermann et al., 2004). In addition, the ability to regulate and use emotions in social relationships facilitates collaboration with others and leadership behaviour (Offermann et al., 2004). The authors found that groups with higher average emotional competencies performed more effectively as a team. A meta-analysis showed that there was also a positive relationship between emotional intelligence and individual performance ($\rho$ = .23, Barling, Slater, & Kelloway, 2000).

For leaders, emotional intelligence is important because the ability to understand, use, and manage emotions is an essential component of effective leadership (Caruso et al., 2002; Humphrey, 2002; Law et al., 2004; Wolff et al., 2002). Indeed, a positive relationship was found between emotional intelligence and leadership effectiveness in Barling et al.'s (2000) meta-analysis. These high emotional intelligence individuals might possess higher self-efficacy thus are more motivated to be a leader. Emotional intelligence is also associated with leadership emergence. Pescosolido (2002) argues that an important role for an emergent group leader is to manage group members' emotions, to interpret ambiguous situations, and to provide an optimal emotional solution. Wolff et al. (2002) also found that empathy, an important aspect of emotional intelligence, was essential for an individual to understand and coordinate others and emerge as a leader in self-managing teams. Indeed, Zaccaro, Foti, & Kenny (1991) found that 59% of the variance in leadership emergence might be due to social perceptiveness and behavioural flexibility (see also Zaccaro, Gilbert, Thor, & Mumford, 1991). Daus and Ashkanasy (2005) reviewed emotional intelligence literature and found a positive relationship between emotional intelligence and

transformational leadership and leadership emergence. Similar results were obtained in Offermann et al. (2004)'s study where the authors found that emotional competence positively predicted leadership emergence and effectiveness in team activities. Moreover, leader emotional intelligence also relates to employee satisfaction and extra-role behavior (Wong & Law, 2002). Consequently, in the present study, individuals with high emotional intelligence, as defined by the four dimensions identified by Davis et al. (1998), are expected to be more motivated to be leaders and more likely to become leaders than individuals with low emotional intelligence.

Another contribution to the development of emotional intelligence occurred when Weisinger (1998) extended the concept of emotional intelligence by distinguishing between intrapersonal and interpersonal emotional intelligence. Whereas Intrapersonal EI refers to the appraisal and use of emotions in oneself, interpersonal EI is the awareness and regulation of emotions in others. Weisinger argues that individuals with high interpersonal EI are good at responding to emotions of others and helping others to regulate emotions. As such, individuals with high interpersonal EI often excel at negotiation, selling, managing, leading, conflict resolution, and team building (Weisinger, 1998). Since leadership roles involve interactions with others, emotional intelligence also becomes an important aspect for leadership (Wong & Law, 2002). This effect may be even more salient for interpersonal emotional intelligence. Humphrey (2002) states that leaders' management of members' emotions, especially frustration and optimism, is a major determinant of leader performance. In this study, individuals with high interpersonal emotional intelligence are expected to possess high motivation to lead and also are more likely to emerge as leaders, as individuals with high emotional intelligence are better able to manage their impressions to others (Humphrey, 2002). To distinguish between the two definitions of emotional

intelligence, the first concept proposed by Wong and Law (2002) will be referred to as intrapersonal EI as opposed to interpersonal EI.

The uniqueness of the emotional intelligence concept will be explored by examining whether the emotional intelligence factors have discriminant validity from the Big-Five personality factors. In addition, the correlations between emotional intelligence constructs and cognitive ability and personality are examined in the current study. Based on previous research, Intellect/Openness to experience is expected to measure something related to cognitive ability (Ackerman & Heggestad, 1997) and academic performance (Farsides & Woodfield, 2003). Additionally, Surgency/Extraversion and Agreeableness are both associated with interpersonal interaction, thus may relate to the interpersonal aspect of emotional intelligence, and Emotional stability will possibly correlate with both intrapersonal emotional intelligence and interpersonal emotional intelligence.

Hypothesis 3: Intrapersonal emotional intelligence factors, including self-emotions appraisal, others-emotions appraisal, regulation of emotion, and use of emotion, predict motivation to lead and leadership emergence above and beyond demographic and control variables, cognitive ability, and Big-Five personality.

Hypothesis 4: Interpersonal emotional intelligence predicts motivation to lead and leadership emergence above and beyond demographic and control variables, cognitive ability, and Big-Five personality.

## Leader Emergence (LE)

Research on leadership has focused more on official or designated leaders in organizations rather than on self-emerging leaders in groups (Kickul & Neuman, 2000). The major distinction between the two is that an emergent leader is someone who is not designated as a leader but who emerges as an informal leader in a group by

exerting influences in group processes and group goal achievement; this is most often evaluated through the use of leaderless discussion groups (Bass, 1990a; Catano et al., 2001; Hogan et al., 1994). Leader emergence captures the essence of leadership because a true leader is one who others would willingly follow towards a common goal when the leader does not actually possess official/legitimate power (Hogan et al., 1994). Lord et al. (1986) argue that leadership emergence or perceptions are important for their own sake, and that leadership emergence is "a major component of the social fabric of many organizations" (p. 408). Wolff et al. (2002) argue that leader emergence is critical for the success of a self-managing team.

Leadership emergence is also linked to leadership effectiveness and performance (Judge et al., 2002). A good leader shows a concern "for group goals... for helping the group to formulate them, (and) for taking initiative in providing means of achieving them..." (McClelland, 1975; p. 263). An emergent leader is more likely to be an effective leader: through the emergent leader's roles and activities, he/she will develop the skills and knowledge required by leaders (Mumford & Stokes, 1992). Day, Sin, and Chen (2004) found that assuming a leadership role in hockey teams also helped the performance of an individual over time, and compared to the performance of other non-leader individuals. This may be attributable to the accumulation of social resources and to a Pygmalion effect (Rosenthal & Jacobson, 1968). These results suggest that by studying leadership emergence, we can also predict leadership performance and effectiveness. Indeed, Sackett et al. (1998) showed that leader abilities developed through assuming leader roles, together with leadership motivations, most significantly predicted leadership performance. Consequently, the understanding of motivation to lead and leader emergence has profound contributions to the prediction of future performance.

However, it should be noted that the measure of leader emergence in the current study does not equal to leadership effectiveness. Lord et al. (1986) argue that in most cases leader emergence is more methodologically appropriate than leader effectiveness, and that often the perceptions of leadership behaviours or leadership emergence are misinterpreted as leadership effectiveness. Strictly speaking, leadership effectiveness should not be measured through subjective perceptions, but through objective team, group, or organizational effectiveness measures (Hogan et al., 1994). Kenny and Zaccaro (1983) also found that leader emergence and leader effectiveness were not equivalent. For instance, an extrovert may more readily emerge as a leader but does not necessarily produce an effective leader (Kickul & Neuman, 2000). The current study uses independent observers' ratings of leadership behaviour to measure individuals' leadership emergence, which could accurately capture leadership behaviour in a voluntary setting. It is worth noting that there may be more than one leader in each occasion, among whom some may exhibit more desired leadership behaviour than others (Taggar et al., 1999). Thus, the individuals will not be classified as a leader or non-leader, but are rated in terms of their overall amount of leadership behaviour exhibited.

The current study hypothesizes that the aforementioned antecedents including cognitive ability, personality and emotional intelligence not only predict MTL, but also predict leader emergence directly. There are relevant findings in the literature that support this proposition. For intelligence, Lord et al. (1986) found in their meta-analysis that individuals with higher intelligence ($r = .52$, corrected for range restriction) and certain traits such as masculinity and dominance were more likely to emerge as leaders (see also Zaccaro et al., 1991a; Atwater et al., 1999). In a recent meta-analysis, Judge et al. (2004) reported the correlation between intelligence and

leadership emergence was .21 (uncorrected) and .27 (corrected for range restriction). For personality, Hogan et al. (1994) and Judge et al. (2002) found that Surgency/extraversion, Emotional stability, Conscientiousness, and Openness were all positively related to leader emergence, among which Extroversion ($\rho$ = .31) and Conscientiousness ($\rho$ = .28) were the strongest predictors. Kenny and Zaccaro (1983) reported that between 49% and 82% of the variance of leadership emergence could be explained by personality traits. For emotional intelligence, Landy (2005) and Daus and Ashkanasy (2005) argue that EI and leadership emergence have an intuitive relationship. Humphrey (2002) argues that emotional intelligence is related to the emergence of task leaders and social-emotional leaders. Offermann et al. (2004) found that emotional competencies had incremental validity in predicting leadership emergence above and beyond personality, and the effects of relationship management were especially salient. All these results together suggest that leader emergence could be predicted by cognitive ability, personality, and emotional intelligence directly.

Although we hypothesize that cognitive ability, personality, and intrapersonal and interpersonal emotional intelligence directly predict leadership emergence, there may be an underlying psychological function (Baron & Kenny, 1986), the motivation to lead, that most directly leads to leadership behaviour and mediates these relationships. Since leadership behaviours are mainly associated with influencing others, there must be an underlying motivation or need for doing so (McClelland, 1975). The motivation to lead concept was originally defined as an individual differences construct that most directly leads to leadership behaviour (Chan & Drasgow, 2001). In the current study we explore the partial mediation effects of motivation to lead on the relationships between cognitive ability, personality, emotional intelligence, and leader emergence. Individuals who are intelligent, extroverted, agreeable, stable, conscientious,

imaginative, and those who are able to perceive and manage emotions in the selves and in others are more likely to be motivated to lead. Motivation to lead, on the other hand, directly results in leadership emergence.

Hypothesis 5: Individuals with high affective-identity MTL, noncalculative MTL, and social-normative MTL are more likely to emerge as group leaders, after controlling the effects of demographic and control variables.

Hypothesis 6: Motivation to lead, including affective-identity MTL, social-normative MTL, and noncalculative MTL, partially mediates the effects of cognitive ability, personality, intrapersonal EI, and interpersonal EI in predicting leadership emergence, after controlling the effects of demographic and control variables.

The above 6 hypotheses are integrated and illustrated in Figure 1. In sum, the possible antecedents to affective-identity, noncalculative, and social-normative motivation to lead include cognitive ability, Big-Five factors, and intrapersonal and interpersonal emotional intelligence. The effects of age, gender, work experience, ESL, and other conditions that apply will be controlled when examining the relationships. These antecedents also directly predict leader emergence. In addition, the three constructs of motivation to lead are expected to partially mediate the effects of the antecedents in predicting leadership emergence.

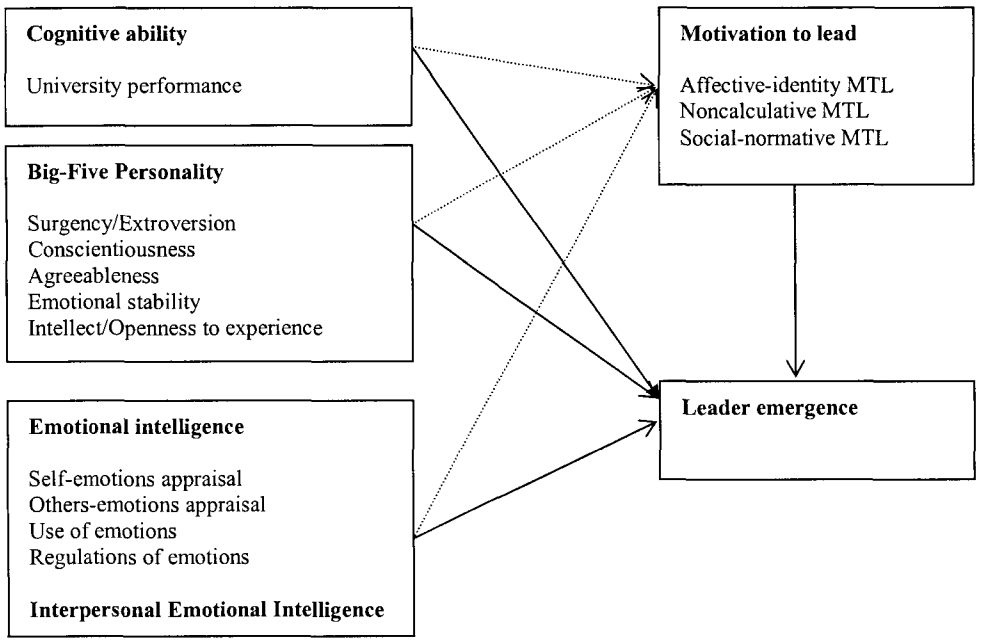


*Figure 1.* A Model of Antecedents to MTL and Predictions of LE.

## Method

*Participants*

A total of 309 undergraduate students (222 women and 87 men, mean age = 21.0, SD of age = 3.17) at Saint Mary's University were invited to participate in this study; 46 participants spoke English as a second language (ESL). This study received ethics approval from the Research Ethics Board (REB; see Appendix A). Participants signed an informed consent form, which explained the purpose and procedures of the study, and that their participation was voluntary and they could terminate participation at any time (See Appendix B). The participants were recruited via sign-up sheets posted in the Psychology Department requesting volunteers (See Appendix C). In the first session the participants completed a survey and made arrangements to come back at a later date to participate in a leaderless group discussion. The 264 participants who came back were divided into 42 groups in the second session; each group consisted of approximately 6 participants, with a range between 4 and 8 participants per group, and an average of 27% males and 73% females in each group. In consideration of the large percentage of English as a second language participants (14.9%), the variability in the size of the leaderless groups, and the percentage of females in each group, and the consequent effects of these factors on leadership emergence (see Table 1), they were controlled in any regression analyses involving emergent leadership.

Presumably the participants who were missing in the second session were randomly selected from the participants who came to the first session. Often they happened to have other commitments at the time scheduled, or participated at the end of the data collection process when there was no other option to schedule a second session. The demographic statistics for the two sessions and chi-squares were illustrated in Table 2. None of the distribution was significantly different.

Table 1.

*Variations of Leadership Emergence Scores in Different Situations.*

| Variables | Categories | N | Mean | SD |
|---|---|---|---|---|
| Gender | 0. Male | 75 (28.4%) | 3.60 | 1.07 |
| | 1. Female | 189 (71.6%) | 2.98 | 1.16 |
| English as a | 0. First language | 222 (84.1%) | 3.31 | 1.10 |
| second language | 1. Second language | 42 (15.9%) | 2.33 | 1.19 |
| No. of people in | 4 | 4 groups | 3.34 | 1.19 |
| group | 5 | 8 groups | 3.40 | 1.14 |
| | 6 | 12 groups | 3.10 | 1.14 |
| | 7 | 8 groups | 3.11 | 1.20 |
| | 8 | 10 groups | 3.08 | 1.19 |
| Percentage of | 1. < 40% | 4 groups | 3.11 | 1.29 |
| females in group | 2. 41 – 60 % | 8 groups | 3.04 | 1.26 |
| | 3. 61 – 71% | 4 groups | 3.16 | 1.17 |
| | 4. 71 – 99% | 18 groups | 3.22 | 1.15 |
| | 5. 100% | 8 groups | 3.15 | 1.07 |

Table 2.

*Comparisons of Demographics of the Participants in Two Sessions*

| Variables | Categories | First Session | | Second Session | | Chi- |
|---|---|---|---|---|---|---|
| | | Count | % | Count | % | Square |
| Age | 1. 18-19 | 111 | 36.0 | 96 | 36.4 | $\chi^2(4) = .71$, |
| | 2. 20-21 | 104 | 33.8 | 91 | 34.5 | $p = .95$ |
| | 3. 22-24 | 68 | 22.1 | 52 | 19.7 | |
| | 4. 25-30 | 20 | 6.5 | 20 | 7.6 | |
| | 5. >31 | 5 | 1.6 | 5 | 1.9 | |
| Gender | 0. Male | 87 | 28.2 | 75 | 28.4 | $\chi^2(1) = .01$, |
| | 1. Female | 222 | 71.8 | 189 | 71.6 | $p = .95$ |
| ESL | 0. First | 263 | 85.1 | 222 | 84.1 | $\chi^2(1) = .11$, |
| | 1. Second | 46 | 14.9 | 42 | 15.9 | $p = .74$ |
| Work experience | 1. 0-2 yrs | 85 | 27.5 | 74 | 28.0 | $\chi^2(4) = .23$, |
| | 2. 2-4 yrs | 105 | 34.0 | 88 | 33.3 | $p = .99$ |
| | 3. 4-6 yrs | 80 | 25.9 | 71 | 26.9 | |
| | 4. 6-8 yrs | 25 | 8.1 | 19 | 7.2 | |
| | 5. > 8 yrs | 14 | 4.5 | 14 | 4.5 | |

Participants received a total of 2 bonus points that could be applied to their courses, plus a chance to win a $50 lottery. In cases where participants were not able to participate in the second session, they received 1 bonus point for their contribution to the first session.

*Measures*

*MTL.* The participants completed the 27-item self-report measure of MTL developed by Chan and Drasgow (2001). It is composed of three subscales, namely, affective-identity MTL (AIMTL), social-normative MTL (SNMTL), and noncalculative MTL (NCMTL). Examples of the items were as follows: "I am definitely not a leader by nature" (AIMTL, reversed coded). "I never expect to get more privileges if I agree to lead a group" (NCMTL). "I was taught in the value of leading others" (SNMTL). Participants used a 5-point Likert-type response scale to respond to each item; responses ranged from 1 – *Strongly disagree* to 5 – *strongly agree*. Chan and Drasgow's (2001) reported internal consistency reliabilities ranging from .65 to .91 for the three subscales, which were also positively correlated, indicating a general MTL factor. In this study, the three individual subscales of AIMTL, SNMTL, and NCMTL measures had Cronbach's alphas of .88, .81, and .75, respectively.

*Cognitive Ability.* Academic performance was used as a proxy measure of a student's cognitive ability. Academic achievement is in part dependent on individual intelligence (McCabe, 1991; Farsides & Woodfield, 2003; Busato et al., 2000; Newsome et al., 2000). Therefore, the student participants were asked to report their current, overall Quality Point Average (QPA; ranged from 1.0 to 4.3) in university, which summarized academic performance over all the courses taken by the student. It is recognized however, that this proxy measure is an approximation and may be

influenced by factors other than cognitive ability. In particular, this measure may be a better estimate when students have completed a substantial number of courses.

*Big-Five Personality.* Participants completed Goldberg's (1999) public domain measure of the Big-Five personality factors (International Personality Item Pool, 2001). The 50 items consist of five 10-item subscales, measuring Surgency/Extraversion, Agreeableness, Conscientiousness, Emotional stability, and Intellect/Imagination. This measure of personality demonstrates excellent correspondence with Costa and McCrae's (1992) NEO-FFI. The response format was a 5-point Likert-type scale, where 1 = *very inaccurate* and 5 = *very accurate.* One example of the items measuring Surgency/Extroversion is "I am the life of the party". All five scales have good internal consistency reliabilities, with coefficient alphas ranging between .79 and .87 in past studies. In this study, reliabilities of the five subscales ranged from .72 to .84.

*Emotional Intelligence.* Following the four-dimension definition of intrapersonal EI proposed by Davis et al. (1998), Wong and Law (2002) developed the 16-item Wong and Law EI Scale (WLEIS). The four dimensions are self-emotions appraisal (SEA), others-emotions appraisal (OEA), use of emotion (UOE), and regulation of emotion (ROE) respectively; each dimension is measured with 4 items. The response format is a 5-point Likert-type scale (1 = *totally disagree* to 5 = *totally agree*). Wong and Law (2002) reported coefficient alphas that ranged from .84 to .93 for the four EI dimensions in their validation studies. Cronbach alphas ranged from .75 to .85 for the four subscales in the present study.

Interpersonal EI was evaluated by 23 items developed by Weisinger (1998). Interpersonal EI is measured by individuals' ability to interact with others and emotional mentoring. One example is "Stay calm when you are the target of anger

from others". The responses are in a 5-point Likert-type format, where 1 = *low ability* and 5 = *high ability*. Charbonneau and Nicol (2002) reported a Cronbach's $\alpha$ of .86 of this interpersonal EI scale. Cronbach's alpha was .88 for the present sample.

*Leadership Emergence.* Leadership emergence was evaluated by rating participants' leadership behaviour in leaderless discussion groups. The leaderless discussion group is perfect for studying individual leadership behavior as part of group interaction, since the instructor only assigns the topic and no leader is assigned to the group, nor any rules or structures are superimposed; the content and course of the discussion are determined by one or more of the group members (Catano et al., 2001). The emergent leaders are those who persuade other group members to set aside their concerns and to agree upon a solution (Hogan et al., 1994). As such, the unstructured nature and the group interaction highlight the individual leadership behavior.

The discussion topic in this study was a problem needed to be solved by the group members, which was based on a survival game called *Survivor on the Moon* (National Aeronautics and Space Administration, 2004). Group members were told that their spaceship crash-landed at a lighted spot on the moon, which was 200 miles from the mother ship. The team's task was to pick 5 items from a list of 16 items and rank them in priority, so as to survive and to reach the mother ship. The group members should discuss until they reached a consensus of an optimal solution. Such a problem-solving topic is ideal for observing leadership behaviours such as delegating and coordinating others. In order to assess general leadership impressions, participants rated other group members as well as themselves in terms of their preference of an individual as a leader for a future activity, individual contributions to the group, individual influences on the group, and leadership exhibited by each individual (Lord,

1977). The questions were developed based on modifications to the ones used by Zaccaro et al. (1991a). One example question of group-member rating was "Please evaluate the exhibitions of leadership behaviour of each group member. 1 = *nothing*, 5 = *extreme amount*". The reliability of the items was .93 in the study by Ellis (1988) and .96 in this study. There were also two external raters who observed the discussions and rated the group members on the same items from their perspective. The correlation between external ratings and group member ratings is .69 ($p < .001$), indicating that the external ratings are reliable. The average of the two external raters' ratings on the four items was used as an overall index of leadership emergence. Only external raters' ratings were used in the analysis with a purpose to increase objectivity and inter-group consistency, as well as to reduce common-method bias for using all self-report measures (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The inter-rater reliability for the external ratings of leadership emergence was .85.

*Procedures*

To prevent the common method effects (Podsakoff et al., 2003), the self-report measures and the measures of emergent leadership were obtained on two different occasions with approximately one week's break in between the two sessions. Lists of participants for the first session were obtained by posting sign-up sheets in the Psychology Department. The majority of participants (85.4%) managed to come back to the second session of the study, which was scheduled approximately one week after the first session.

During the first session, participants completed a survey including measures of their cognitive ability, personality, intrapersonal and interpersonal emotional intelligence, and motivation to lead (see Appendix D). At the completion of the first session they were asked to schedule a time for participation in the second study,

which involved a leaderless discussion group exercise (see Appendix E). The participants received a reminder phone call the day before the second session. Participants were seated in a circle such that everyone could see each other and had equal opportunities to participate. Before the discussions started, participants were given 5 minutes to read through the discussion material, come up with their own solutions, and write down their answers. They were also randomly assigned a within-group number (from 1 to 8) for rating purposes. Each group had to discuss until all members reached a consensus solution. After the discussion, the participants rated the other group members and themselves in terms of leadership emergence behavior.

Two external raters, the researcher and another research assistant, were employed to observe and evaluate the participants' leader emergence for each group. There were two pairs of external raters: one consisted of two female raters and the other was composed of one male and one female rater. The external observers received initial training: they were informed of the purpose of the study, familiarized with the rating scales to be used and the expected mean (3.0) and normal distribution of the ratings, and were advised of important behaviours to capture, such as organizing the group towards a common goal and facilitating communications between group members (Hogan et al., 1994). After the first few group discussions, the observers discussed their ratings and their rationales for the ratings to ensure inter-rater consistency in future ratings. Participants were tracked by the numbers assigned to them within groups and their group numbers. The matching of data from the first session with those collected in the discussion session was achieved by recording a four-digit personal code that the participants generated and used in both sessions. Although both group-member ratings and external raters' ratings were obtained, only the averages of

external raters' ratings were used in the data analysis.

*Data Analysis*

*Data Cleaning and Screening.* An initial screening of the data for outliers (univariate and multivariate) and violations of assumptions including non-linearity, non-normality, heteroskedasticity, and multicollinearilty was conducted using SPSS for Windows version 11.5. Four univarate outliers were detected (some individuals scored more than 4 standard deviations from the mean). One item that had an individual outlier was from the Big-Five personality measure: "I sympathize with others' feelings" in which only one participant reported 1 - strongly disagree whereas most participants reported 4 - agree or 5 – strongly agree. Similar distributions were found for two items from the Wong and Law EI scale: "I am a good observer of others emotions" and "I am sensitive to the feelings and emotions of others"; and one item from the interpersonal EI measure: "I build trust with others". These items were moderately skewed (skewness = -.98, -.60, -.75, and -.56 respectively), but the distributions were within the reasonable range and the skewness was not problematic. Thus, neither the items nor the individual outliers were deleted to retain as much information as possible for further analysis. All other variables were normally distributed. Missing data were treated using listwise deletion resulting in the removal from the analysis any case missing a value on any of the variables included in that analysis.

One variable, university QPA, had 9.3% missing values. Upon closer examination of the missing patterns by comparing groups of individuals who reported and did not report university QPA, those who reported QPA were significantly higher in their use of emotion ($t$ = -2.75, $p < .01$) and social-normative motivation to lead ($t$ = -1.98, $p < .05$) than those who did not report QPA. Presumably individuals who did not know

their QPA or who were unwilling to report their QPA were not randomly sampled from the population. However, considering the small percentage of missing values and the hypothesized model that included cognitive ability as an important predictor, QPA was retained in the following analyses. With the use of listwise deletion, only individuals who reported their QPAs were included in the analyses.

*Validation of the MTL and WLEIS Measures.* The measures of MTL (Chan & Drasgow, 2001) and intrapersonal emotional intelligence (WLEIS; Wong & Law, 2001) are relatively new scales and have not been extensively validated. Therefore, Confirmatory Factor Analysis (CFA) and Principal Component Analyses (PCA) tested whether the components fit the data collected in the current sample and replicated the original 3-factor (MTL) and 4-factor (WLEIS) structures that were previously reported by their developers.

To examine the fit of the three-factor MTL model and the four-factor WLEIS model in the current sample, confirmatory factor analyses using maximum likelihood estimation were first conducted using EQS version 6.1. The fit indices of the two measures were illustrated in Table 3. Figure 2 represents the standardized loadings of the MTL measurement model, and Figure 3 presents the standardized loadings of the WLEIS measurement model.

The first analysis indicated that the three-factor MTL model did not fit the data very well, comparative fit index (CFI) = .81, goodness of fit index (GFI) = .81, adjusted goodness of fit index (AGFI) = .78, standardized root mean square residual (SRMR) = .09, root mean-square error of approximation (RMSEA) = .08. Tabachnick and Fidell (2001) suggested that CFI should be greater than .95 and RMSEA should be lower than .06 to indicate a good-fitting model. The WLEIS model, on the other hand, fit the current data very well, CFI = .96, GFI = .93, AGFI = .91, SRMR = .05,

RMSEA = .05. Consequently, exploratory factor analyses further explored the factor structures of the MTL measure.

Table 4 represents the component loadings of the MTL scale. Principal Component Analysis was employed because the goal of the analysis was to replicate the component structures reported in the original studies in the current sample (Tabachnick & Fidell, 2001). In the initial solution of the 27 MTL items, six components with eigenvalues greater than one were extracted, explaining 58.80% of the total variance. However, eigenvalues often overestimate the number of components (Tabachnick & Fidell, 2001), and there is no theory to force a six-component solution. Thus, a three-component model was forced, according to the scree plot and the original theory, which explained 45.09% of the total variance. All items loaded onto the original components; all factor loadings were above .48 except for three items that loaded between .34 and .38, which might have caused the model fit to be low. This solution was not very stable but the analysis replicated the original three-factor structures. Because there is some degree of overlap between the subscales in the original work, a Direct Oblimin rotation was attempted in the Principal components Analysis. None of the extracted factors correlated above .3 in the analysis. Thus, the analysis was followed by PCA using Varimax rotations. The results from the last PCA are presented in Table 4. No cross-loading was indicated in the analysis.

Table 3

*Fit Indices of the MTL Model and the WLEIS Model*

| Model | $\chi^2$ | NFI | CFI | GFI | AGFI | SRMR | RMSEA |
|---|---|---|---|---|---|---|---|
| MTL | 857.35*** | .73 | .81 | .81 | .78 | .09 | .08 |
| WLEIS | 172.97*** | .91 | .96 | .93 | .91 | .05 | .05 |

Note. NFI = normed fit index; CFI = comparative fit index; GFI = goodness of fit index; AGFI = adjusted goodness of fit index; SRMR = standardized root mean square residual; RMSEA = root mean-square error of approximation; *** $p < .001$.

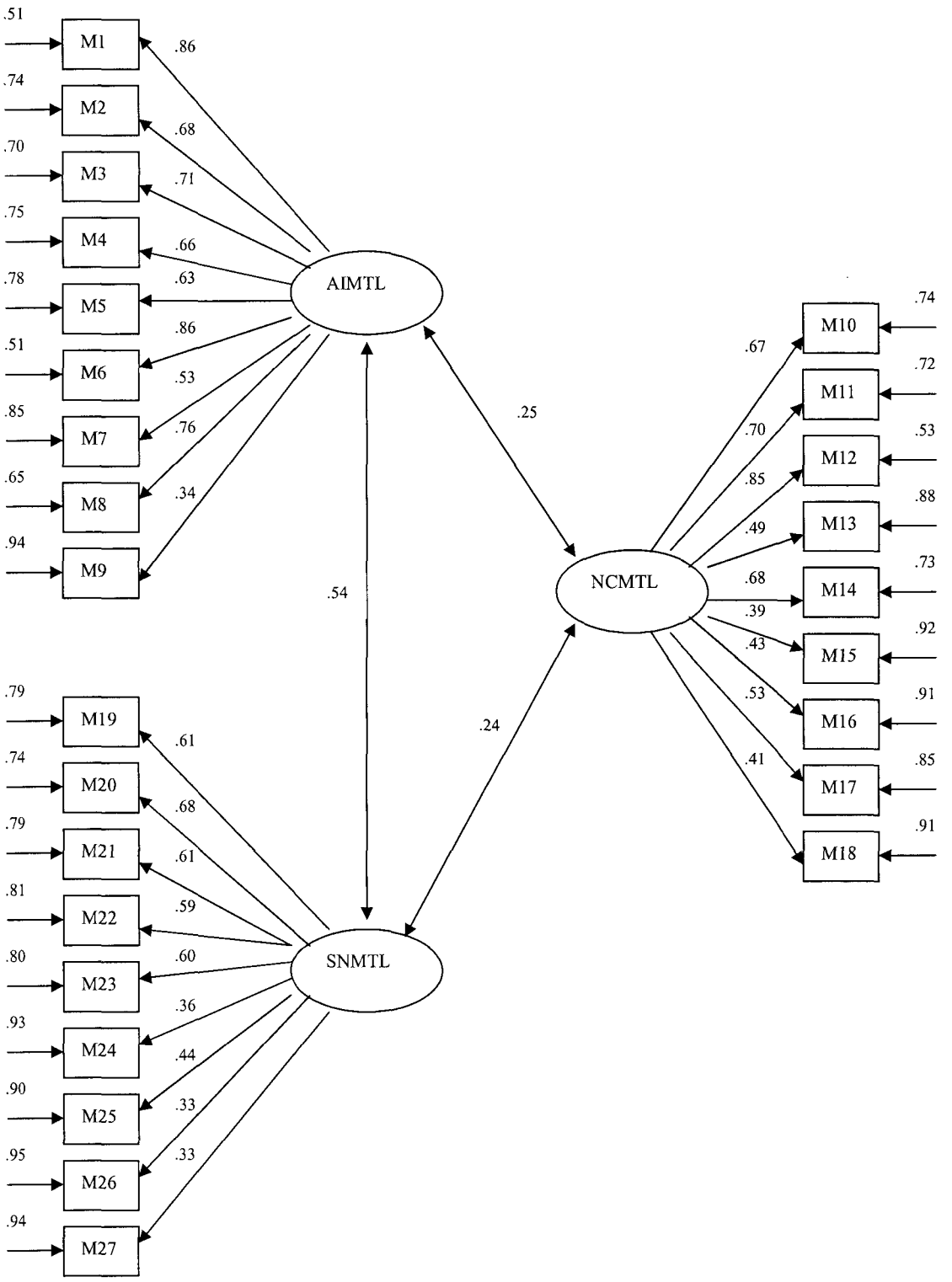


*Figure 2.* EQS Estimates of the Three-factor model of MTL.
All standardized loadings are significant at .05.

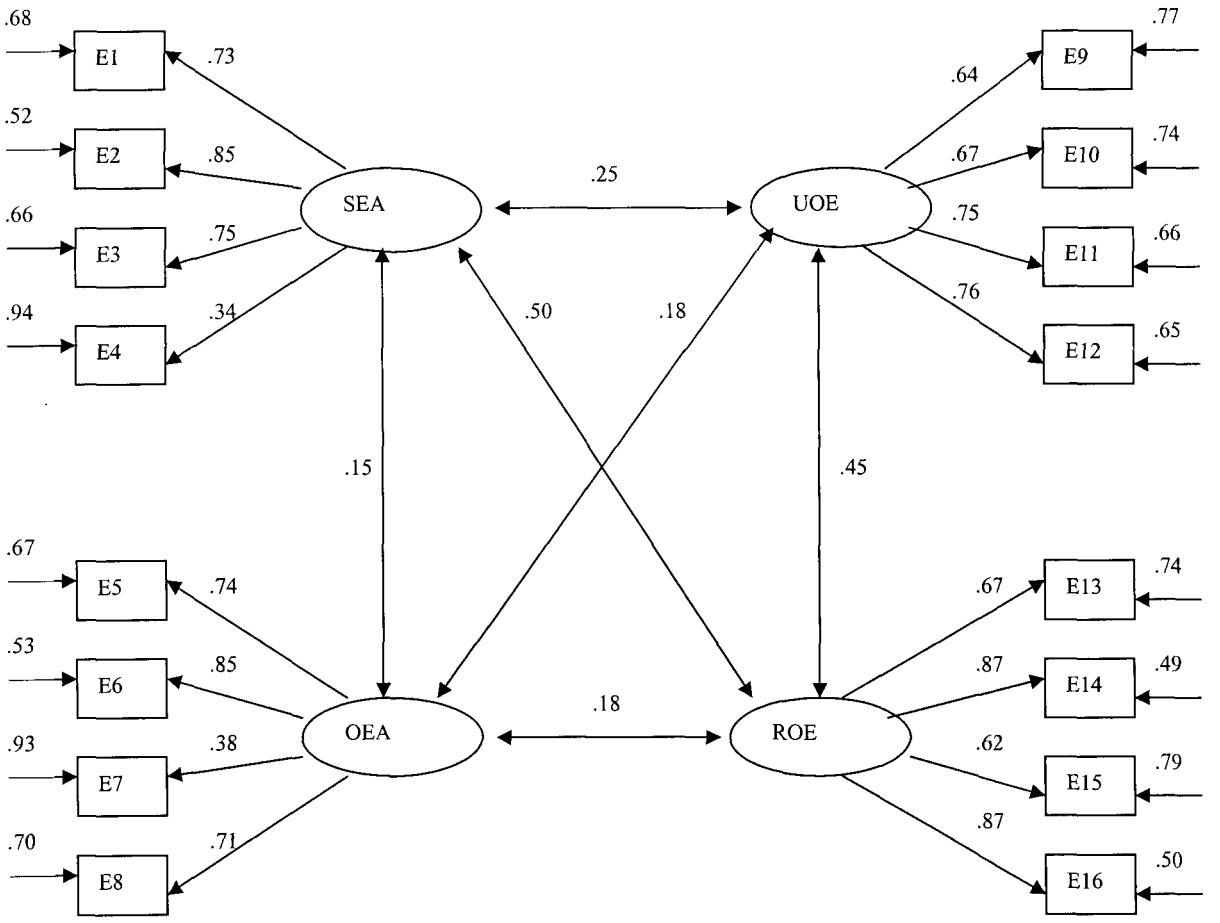


*Figure 3.* EQS Estimates of the Four-factor Model of WLEIS.

All standardized loadings are significant at .05.

The analyses indicated that both MTL and WLEIS models were theoretically sound; each subscale demonstrated reasonable internal reliability; and the components replicated the original factor structures. Thus, although several items of the MTL scale have loadings below .4, the means of each original subscale of both measures were used as indications of factor scores in the following analyses.

Table 4
*Rotated Component Loadings of the 27 MTL Items*

| Item | Component | | |
|---|---|---|---|
| | 1. Affective-Identity MTL | 2. NonCalculative MTL | 3. Social-Normative MTL |
| 1 | **.84** | .06 | .20 |
| 2 | **.71** | .23 | .11 |
| 3 | **.73** | .25 | .15 |
| 4 | **.68** | -.06 | .23 |
| 5 | **.68** | .26 | -.04 |
| 6 | **.83** | .01 | .26 |
| 7 | **.62** | .05 | .01 |
| 8 | **.73** | .02 | .27 |
| 9 | **.37** | -.01 | .09 |
| 10 | .06 | **.73** | -.16 |
| 11 | .16 | **.70** | -.06 |
| 12 | .09 | **.83** | .01 |
| 13 | .26 | **.49** | .29 |
| 14 | .02 | **.73** | -.03 |
| 15 | -.06 | **.50** | .13 |
| 16 | -.15 | **.53** | .18 |
| 17 | .22 | **.58** | .05 |
| 18 | .15 | **.48** | .18 |
| 19 | .06 | .20 | **.65** |
| 20 | .21 | .31 | **.60** |
| 21 | .33 | -.00 | **.59** |
| 22 | .04 | .05 | **.71** |
| 23 | .28 | -.04 | **.60** |
| 24 | -.09 | -.17 | **.59** |
| 25 | .14 | .14 | **.49** |
| 26 | .18 | -.07 | **.38** |
| 27 | .09 | .15 | **.34** |

*Note.* $n = 295$. Principal component analysis with varimax rotation.

*Distinctiveness of the WLEIS Factors.* To explore whether the intrapersonal EI scale and the Big-Five personality scale propose distinct constructs and whether the items can load onto their original factors by statistical methods, another PCA was performed with the items from both scales combined. The original solution generated 18 eigenvalues greater than 1, explaining 65.56% of the total variance; the Scree Plot indicated an emergence of 9 components. Thus, a 9-component model was forced, which was also consistent with the original theory. Most items loaded onto their respective components, except a few cross-loading items (including E7, P48, P25, P13, P50, and P43).

Thus, these cross-loading items were deleted and another PCA was run with the remaining items, forcing a 9-factor solution and using a Varimax rotation. The nine components explained 50.10% of the total variance; all items loaded onto their original factors; all four factors of intrapersonal EI were distinct from the five factors of personality (See Table 5). An Oblimin rotation was also tried and no factors correlated above .3. Thus, the Varimax solution was retained.

The assumptions of normality, linearity, homoskedasticity, independence of residuals, and multicollinearity were also checked in the process of the hierarchical regression analyses. No violation of these assumptions was indicated.

Table 5

*Rotated Component Loadings of the Big-Five and the WLEIS Items*

| Components | Items | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Personality I – Surgency/Extroversion | P16 | **.70** | .11 | .02 | .13 | .02 | .01 | .07 | -.14 | -.08 |
| | P6 | **.70** | .02 | .22 | .09 | .10 | -.12 | -.06 | -.04 | -.07 |
| | P41 | **.66** | -.06 | -.10 | -.16 | -.08 | .19 | .04 | .12 | .01 |
| | P26 | **.65** | .09 | .21 | .17 | -.03 | .01 | .09 | -.06 | -.06 |
| | P1 | **.64** | .09 | .02 | -.07 | -.04 | .13 | -.03 | .04 | .15 |
| | P21 | **.63** | -.12 | .24 | .01 | .10 | .10 | .04 | .13 | .06 |
| | P36 | **.62** | .10 | -.16 | .00 | -.08 | .04 | .14 | .03 | -.04 |
| | P31 | **.61** | .11 | .28 | -.11 | .09 | .08 | .04 | .19 | .06 |
| | P46 | **.61** | .03 | -.06 | .05 | .05 | -.04 | -.01 | .03 | .08 |
| | P11 | **.54** | .23 | .20 | -.04 | .01 | .20 | -.04 | .11 | .00 |
| 2. Personality IV – Emotional Stability | P4 | .06 | **.73** | -.16 | -.18 | .05 | .08 | .07 | .06 | .05 |
| | P44 | .04 | **.69** | .06 | .11 | .17 | .06 | -.07 | .07 | .09 |
| | P14 | .10 | **.69** | -.27 | -.02 | .00 | -.08 | .08 | -.02 | .04 |
| | P29 | .09 | **.68** | -.08 | .14 | .18 | .09 | .12 | -.04 | -.01 |
| | P39 | -.00 | **.67** | .17 | .19 | .20 | .05 | -.01 | .15 | -.15 |
| | P34 | .00 | **.61** | .15 | .13 | .19 | .11 | -.01 | .12 | -.18 |
| | P49 | .28 | **.51** | -.00 | .19 | .26 | .16 | -.10 | .07 | -.08 |
| | P24 | -.01 | **.48** | .04 | .19 | .09 | -.04 | .32 | -.08 | .00 |
| | P9 | .17 | **.41** | .08 | -.13 | .24 | .15 | .04 | .12 | -.01 |
| | P19 | .08 | **.38** | -.06 | .05 | -.10 | .23 | -.17 | .22 | .14 |
| 3. Personality II - Agreeableness | P17 | -.08 | -.11 | **.68** | .09 | -.05 | .06 | .08 | .10 | .23 |
| | P22 | .16 | -.05 | **.64** | .10 | .17 | -.11 | .06 | -.02 | -.10 |
| | P32 | .26 | .10 | **.63** | .04 | .21 | .02 | .12 | .02 | -.14 |
| | P37 | .12 | -.03 | **.63** | -.05 | -.07 | .20 | -.05 | .01 | .09 |
| | P27 | -.18 | -.05 | **.58** | -.04 | -.25 | .04 | -.02 | .09 | .10 |
| | P42 | .05 | -.05 | **.56** | .08 | -.01 | .07 | -.01 | -.01 | .20 |
| | P47 | .27 | -.00 | **.48** | .04 | .06 | .17 | .02 | .09 | .22 |
| | P2 | .16 | .18 | **.47** | .08 | -.12 | -.07 | .07 | -.14 | -.07 |
| | P7 | .22 | -.17 | **.44** | -.10 | .27 | -.03 | .05 | .10 | .08 |
| | P12 | -.16 | .15 | **.42** | .32 | .02 | -.08 | .09 | -.01 | -.04 |
| 4. Personality III - Conscientiousness | P28 | .07 | .11 | -.02 | **.73** | .14 | .03 | -.08 | .11 | .02 |
| | P8 | .02 | .05 | .04 | **.71** | .11 | -.11 | .04 | .04 | .03 |
| | P18 | .09 | .25 | .13 | **.62** | .09 | .17 | .00 | .07 | -.08 |
| | P3 | -.06 | -.10 | .01 | **.51** | .00 | .39 | .09 | -.09 | .00 |
| | P23 | -.00 | -.05 | .09 | **.50** | -.10 | .25 | -.13 | .09 | .17 |
| | P38 | .02 | .25 | .05 | **.49** | -.03 | .06 | .11 | -.05 | -.21 |
| | P33 | .03 | -.19 | .07 | **.34** | .01 | .28 | -.16 | .17 | .16 |
| 5. EI IV - ROE | E14 | .00 | .30 | -.01 | .12 | **.74** | .18 | -.03 | .17 | .11 |
| | E16 | .03 | .36 | -.03 | .08 | **.71** | .16 | -.02 | .22 | .11 |
| | E13 | -.10 | .24 | .04 | .11 | **.67** | .23 | .04 | .05 | .04 |
| | E15 | .06 | .32 | -.05 | .01 | **.60** | .04 | .05 | .14 | .13 |
| 6. EI III - UOE | E12 | .05 | .15 | .12 | .06 | .26 | **.73** | .05 | -.03 | .04 |
| | E11 | .17 | .22 | .05 | .13 | .08 | **.72** | .13 | .08 | .06 |
| | E9 | .11 | .04 | .10 | .24 | .15 | **.67** | .07 | -.06 | -.12 |
| | E10 | .21 | .21 | -.06 | .00 | .16 | **.61** | .18 | .13 | .07 |
| 7. Personality V – Openness to Experience / Intellect | P10 | .11 | .22 | -.04 | .15 | .06 | .07 | **.65** | .05 | .09 |
| | P5 | .04 | .09 | .00 | .03 | -.07 | .03 | **.65** | -.03 | .13 |
| | P20 | .11 | -.03 | .15 | .04 | .20 | -.03 | **.64** | -.05 | .05 |
| | P40 | -.05 | -.05 | -.25 | -.12 | -.07 | -.05 | **.59** | .01 | .12 |
| | P30 | .10 | -.01 | .20 | -.11 | .11 | .13 | **.49** | .11 | -.13 |
| | P45 | -.10 | -.07 | .32 | -.02 | -.04 | .12 | **.44** | .15 | -.04 |
| | P15 | .04 | -.08 | .16 | -.21 | -.07 | .29 | **.42** | .05 | .11 |
| | P35 | -.01 | .11 | -.00 | .12 | -.13 | .24 | **.36** | .26 | .03 |
| 8. EI I - SEA | E3 | .05 | .07 | -.03 | .09 | .15 | .03 | .11 | **.80** | .04 |
| | E2 | .13 | .111 | .04 | .17 | .27 | -.01 | .14 | **.73** | -.01 |
| | E1 | .12 | .06 | .09 | .13 | .33 | -.04 | .14 | **.68** | -.10 |
| | E4 | .01 | .12 | .08 | -.10 | -.08 | .08 | -.10 | **.58** | .14 |
| 9. EI II - OEA | E5 | .02 | .00 | .06 | -.01 | .09 | .02 | .02 | .04 | **.82** |
| | E6 | .03 | -.03 | .18 | -.01 | .11 | .02 | .13 | .03 | **.79** |
| | E8 | .04 | .00 | .16 | .02 | .05 | .02 | .20 | .04 | **.75** |

*Note.* $n = 282$. Principal components analysis with varimax rotation.

*Data Analyses.* Four hierarchical regression analyses were performed initially. For analyses with each of the three MTL factors as the dependent variable (DV), demographic variables were first entered into the regression equations. For the analysis with leadership emergence as the DV, both demographic and control variables were entered in the first block. Demographic variables were age, gender, work experience, and speaking English as a Second Language (ESL) for analyses involving both MTL variables and leadership emergence. When leadership emergence was the DV, the number of people in the group discussion and the percentage of females in the group were added as control variables and entered in the first step with the other demographic variables. In each analysis, university QPA was entered at the second step, followed next by the five personality factors in the third block, and finally the four intrapersonal emotional intelligence variables and interpersonal emotional intelligence in the fourth block. The sequence of variables entered into the equation was based on the study hypotheses. Personality was hypothesized to predict leadership motivation and emergence beyond cognitive ability, and Emotional Intelligence was expected to improve upon predictions made from personality. To test the relationship between motivation to lead and leadership emergence, another hierarchical regression was run with the demographic and control variables entered in the first block and MTL constructs entered in the second block together.

The partial mediation effect of motivation to lead was tested by meeting four conditions: the independent variables (IVs) should significantly predict the mediator; the IVs should also significantly predict the dependent variable (DV) without the mediator; the mediator should have a unique effect on the DV; and with the mediator in the model, the effect of the IVs on the DV is significantly reduced (Baron & Kenny, 1986; Preacher & Leonardelli, 2001). The first three conditions could be evaluated

based on the previous analyses results (regressing the MTL constructs on the IVs; regressing leader emergence on the IVs; and regressing leader emergence on the MTL constructs). To test for the final condition, another regression was run for each significant MTL construct: regressing leadership emergence on both the significant MTL construct and the IVs after the demographic and control variables.

## Results

### *Correlations between Variables*

Correlations between both individual-level variables and group-level variables were obtained. The descriptive statistics and the correlations among all individual-level variables in this study are included in Table 6; the group-level statistics are shown in Table 7.

*Individual-level Correlations.* As expected, the emotional intelligence constructs were significantly related to the Big-Five personality factors. Surgency/Extraversion, Agreeableness, Conscientiousness, Emotional stability and Intellect/Imagination were significantly correlated with the ability to use emotions ($r$ = .23, .14, .42, .35, and .26, respectively; $p<.05$) and with interpersonal emotional intelligence ($r$ = .38, .44, .23, .18, and .34, respectively; $p<.05$). Self-emotions appraisal was positively related to Extroversion ($r$ =.18, $p < .01$), Conscientiousness ($r$ = .18, $p < .01$), Emotional stability ($r$ = .28, $p < .001$), and Intellect/Openness to experience ($r$ = .23, $p < .01$). Others-emotions appraisal was positively related to Agreeableness ($r$ = .25, $p < .001$), Conscientiousness ($r$ = .17, $p < .01$), Intellect/Openness to experience ($r$ = .14, $p < .05$), but was negatively related to university QPA ($r$ = -.12, $p < .05$). Regulation of emotion was highly correlated with the Emotional stability ($r$ = .59, $p < .001$), Conscientiousness ($r$ = .21, $p < .01$), and Intellect/Openness to experience ($r$ = .14, $p < .05$). University QPA was positively related to the ability to use emotions to

motivate oneself ($r$ = .18, $p$ < .01), and to the personality constructs of Conscientiousness ($r$ = .22, $p$ < .01) and Intellect /Imagination ($r$ = .12, $p$ < .05). The four intrapersonal emotional intelligence constructs were correlated with each other as well as with interpersonal emotional intelligence.

Affective-identity motivation to lead positively correlated with Extroversion ($r$ = .47, $p$ < .001), Conscientiousness ($r$ = .13, $p$ < .05), Emotional stability ($r$ = .15, $p$ < .05), Intellect/Imagination ($r$ = .25, $p$ < .001), self-emotions appraisal ($r$ = .21, $p$ < .01), use of emotions ($r$ = .32, $p$ < .001), regulation of emotions ($r$ = .15, $p$ < .05), interpersonal emotional intelligence ($r$ = .30, $p$ < .001), and QPA ($r$ = .19, $p$ < .01).

Noncalculative motivation to lead was positively correlated with all of the Big-Five personality measures (Surgency/Extraversion: $r$ = .24; Agreeableness: $r$ = .37; Conscientiousness: $r$ = .20; Emotional Stability: $r$ = .29; and Intellect/Imagination: $r$ = .17; $p$ < .05 for all correlations), use of emotions ($r$ = .16, $p$ < .05), regulation of emotions ($r$ = .14, $p$ < .05), and interpersonal emotional intelligence ($r$ = .18, $p$ < .01).

Social-normative motivation to lead correlated with Extroversion ($r$ = .23, $p$ < .01), Agreeableness ($r$ = .18, $p$ < .01), others-emotions appraisal ($r$ = .20, $p$ < .01), use of emotions ($r$ = .16, $p$ < .05), regulation of emotions ($r$ = .16, $p$ < .05), and interpersonal emotional intelligence ($r$ = .32, $p$ < .001).

All three factors of motivation to lead were positively and significantly correlated with leadership emergence ratings ($r$ = .32, $p$ < .001; $r$ = .23, $p$ < .01; and $r$ = .15, $p$ < .05, respectively). Leadership emergence ratings also positively correlated with Extroversion ($r$ = .15, $p$ < .05), Agreeableness ($r$ = .21, $p$ < .01), Intellect/Imagination ($r$ = .19, $p$ < .01), and self-emotions appraisal ($r$ = .15, $p$ < .05), but not with university QPA ($r$ = .11, $p$ > .05).

Demographic variables were also associated with the outcome variables. Females were more agreeable ($r$ = .14, $p$ < .05) and conscientious ($r$ = .12, $p$ < .05) but less emotionally stable ($r$ = -.16, $p$ < .01). They were also lower in their ability of self-emotional appraisal ($r$ = -.16, $p$ < .05) and regulation of emotion ($r$ = -.16, $p$ < .05), but had higher QPAs ($r$ = .15, $p$ < .05) than males. They were also less affectively motivated to lead ($r$ = -.14, $p$ < .05) and less likely to emerge as leaders ($r$ = -.26, $p$ < .001). The correlations also revealed that work experience was positively associated with leadership emergence ratings ($r$ = .26, $p$ < .001). Participants who spoke English as a second language were less extroverted ($r$ = -.17, $p$ < .01), less agreeable ($r$ = -.29, $p$ < .001), and less imaginative ($r$ = -.15, $p$ < .05). They also had less work experience ($r$ = -.36, $p$ < .001) and scored lower on noncalculative motivation to lead ($r$ = -.31, $p$ < .001). These participants were also rated as less leader-like ($r$ = -.27, $p$ < .001).

The possible moderation effect of gender on the relationship between affective-identity motivation to lead and leadership emergence was examined since females had lower scores on both AIMTL and leadership emergence. The product of gender and AIMTL was entered in a regression after the main effects of gender and AIMTL and other demographic variables to predict leadership emergence (Howell, 2002). Since gender was a dummy-coded variable (0-male; 1-female), no centering of AIMTL was performed. The results indicated no moderation effect of gender, $\Delta R^2$ = .00, $p$ > .05. Table 8 represents the beta weights and change statistics.

Table 6

*Descriptive Statistics, Internal Consistency Coefficients, and Correlations between Individual-level Variables*

| Variables | N | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.LE | 264 | 3.15 | 1.17 | .96$_{\alpha}$ | | | | | | | | | | | | | | | | | | |
| 2.Extroversion | 304 | 3.33 | .67 | .15* | .84$_{\alpha}$ | | | | | | | | | | | | | | | | | |
| 3.Agreeableness | 306 | 4.02 | .51 | .21** | .25** | .77$_{\alpha}$ | | | | | | | | | | | | | | | | |
| 4.Conscientious | 303 | 3.54 | .53 | .03 | .12* | .25** | .72$_{\alpha}$ | | | | | | | | | | | | | | | |
| 5.E- stability | 306 | 3.04 | .69 | .09 | .20** | .07 | .24** | .83$_{\alpha}$ | | | | | | | | | | | | | | |
| 6.Intellect | 306 | 3.54 | .49 | .19** | .14* | .17** | .14* | .12* | .74$_{\alpha}$ | | | | | | | | | | | | | |
| 7.SEA | 305 | 3.90 | .59 | .15* | .18** | .07 | .18** | .28** | .23** | .75$_{\alpha}$ | | | | | | | | | | | | |
| 8.OEA | 301 | 3.93 | .56 | -.01 | .05 | .25** | .17** | .06 | .14* | .16* | .75$_{\alpha}$ | | | | | | | | | | | |
| 9.UOE | 304 | 3.83 | .71 | .06 | .23** | .14* | .42** | .35** | .26** | .25** | .12* | .80$_{\alpha}$ | | | | | | | | | | |
| 10.ROE | 309 | 3.49 | .80 | .05 | .11 | .06 | .21** | .59** | .14* | .36** | .12* | .40** | .84$_{\alpha}$ | | | | | | | | | |
| 11.Inter- EI | 298 | 3.69 | .41 | .08 | .38** | .44** | .23** | .18** | .34** | .37** | .41** | .41** | .36** | .88$_{\alpha}$ | | | | | | | | |
| 12.AIMTL | 305 | 3.29 | .75 | .32** | .47** | .00 | .13* | .15* | .25** | .21** | -.07 | .32** | .15* | .30** | .88$_{\alpha}$ | | | | | | | |
| 13. NCMTL | 303 | 3.66 | .62 | .23** | .24** | .37** | .20** | .29** | .17** | .06 | .00 | .16* | .14* | .18** | .29** | .81$_{\alpha}$ | | | | | | |
| 14.SNMTL | 305 | 3.45 | .52 | .15* | .23** | .18** | .08 | .04 | .03 | .07 | .20** | .16* | .16* | .32** | .34** | .25** | .75$_{\alpha}$ | | | | | |
| 15.QPA | 280 | 3.02 | .55 | .11 | -.07 | -.08 | .22** | -.00 | .12* | -.02 | -.12* | .18** | -.00 | -.09 | .19** | .04 | -.04 | - | | | | |
| 16. Age | 308 | 20.97 | 3.17 | .11 | -.12* | .00 | .03 | -.02 | .09 | .11 | -.11 | -.02 | -.06 | -.06 | -.09 | -.12* | -.16* | .09 | - | | | |
| 17. Gender | 309 | - | .45 | -.26** | -.00 | .14* | .12* | -.16** | -.09 | -.16* | -.05 | .02 | -.16* | -.09 | -.14* | .10 | -.06 | .15* | -.15* | - | | |
| 18. Work expe | 309 | 4.02 | 2.80 | .26** | .04 | .10 | -.01 | -.00 | .10 | .09 | -.06 | -.01 | -.00 | .03 | -.03 | .11 | -.02 | .06 | .54** | -.13* | - | |
| 19. ESL | 309 | - | .36 | -.27** | -.17** | -.29** | -.09 | -.09 | -.15* | -.01 | .11 | .02 | -.07 | -.07 | -.04 | -.31** | -.02 | -.02 | .12* | -.07 | -.36** | - |
| 20. $\chi$ | 264 | 6.55 | 1.24 | -.05 | .19** | -.02 | .03 | .07 | .03 | .06 | .04 | -.03 | -.05 | .04 | .07 | .04 | -.04 | .01 | .05 | -.14* | .11 | -.13* |

*Note.* * $p < .05$ (1-tailed); ** $p < .01$ (1-tailed); Listwise N = 206; $\alpha$ on diagonal is Cronbach's alpha of the scale; variable No. 20 is the number of people in the discussion group.

Table 7

*Descriptive Statistics and Correlations between Group-level Variables*

| Variables | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.Effectiveness | 3.83 | .69 | - | | | | | | | | | | | | | | | |
| 2.LE | 3.22 | .38 | .27* | - | | | | | | | | | | | | | | |
| 3.QPA | 3.05 | .27 | .14 | .10 | - | | | | | | | | | | | | | |
| 4.Extroversion | 3.26 | .26 | -.01 | -.20 | -.07 | - | | | | | | | | | | | | |
| 5.Agreeableness | 4.02 | .26 | -.21 | .04 | -.05 | .28* | - | | | | | | | | | | | |
| 6.Conscientious | 3.56 | .23 | -.14 | -.01 | .07 | .16 | .23 | - | | | | | | | | | | |
| 7.E- stability | 3.00 | .29 | .08 | -.15 | .11 | .14 | -.04 | .23 | - | | | | | | | | | |
| 8.Intellect | 3.57 | .26 | .24 | .01 | .25 | .06 | -.03 | .19 | -.06 | - | | | | | | | | |
| 9.SEA | 3.90 | .24 | .06 | -.22 | .03 | -.06 | .14 | .04 | .19 | .11 | - | | | | | | | |
| 10.OEA | 3.94 | .27 | -.25 | -.21 | .24 | .09 | .22 | .33* | .20 | .09 | .22 | - | | | | | | |
| 11.UOE | 3.81 | .31 | -.05 | .04 | .03 | .14 | .15 | .43** | .46** | .13 | .30* | .34* | - | | | | | |
| 12.ROE | 3.52 | .38 | -.25 | -.03 | .11 | .09 | .31* | .47** | .44** | .06 | .41** | .35* | .61** | - | | | | |
| 13.Inter- EI | 3.69 | .15 | -.05 | -.05 | .26* | .40** | .53** | .45** | .17 | .36** | .41** | .50** | .46** | .45** | - | | | |
| 14.AIMTL | 3.28 | .28 | .16 | -.13 | .18 | .34* | -.07 | .09 | .18 | .34* | -.03 | .04 | .10 | .03 | .17 | - | | |
| 15. NCMTL | 3.65 | .24 | -.09 | .08 | -.18 | .36** | .54** | .26* | -.04 | -.08 | -.02 | .36* | .07 | .09 | .36* | .20 | - | |
| 16.SNMTL | 3.45 | .20 | .11 | -.01 | .07 | .31* | .27* | .19 | .09 | .25 | -.02 | .28* | .25 | .31* | .35* | .44** | .30* | - |
| 17. $\chi$ | 6.29 | 1.29 | .15 | -.36** | .02 | .49** | -.08 | .06 | .16 | -.04 | .08 | -.03 | -.14 | -.14 | .05 | .18 | .14 | -.14 |

*Note.* $n = 42$; * $p < .05$ (1-tailed); ** $p < .01$ (1-tailed); Listwise N = 206; variable No. 1 is the group score on the tasks, ranging from 1 to 5; No 17 indicates the number of peopl in each group; the other variables are group means of each measure.

Table 8

*Hierarchical Regression Analysis of the Interaction between Gender and AIMTL in Predicting LE*

| Step | Predictors | *B* | *β* | *R* | $R^2$ | $\Delta R^2$ | $\Delta F$ |
|---|---|---|---|---|---|---|---|
| 1 | Age | .03 | .09 | .50*** | .25*** | .25*** | 16.59*** |
| | Work experience | .03 | .08 | | | | |
| | ESL | -1.00*** | -.32*** | | | | |
| | Gender | -.64 | -.25 | | | | |
| | AIMTL | .36* | .24* | | | | |
| 2 | Gender*AIMTL | .02 | .02 | .50*** | .25*** | .00 | .01 |

*Note.* $n = 260$, * $p < .05$, *** $p < .001$.

*Group-level Correlations.* The group-level variables were computed by taking the average of group members' scores on the variables, such as group average QPA. Exceptions were the number of people in each group and female composition in each group, which were obtained directly from group statistics. In addition, group effectiveness was measured by the number of correct solutions (out of a total of 5) generated by group consensus. As illustrated in Table 7, group mean leadership emergence score was positively correlated with group effectiveness, $r = .27$, $p < .05$. However, the other group-level variables, such as the group average academic performance, personality factors, and emotional intelligence, were not significantly related to group effectiveness.

H*ypothesis 1 – 4: Regression Analyses of Antecedents to MTL and LE*

Table 9 includes the *B* and *β* coefficients and change statistics in the four hierarchical regression analyses in predicting the three dimensions of motivation to lead and leader emergence. Demographic and control variables were always included in the first step to control for their effects.

*Antecedents to Affective-identity MTL.* The hierarchical regression analysis results showed that the demographic variables successfully accounted for a significant proportion of variance (4.3%), $R = .21$, Adjusted $R^2 = .03$, $F(4, 237) = 2.64$, $p < .05$. Entering university QPA into the equation significantly improved the prediction of affective-identity MTL, $\Delta R^2 = .04$, $F_{inc}(1, 236) = 8.85$, $p < .01$. The omnibus effects of personality factors significantly predicted affective-identity MTL above and beyond the control variables and QPA, $\Delta R^2 = .25$, $F_{inc}(5, 231) = 16.94$, $p < .001$. Intrapersonal and interpersonal emotional intelligence variables further improved prediction of affective-identity MTL beyond personality by 5.1%, $F_{inc}(5, 226) = 3.70$, $p < .01$.

At the final step with all predictors entered in the equation, the predictors explained a significant proportion of variance (37.6%) of affective-identity MTL, $F(15, 226) = 9.08$, $p < .001$). Gender, university QPA, Extroversion, Agreeableness, others-emotions appraisal, use of emotion, and interpersonal emotional intelligence. QPA, Extroversion, ability to use emotions, and interpersonal emotional intelligence positively predicted affective-identity MTL, whereas gender, Agreeableness, and others-emotions appraisal were negatively predictive of affective-identity MTL at the final step.

*Antecedents to Noncalculative MTL.* The regression results showed that the demographic variables successfully accounted for a significant proportion of variance (11.9%) in the dependent variable, $R = .35$, Adjusted $R^2 = .10$, $F(4, 234) = 7.94$, $p < .001$. Entering university QPA into the equation did not significantly improve the prediction of noncalculative MTL, $\Delta R^2 = .00$, $F_{inc}(1, 233) = .12$, $p > .05$.

Table 9

*Hierarchical Regression Analysis of Antecedents Predicting MTL and LE*

| Predictor | Affective-identity MTL | | Noncalculative MTL | | Social-normative MTL | | Leadership Emergence | |
|---|---|---|---|---|---|---|---|---|
| | *B* | *β* | *B* | *β* | *B* | *β* | *B* | *β* |
| Step 1 | $\Delta R^2 = .04^{*}$ | | $\Delta R^2 = .12^{***}$ | | $\Delta R^2 = .03$ | | $\Delta R^2 = .19^{***}$ | |
| Age | -.02 | -.06 | -.02 | -.11 | -.03$^{*}$ | -.18$^{*}$ | .01 | .03 |
| Gender | -.32$^{**}$ | -.19$^{**}$ | .08 | .06 | -.12 | -.10 | -.77$^{***}$ | -.30$^{***}$ |
| Work experience | -.01 | -.05 | .01 | .06 | .01 | .06 | .05 | .13 |
| ESL | -.19 | -.09 | -.50$^{***}$ | -.29$^{***}$ | .04 | .03 | -.82$^{**}$ | -.25$^{**}$ |
| No of people/group | | | | | | | -.13$^{*}$ | -.15$^{*}$ |
| Females % | | | | | | | .06 | .06 |
| Step 2 | $\Delta R^2 = .04^{**}$ | | $\Delta R^2 = .00$ | | $\Delta R^2 = .00$ | | $\Delta R^2 = .02^{*}$ | |
| Age | -.02 | -.08 | -.02 | -.11 | -.03$^{*}$ | -.18$^{*}$ | .01 | .02 |
| Gender | -.37$^{**}$ | -.22$^{**}$ | .07 | .05 | -.12 | -.10 | -.81$^{***}$ | -.32$^{***}$ |
| Work experience | -.01 | -.05 | .01 | .06 | .01 | .06 | .05 | .13 |
| ESL | -.20 | -.09 | -.50$^{***}$ | -.29$^{***}$ | .04 | .03 | -.82$^{**}$ | -.25$^{**}$ |
| No of people/group | | | | | | | -.14$^{*}$ | -.15$^{*}$ |
| Females % | | | | | | | .04 | .05 |
| QPA | .26$^{**}$ | .19$^{**}$ | .02 | .02 | -.01 | -.01 | .29$^{*}$ | .14$^{*}$ |
| Step 3 | $\Delta R^2 = .25^{***}$ | | $\Delta R^2 = .15^{***}$ | | $\Delta R^2 = .05^{*}$ | | $\Delta R^2 = .05^{*}$ | |
| Age | -.01 | -.03 | -.03 | -.14 | -.03 | -.16 | .01 | .02 |
| Gender | -.27$^{**}$ | -.16$^{**}$ | .09 | .06 | -.13 | -.11 | -.82$^{***}$ | .32$^{***}$ |
| Work experience | -.02 | -.08 | .02 | .08 | .01 | .05 | .05 | .12 |
| ESL | -.04 | -.02 | -.27$^{*}$ | -.16$^{*}$ | .13 | .09 | -.60$^{*}$ | -.19$^{*}$ |
| No of people/group | | | | | | | -.15$^{*}$ | -.17$^{*}$ |
| Females % | | | | | | | .03 | .04 |
| QPA | .25$^{**}$ | .18$^{**}$ | .02 | .01 | -.00 | -.00 | .33$^{*}$ | .16$^{*}$ |
| Extroversion | .52$^{***}$ | .47$^{***}$ | .05 | .06 | .12$^{*}$ | .16$^{*}$ | .22$^{*}$ | .13$^{*}$ |
| Agreeableness | -.19$^{*}$ | -.12$^{*}$ | .30$^{***}$ | .24$^{***}$ | .11 | .11 | .39$^{*}$ | .16$^{*}$ |
| Conscientiousness | .09 | .06 | .09 | .08 | .04 | .05 | -.11 | -.05 |
| Emotional stability | .00 | .00 | .18$^{**}$ | .21$^{**}$ | .02 | .02 | .01 | .00 |
| Intellect | .25$^{**}$ | .16$^{**}$ | .09 | .07 | -.01 | -.01 | .16 | .07 |
| Step 4 | $\Delta R^2$=.05$^{**}$, *R*=.61, $R^2$=.38, *F*(15,226)=9.08, *p*<.001 | | $\Delta R^2$=.01, *R*=.53, $R^2$=.28, *F*(15,223)=5.72, *p*<.001 | | $\Delta R^2$=.06$^{*}$, *R*=.37, $R^2$=.14, *F*(15,226)=2.38, *p*<.01 | | $\Delta R^2$=.02, *R*=.54, $R^2$=.29, *F*(17,194)=4.60, *p*<.001 | |
| Age | -.01 | -.03 | -.03$^{*}$ | -.16$^{*}$ | -.02 | -.11 | -.00 | -.00 |
| Gender | -.27$^{**}$ | -.16$^{**}$ | .07 | .05 | -.10 | -.09 | -.86$^{***}$ | -.34$^{***}$ |
| Work experience | -.02 | -.09 | .02 | .10 | .00 | .01 | .05 | .13 |
| ESL | -.07 | -.03 | -.22 | -.13 | .04 | .03 | -.57$^{*}$ | -.18$^{*}$ |
| No of people/group | | | | | | | -.15$^{*}$ | -.16$^{*}$ |
| Females % | | | | | | | .05 | .05 |
| QPA | .23$^{**}$ | .17$^{**}$ | .00 | .00 | .02 | .02 | .31$^{*}$ | .15$^{*}$ |
| Extroversion | .44$^{***}$ | .40$^{***}$ | .05 | .05 | .07 | .10 | .26$^{*}$ | .16$^{*}$ |
| Agreeableness | -.23$^{*}$ | -.15$^{*}$ | .33$^{***}$ | .27$^{***}$ | .02 | .02 | .52$^{**}$ | .22$^{**}$ |
| Conscientiousness | .02 | .01 | .12 | .10 | -.01 | -.01 | -.11 | -.05 |
| Emotional stability | -.04 | -.04 | .20$^{**}$ | .24$^{**}$ | -.01 | -.02 | .00 | .00 |
| Intellect | .16 | .11 | .11 | .09 | -.09 | -.09 | .20 | .08 |
| SEA | .03 | .02 | -.05 | -.05 | -.04 | -.05 | .24 | .12 |
| OEA | -.19$^{*}$ | -.14$^{*}$ | -.10 | -.09 | .05 | .05 | .04 | .02 |
| UOE | .16$^{*}$ | .15$^{*}$ | .00 | .00 | .06 | .08 | .05 | .03 |
| ROE | -.03 | -.03 | -.03 | -.04 | .02 | .04 | -.05 | -.04 |
| Inter- EI | .34$^{*}$ | .18$^{*}$ | .01 | .01 | .30$^{**}$ | .24$^{**}$ | -.52$^{*}$ | -.18$^{*}$ |

*Note.* $n$ = 241, 238, 241, and 211 respectively, * $p < .05$, ** $p < .01$, *** $p < .001$.

The addition of personality attributes did significantly improve the prediction of noncalculative motivation to lead, $\Delta R^2 = .15$, $F_{inc}(5, 228) = 9.13$, $p < .001$, after adjusting for the effects of demographic variables and QPA. Emotional intelligence factors and interpersonal emotional intelligence, however, did not further improve prediction of noncalculative MTL beyond what could be predicted from the personality variables, $\Delta R^2 = .01$, $F_{inc}(5, 223) = .69$, $p > .05$.

At the final step with all predictors entered in the equation, the predictors explained a significant amount of variance (27.8%) of noncalculative MTL, $F$ (15, 223) = 5.72, $p < .001$. High noncalculative motivation to lead was predicted by higher levels of Agreeableness and Emotional stability, and younger age.

*Antecedents to Social-normative MTL.* The demographic variables did not account for a significant amount of variance, $R^2 = .03$, Adjusted $R^2 = .01$, $F(4, 237) = 1.79$, $p > .05$. Entering university QPA into the equation still did not improve the prediction of social-normative MTL, $\Delta R^2 = .00$, $F_{inc}(1, 236) = .04$, $p > .05$. When personality factors were entered into the equation after demographic variables, they significantly accounted for an additional 5.0% of the variance in social-normative MTL, $F_{inc}(5, 231) = 2.53$, $p < .05$. One individual predictor was significant at this stage: extroverts tended to score high on social-normative MTL. At the third step, the overall effects of intrapersonal and interpersonal emotional intelligence significantly predicted additional variance in social-normative motivation to lead, $\Delta R^2 = .06$, $F_{inc}(5, 226) = 2.97$, $p < .05$.

At the final step, the predictors explained a significant amount of variance (13.6%) of social-normative MTL, $F$ (15, 226) = 2.38, $p < .01$. However, only one individual variable – interpersonal emotional intelligence - remained significant in predicting a unique proportion of variance of social-normative motivation to lead, $B = .30$, $t = 2.68$,

$p < .01$.

*Antecedents to Leadership Emergence.* The inclusion of demographic and control variables accounted for a significant amount of variance, $R^2 = .19$, Adjusted $R^2 = .17$, $F(6, 205) = 7.93$, $p < .001$. The addition of university QPA into the equation also improved the prediction of leadership emergence, $\Delta R^2 = .02$, $F_{inc}(1, 204) = 4.74$, $p < .05$. When personality factors were entered into the equation, they accounted for additional variance in leadership emergence beyond demographic and control variables and QPA, $\Delta R^2 = .05$, $F_{inc}(5, 199) = 3.04$, $p < .05$. The addition of intrapersonal and interpersonal emotional intelligence factors, however, did not improve the model, $\Delta R^2 = .02$, $F_{inc}(5, 194) = 1.32$, $p > .05$.

At the final step, the predictors altogether explained a significant amount of variance (28.7%) of leadership emergence, $R^2 = .29$, $F(17, 194) = 4.60$, $p < .001$. Several individual predictors were significant: university QPA, Extroversion, and Agreeableness were positively related to leadership emergence. Females, individuals speaking English as a second language, number of members in groups, and interpersonal emotional intelligence were negatively associated with leadership emergence.

*Hypothesis 5. Regression Analysis of MTL Predicting LE*

The demographic and control variables successfully accounted for a significant amount of variance in leadership emergence, $R^2 = .22$, Adjusted $R^2 = .20$, $F(6, 247) = 11.58$, $p < .001$. When entered after demographic and control variables, the three constructs of MTL as a whole significantly improved prediction of leadership emergence, $R = .54$, $\Delta R^2 = .07$, $F_{inc}(3, 244) = 8.14$, $p < .001$. That is to say, overall motivation to lead predicts leadership emergence above and beyond the effects of all demographic and control variables. However, only two individual MTL constructs –

affective-identity motivation to lead and non-calculative motivation to lead were significant in the final solution, $B = .32$, $\beta = .21$, $t = 3.41$, $p < .01$ and $B = .22$, $\beta = .12$, $t = 1.98$, $p < .05$. This confirmed our assumption that affective-identity motivation to lead would be the strongest motivator in a voluntary situation as there were no social norms or benefits that would drive an individual to emerge as a leader during leaderless discussions. Table 10 represents the coefficients and standard errors for each step. The significant standardized loadings of the above four regressions are summarized in Figure 4.

*Hypothesis 6: Regression Analysis of MTL as a Partial Mediator*

Affective-identity MTL and noncalculative MTL were tested separately for their effects as mediators, following the procedures for testing mediation specified by Baron and Kenny (1986) and Preacher and Leonardelli (2001). To be considered as a mediator, individual MTL constructs must have a significant effect on leadership emergence, after controlling for the effects of demographic and control variables. Table 10 indicated that only two sub-constructs met this requirement: affective-identity MTL and noncalculative MTL. In addition, the predictors should have significant effects on affective-identity MTL and/or noncalculative MTL, as well as on leadership emergence. These conditions were evaluated from previous analyses (see Table 9).

Significant coefficients (IVs that significantly predicted both MTL and leadership emergence) were selected and were presented in Step A and Step B of Table 11. The results of the regressions with all IVs and mediators (AIMTL or NCMTL) entered in the equation to predict leadership emergence were represented in Step C for affective-identity MTL, and in Step D for noncalculative MTL. All analyses controlled for the effects of demographic and/or control variables.

Table 10

*Hierarchical Regression Analysis of MTL Predicting LE*

| Predictor | Leadership Emergence | | |
|---|---|---|---|
| | *B* | *SE B* | *β* |
| Step 1 | $\Delta R^2 = .22^{***}$ | | |
| Age | .02 | .03 | .06 |
| Gender | $-.83^{***}$ | .16 | $-.33^{***}$ |
| Work experience | .03 | .03 | .08 |
| ESL | $-1.03^{***}$ | .21 | $-.33^{***}$ |
| No. of people in group | -.10 | .06 | -.10 |
| Female percentage | .09 | .06 | .10 |
| Step 2 | $\Delta R^2 = .05^{***}$, $R = .54$, $R^2 = .29$, $F(9, 244) = 11.11$, $p < .001$ | | |
| Age | .04 | .03 | .12 |
| Gender | $-.75^{***}$ | .16 | $-.29^{***}$ |
| Work experience | .02 | .03 | .05 |
| ESL | $-.95^{***}$ | .21 | $-.31^{***}$ |
| No. of people in group | $-.11^{*}$ | .05 | $-.12^{*}$ |
| Female percentage | .09 | .06 | .10 |
| AIMTL | $.32^{**}$ | .09 | $.21^{**}$ |
| NCMTL | $.22^{*}$ | .11 | $.12^{*}$ |
| SNMTL | .06 | .14 | .03 |

*Note.* $n = 253$, * $p < .05$; ** $p < .01$; *** $p < .001$.

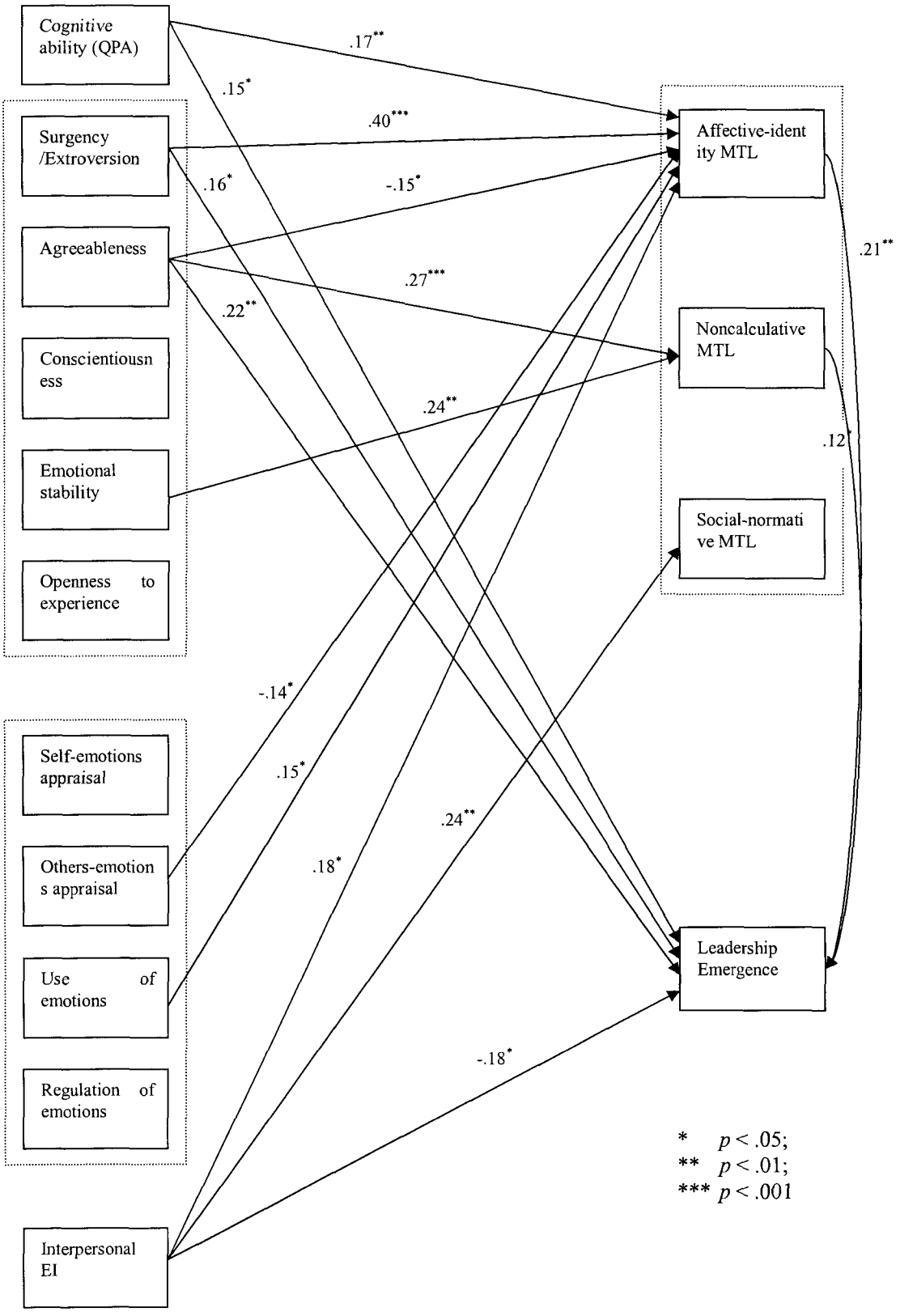


*Figure 4.* A Summary Model of the Standardized Loadings of the Regressions

*The Mediation Effects of Affective-identity MTL in Predicting LE.* Table 11 summarizes the tests for mediation. IVs that significantly predicted both affective-identity MTL and leadership emergence were gender, university QPA, Surgency/Extroversion, Agreeableness, and interpersonal emotional intelligence. When leadership emergence was regressed on all IVs along with affective-identity MTL, affective-identity MTL explained unique variance in leadership emergence, $B = .49$, $t = 4.29$, $p <. 001$. QPA ($B = .18$, $t = 1.36$, $p >. 05$) and Extroversion ($B = .03$, $t = .27$, $p >. 05$) however, no longer predicted leadership emergence. In other words, affective-identity motivation to lead absorbed the effects of QPA and Extroversion in predicting leadership emergence.

Gender, Agreeableness, and interpersonal emotional intelligence remained significant in predicting leadership emergence. For gender, the magnitude of its prediction of leadership emergence decreased. For Agreeableness and interpersonal EI, the beta weights were enhanced, which might be caused by the different directions of the IVs in predicting the mediator and the DV (MacKinnon, Krull, & Lockwood, 2000). Thus the on-line Sobel test (Preacher & Leonardelli, 2001) was employed to test the significance of their change in beta weights (Howell, 2002). The Sobel tests for gender ($z = -2.31$, $p < .05$), Agreeableness ($z = -2.04$, $p < .05$), and interpersonal emotional intelligence ($z = 2.13$, $p < .05$) were all significant, indicating a significant mediation effect of affective-identity MTL on gender, and an inconsistent mediation effect or suppression effect of affective-identity MTL on Agreeableness and interpersonal emotional intelligence in predicting leadership emergence (MacKinnon et al., 2000).

In order to further explore the suppression effects of affective-identity MTL on Agreeableness and interpersonal EI, regressions with Agreeableness as the only IV

and interpersonal EI as the only IV were performed to examine their unique effects on affective-identity MTL and leadership emergence beyond other demographic variables. Results show that when entered without other personality and emotional intelligence factors, Agreeableness did not negatively predict affective-identity MTL ($\Delta R^2 = .03$, $B = .00$, $\beta = .00$, $p = 1.00$), nor did interpersonal EI negatively predict leadership emergence ($\Delta R^2 = .00$, $B = .01$, $\beta = .00$, $p = .95$). These suggest that the negative effects of Agreeableness on affective-identity MTL and interpersonal EI on leadership emergence are also being suppressed by other personality and emotional intelligence factors.

Table 11
*Tests of the Mediation Effects of AIMTL in Predicting LE*

| Predictors - criterion | Predictors | Mediator | | | | DV | |
|---|---|---|---|---|---|---|---|
| | | AIMTL | | NCMTL | | Leadership emergence | |
| | | B | $\beta$ | B | $\beta$ | B | $\beta$ |
| Step A & B. | Gender | -.27** | -.16** | | | -.86*** | -.34*** |
| IVs vs. Mediators | QPA | .23** | .17** | | | .31* | .15* |
| IVs vs. DV | Extroversion | .44*** | .40*** | | | .26* | .16* |
| | Agreeableness | -.23* | -.15* | .33*** | .27*** | .52** | .22** |
| | Inter- EI | .34* | .18* | | | -.52* | -.18* |
| Step C. | AIMTL | | | | | .49*** | .32*** |
| AIMTL & IVs vs. | Gender | | | | | -.72*** | -.28*** |
| DV | QPA | | | | | .18 | .09 |
| | Extroversion | | | | | .03 | .02 |
| | Agreeableness | | | | | .62*** | .26*** |
| | Inter- EI | | | | | -.66** | -.23** |
| Step D. | NCMTL | | | | | .25 | .14 |
| NCMTL & IVs vs. | Agreeableness | | | | | .43* | .18* |
| DV | | | | | | | |

*Note.* * $p < .05$; ** $p < .01$; *** $p < .001$. Only variables that met all first three conditions were included.

*The Mediation Effects of Noncalculative MTL in Predicting LE.* Agreeableness significantly predicted both noncalculative motivation to lead and leadership emergence, and noncalculative MTL significantly predicted leadership emergence. However, when entered with other IVs, noncalculative MTL did not explain unique variance, $B = .25$, $t = 1.87$, $p > .05$. Thus, the supposition of noncalculative MTL as a mediator was not supported.

The direct and indirect paths of the significant mediations and suppressions were summarized in Figure 5.

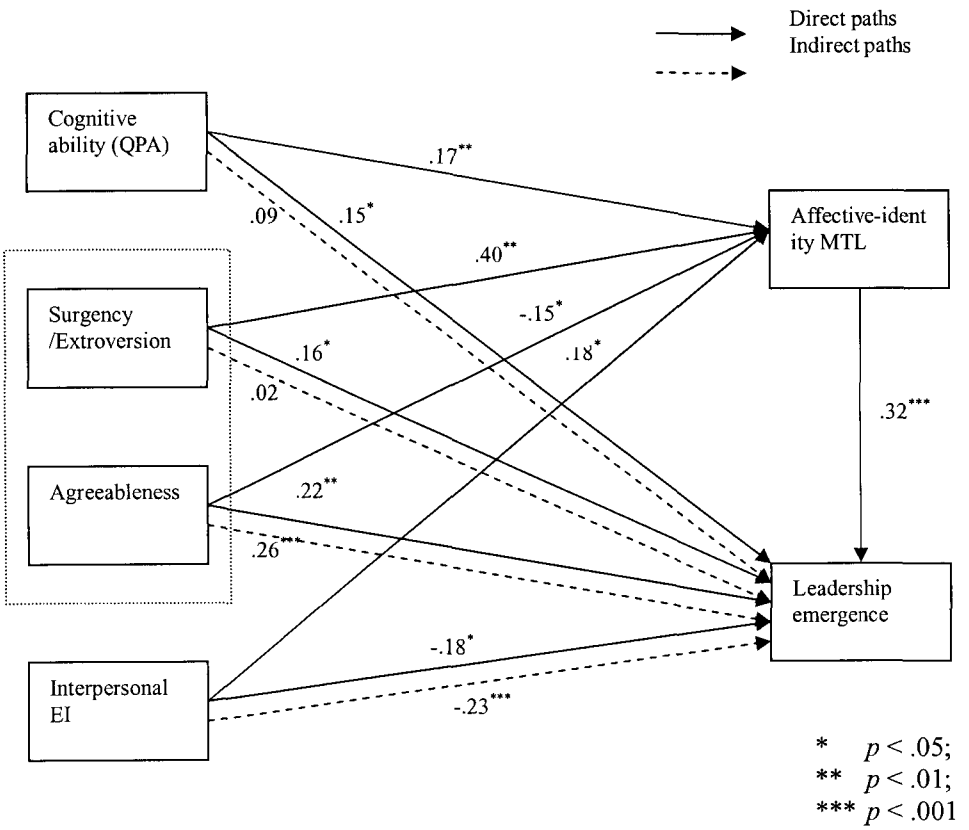


*Figure 5.* A Summary Model of the Standardized Loading Changes in Testing the Mediation Effects of AIMTL.

## Discussion

The current study shows that motivation to lead, which consists of affective-identity MTL, noncalculative MTL, and social-normative MTL, can be understood as an underlying mechanism that most proximally affects leadership emergence behaviours in a voluntary setting. As predicted, the dimension of affective-identity motivation to lead, in particular, most directly predicts leadership emergence in leaderless group settings, and mediates the effects of academic achievement and Extroversion in predicting leadership behaviours. It is also a suppressor of the relationship between Agreeableness, interpersonal emotional intelligence, and leadership emergence. Motivation to lead as a whole, on the other hand, can be predicted from individuals' academic performance, and Big-Five personality facets including Extroversion, Agreeableness, and Emotional stability. The newly included emotional intelligence constructs such as others-emotions appraisal, regulation of emotion, and interpersonal emotional intelligence also explain a significant amount of variance in affective-identity and social-normative motivation to lead and leadership emergence.

### *Motivation to Lead*

The confirmatory factor analysis and principal components analysis of the MTL measure show that the three-factor structures of motivation to lead are replicated in the current sample, namely, affective-identity MTL, noncalculative MTL, and social-normative MTL, as proposed by Chan and Drasgow (2001). The internal consistency reliabilities range from .75 to .88 for the three subscales. However, the solution is not very stable. The confirmatory factor analysis results in fit indices that are not very good, suggesting an inadequate fit of the factor structures to the data. The exploratory factor analysis reveals that although all items load onto their original

factors, three items have loadings below .4, and there is only a moderate portion of the total variance explained. In addition, the validation analyses show that affective-identity motivation to lead is the major component that predicts leadership emergence; noncalculative MTL also explains a significant amount of variance; but social-normative MTL does not significantly predict leadership emergence. Thus, although the concept of motivation to lead is valid, the factor structures hold together, and the sub-scales have good internal reliability; further scale modification is needed to create a more theoretically sound and stable measure.

*Affective-Identity Motivation to Lead.* The results of the current study indicate that academic performance, personality, and emotional intelligence are all significant antecedents to affective-identity motivation to lead, as was expected. People who naturally like to lead or perceive themselves to be a leader are often good academic performers, outgoing and sociable, as well as good at managing emotions to facilitate achievement of goals and interaction with other people. However, females or those who have characteristics such as being agreeable and sensitive to others' emotions are less likely to see themselves as leaders. These results support previous research findings that high affective-identity motivation to lead is associated with Extroversion and achievement orientation (Chan and Drasgow, 2001) and social and enterprising vocational interests (Chan et al., 1999). These individuals are more concerned with personal power rather than socialized power (McClelland, 1975) or affiliative motive (McClelland, 198). They are often assertive, confident, and self-motivated (House & Aditya, 1997). They are ready to assume leadership roles in generally all situations, are dedicated to self-development of leadership capabilities, are capable of managing interpersonal relationships, and are often regarded as charismatic leaders because of their characteristics and abilities (Chan & Drasgow, 2001).

Contrary to the findings of Chan and Drasgow (2001), academic achievement, as measured by university QPA, is significantly related to affective-identity motivation to lead. The insignificant findings of cognitive ability in Chan and Drasgow's (2001) study might be due to a range restriction of their military sample. In the current sample, this may be less of a problem as there is a wide range of academic performance (QPA ranged from 1.00 to 4.19). However, the university sample may still be associated with a certain range of cognitive ability (on the higher end), and the measure of academic performance may also be associated with overall achievement, which may be more predictive of self-efficacy and leadership potential than pure cognitive ability tests.

*Noncalculative Motivation to Lead.* The study results suggest that personality is the only significant antecedent to noncalculative motivation to lead. People who don't calculate costs and responsibilities of leading others are generally more altruistic, pleasant and inoffensive, are more able to handle changes in their emotions, and are younger in age. These results are consistent with the findings of Chan and Drasgow (2001) that noncalculative MTL was related to Agreeableness and Emotional Stability, as well as collectivistic values. Interestingly, Chan et al. (1999) also found that people who scored high on noncalculative motivation to lead often had strong artistic interests rather than conventional interests. All these together suggest that noncalculative MTL is associated with altruism and the agreeableness aspects of personality. These individuals are more likely to assume leadership roles than others especially in occasions when the responsibilities and costs outweigh the benefits of being a leader.

The effect of age in predicting noncalculative MTL is also found. As people grow older, or in this case, as students move through their education, they learn from

experience and tend to behave rationally. Thus, older students in university are more calculative when assuming leadership responsibilities.

*Social-normative Motivation to Lead.* The results reveal that both personality and emotional intelligence contribute to the prediction of social-normative MTL. However, the only significant individual predictor of social-normative motivation to lead is interpersonal emotional intelligence. Individuals who excel at using emotions to interact with other people and helping others manage their emotions perceive leadership as honourable and have a higher sense of duty or responsibility of being leaders. Previous research also found that social-normative motivation to lead was associated with high social and enterprising vocational interests (Chan et al., 1999), Agreeableness and Conscientiousness, and acceptance of social hierarchies than equality (Chan & Drasgow, 2001). These findings altogether suggest that people who perceive leadership as an honorable role and have a sense of responsibility to be a leader are often sociable, responsible, and enterprising. People with high social-normative motivation to lead may also exhibit high socialized power concern, and thoughts of leading for the benefits of others (McClelland, 1975). These individuals are likely to assume leadership responsibilities in all general situations and especially when they are appointed or elected to be a leader by others.

*Leadership Emergence*

Both academic performance and personality factors significantly predict leadership emergence. Individuals who perform well in university, and are extroverted and agreeable are more likely to emerge as leaders in the current study. This finding is in accordance with McClelland's (1975) argument that people with high personal power concern and low activity inhibition are more likely to exhibit leadership behaviour. Taggar et al. (1999) also found cognitive ability and Extroversion to be

predictive of leadership emergence in autonomous teams. Our finding is also congruent with Lord et al.'s (1986) report that up to 83% of leadership emergence behaviour can be explained by abilities and traits. They argue that when subjective ratings are used, those who are extroverted and intelligent are more likely to be perceived as having leadership characteristics because of people's implicit leadership theories (Lord et al., 1986).

Females are less likely than males to emerge as leaders, as are individuals speaking English as a second language. In the latter case, language and cultural barriers in discussion activities may have inhibited the participation of the second language members. While females comprise a majority of participants they are still less likely than males to assume leadership roles. Perhaps there are still some stereotyping or implicit leadership theories that influence the motivations of females to be a leader or the rating of their leadership emergence. Indeed, females also score lower in their motivation to lead; and gender mediates the relationship between affective-identity MTL and leadership emergence. However, the effect of gender is reduced when affective-identity MTL is included but is still significant. Thus, there might also be measurement issues associated with leadership emergence ratings. The rating scales may be more amenable to male leadership style rather than female style, which may also have caused the ratings of males to be higher. Also, individuals in larger groups are rated as having fewer leadership qualities. Most likely this is due to the relatively limited opportunities to participate in the group activity as group size increases. This result suggests that care should be given to the size of a leaderless group when it is used for evaluative purposes.

Surprisingly, interpersonal emotional intelligence negatively predicts leadership emergence ratings. This result may be due to the fact that interpersonal EI has shared

variance with other emotional intelligence and personality factors, specifically its moderate zero-order correlation with Agreeableness, $r = .44$, $p < .01$. Thus, the remaining portion of variance may be associated with relationship-orientedness and high affiliative motives in interpersonal interactions, which are often considered emotional and not charismatic (House & Aditya, 1997). Previous research notes that affiliative motivation, as opposed to power motive (McClelland, 1985), is associated with submissiveness and favouritism in personal relationships (House & Aditya, 1997). McClelland (1975) argues that such individuals are hesitant to exhibit leader behaviour in a direct way, as they are often hindered by high activity inhibition. In leaderless discussion groups, however, one needs proper courage and assertiveness in order to influence others and make others follow their decisions (Hogan et al., 1994). Thus, although interpersonal emotional intelligence may produce a good leader, it may also hinder an individual to be aggressive and dominant enough to emerge as a leader in the first place.

*Summary of Hypotheses 1-5*

Hypothesis 1 is supported in that QPA predicts high affective-identity MTL and leadership emergence above and beyond the demographic and control variables. The results support Bass's (1990a) argument that general intelligence affects a person's leadership potential and behaviour, and Atwater et al. 's (1999) finding that individuals with high cognitive ability are more likely to emerge as leaders. As self-efficacy is developed through past accomplishment and relevant experiences (Bandura, 1977; Bandura, 1982), those with good academic performance are more likely to perceive themselves as competent and having potential to be effective leaders, and also possess more opportunities to experience leadership roles and practice relevant skills. As such, good scholars are more likely to perceive themselves as good

leaders and actually emerge as leaders.

Hypothesis 2 of personality factors as antecedents is partially supported. Extroversion positively predicts affective-identity motivation to lead and leadership emergence, which is consistent with the findings of Ellis (1988). Extroverts are more confident in their interpersonal skills and leadership abilities, and are better able to delegate and manage people towards a common goal (Taggar et al., 1999). Agreeableness, on the other hand, negatively predicts affective-identity MTL but positively predicts noncalculative MTL and leadership emergence. When predicting affective-identity MTL alone without other personality factors, however, Agreeableness did not significantly predict the outcome. Thus, after accounting for the shared variance with other personality factors, those who are nice and inoffensive are less likely to perceive themselves as wanting to be leaders. But they are not calculative of the costs and benefits associated with leader roles, and are better able to lead other people in group situations. Finally, Emotional stability is associated with higher noncalculative motivation to lead. Those who are calm and stable are less likely to be preoccupied by the costs and benefits associated with leadership roles. Surprisingly, Conscientiousness and Intellect are not significantly related to either motivation to lead or leadership emergence in the current study. Overall, personality still plays an important role in determining how people perceive themselves as a leader, how they perceive the role of a leader, and how they would behave as a leader.

Hypothesis 3 of intrapersonal emotional intelligence as an antecedent is not supported for the most part. Only the use of emotion is positively associated with affective-identity motivation to lead. Researchers argue that those individuals who are able to manage and use emotion to motivate themselves are often more confident and goal-oriented (Offermann et al., 2004). Indeed, in this study those individuals who are

able to use emotions to motivate themselves and facilitate achievement of goals perceive themselves to have higher leadership potential. However, results also indicate that others-emotions appraisal negatively predicts affective-identity MTL whereas the other two constructs of emotional intelligence are not related to either motivation to lead or leadership emergence. Again, this might be due to the shared variance of the emotional intelligence constructs and with other personality factors. As Landy (2005) argues, emotional intelligence adds very little in predicting performance if academic intelligence and personality are already included in the equation. The negative effect of others-emotions appraisal on affective-identity MTL might be due to the unique effect of sensitivity to others' feelings from other personality and emotional intelligence factors representing submissiveness and affiliative motives and that do not contribute to affective leadership motivation.

However, the factor analyses of the intrapersonal emotional intelligence measure show a very stable and sound solution of the Wong and Law EI scale, demonstrating good construct validity of the scale. The internal consistency reliabilities are high. Cronbach's alphas range from .75 to .84 for the four subscales. The CFA demonstrates a good fit of the four constructs in the current sample. In addition, the exploratory factor analysis of the combined measure of both of the Big-Five and the EI scales shows that personality and emotional intelligence are distinct concepts. The original factors of the Big-Five and the EI measure are recovered even when the items are mixed up. Thus, the Wong and Law EI measure is reliable, possesses good construct validity, and has discriminant validity from the Big-Five personality measure. However, its incremental predictive validity of leadership potential and behaviour is not very substantial.

For hypothesis 4 of the effects of interpersonal EI, the results support

interpersonal EI as a positive predictor of affective-identity MTL and social-normative MTL, but the direction in predicting leadership emergence is contrary to the hypothesis. High interpersonal EI actually leads to a lower possibility of leadership emergence. Again, this is attributable to interpersonal EI's overlapping variance with other EI constructs and personality factors, as the prediction of leadership emergence by itself is not significant. Thus, interpersonal EI's effect on leadership emergence is suppressed by other personality and EI factors, and interpersonal EI does not possess incremental validity beyond the other factors. Researchers argue that those commercial emotional intelligence models that are extended to encompass applied areas beyond the original constructs (in this case, to include the ability of interpersonal interaction), often are highly correlated with personality measures and do not explain additional variance (Ashkanasy & Daus, 2005; Daus & Ashkanasy, 2005).

Landy (2005), an opponent of EI, argues that leadership emergence may be one of the few, if there are any, meaningful dependent variables that EI can predict. The current study found that even with leadership emergence, the predictive validity of EI was not significant, whereas interpersonal EI negatively predicted leadership emergence after accounting for the effects cognitive ability, personality, and other EI constructs. Using McClelland's (1975; 1985) affiliative motivation and Social Power theory, people with high interpersonal relationship concern are often inhibited to lead in a direct manner. However, as interpersonal EI is associated with actual behaviour exhibited in interpersonal interactions, individuals with high interpersonal EI are not necessarily less motivated than others to be a leader. In other words, although individuals with high interpersonal EI are motivated to be a leader, they are also hesitant to lead in a direct manner.

Hypothesis 5 is supported. All three dimensions of motivation to lead are positively associated with leadership emergence, among which affective-identity MTL and noncalculative MTL explain a unique portion of variance on leadership emergence. In other words, individuals who are motivated to lead turn out to exhibit more leadership behaviour in voluntary group activities. Affective-identity MTL most significantly predicts leadership emergence behaviour, as hypothesized. Furthermore, as these motivated individuals would gain more satisfaction from the leading roles, they are more likely to sustain the exercise of leadership and further develop leadership abilities (House & Aditya, 1997; Chan & Drasgow, 2001). Thus, the motivation to lead concept becomes even more meaningful when it is linked to future leader persistence and development.

*MTL as a Mediator in Predicting Leadership Emergence*

Hypothesis 6 is partially supported. Results of the mediation analyses show that affective-identity motivation to lead mediates the relationship between cognitive ability, Extroversion and leadership emergence, and inconsistently mediates or suppresses the effects of Agreeableness and interpersonal emotional intelligence in predicting leadership emergence. Males, individuals with high academic achievements, individuals who score high on Extroversion and low on Agreeableness, and individuals who are good at using emotions during their interactions with other people tend to have higher affective-identity motivation to lead. Perceiving oneself as a leader or wanting to be a leader, in turn, leads to higher possibilities of leadership emergence. This partially confirms the hypothesis that there is an underlying psychological function towards being a leader that reflects the various attributes of individuals and most directly predicts leadership emergence.

Affective-identity MTL is considered a suppressor variable for Agreeableness and

interpersonal emotional intelligence because it is an intervening variable (MacKinnon et al., 2000) between the antecedents and leadership emergence. Statistically mediation and suppression effects are similar, yet conceptually they differ in that suppression increases the magnitude of the relationship whereas mediation reduces the relationship between IV and DV (MacKinnon et al., 2000). This increase of relationship in suppression is often caused by the opposite signs of the direct and mediated effects (MacKinnon et al., 2000). In the current study, Agreeableness negatively predicts affective-identity MTL but positively predicts other aspects of MTL; higher MTL, in turn, leads to higher leadership emergence. Thus, affective-identity MTL suppressed parts of the positive effects of Agreeableness on leadership emergence. In addition, it should be noted that the negative effect of Agreeableness on affective-identity MTL is also suppressed by other personality factors. Interpersonal emotional intelligence, on the other hand, positively predicts motivation to lead, but these individuals are hesitant in exhibiting leadership behaviour in a voluntary setting. Consequently, their high motivation to lead suppresses their low tendency to emerge as a leader. Again, the negative effect of interpersonal EI on leadership emergence is also suppressed by other personality and EI factors. Overall, the inclusion of affective-identity motivation to lead in the equation makes the masked effects of Agreeableness and interpersonal emotional intelligence on leadership emergence appear to be more significant.

*The Effects of Demographic Variables*

In previous research leadership traits are often associated with masculinity, dominance, or assertiveness (Schein, 1973; 1975; Lord et al., 1986). In other words, people expect successful leaders to have masculine characteristics. In the current study, these propositions are supported as females are associated with lower ratings of

leadership emergence behaviours in group activities. Because there were two external raters including at least one female for each group, it was unlikely that the lower ratings of females were caused by the bias of all male raters. In fact, females also rate themselves as less affectively motivated to lead, which partly explains why females are less likely to emerge as leaders in the present study. Some previous studies, however, did not find a significant effect of sex on leadership aspiration (Singer, 1991). This might be due to their different definition of leadership aspiration to involve other aspects of leadership potential. In the present study, affective-identity motivation to lead also mediates the relationship between gender and leadership emergence. However, researchers argue that motivation to manage should contribute to leader success equally for both men and women (Miner, 1977). The current study supports this proposition in that gender does not moderate affective-identity motivation to lead in predicting leadership emergence. In other words, men and women are equally likely to emerge as leaders given an equivalent amount of motivation to lead.

Age is negatively related to noncalculative and social-normative motivation to lead in the current study. Since there is a range restriction of age that most participants are in their early twenties, this age effect may be a reflection of students in different grades of the university – younger students perceive being a leader as more honourable and are less calculative of costs and benefits than students in higher grades.

*Correlations between Variables*

The results reveal that although emotional intelligence and personality are distinct concepts, they do share something in common, especially since individuals' ability to use emotions and interpersonal emotional intelligence correlate with every aspect of

personality. Individuals' ability to regulate emotions is highly related to Emotional stability and academic achievement. These results suggest that although emotional intelligence constructs propose some distinct and meaningful concepts, they are not totally orthogonal to the personality factors and cognitive ability. Actually, Landy (2005) argues that the inclusion of emotional intelligence in research along with general intelligence and personality is superfluous and reduces parsimony of scientific research.

As expected, academic performance is positively related to Openness to experience/Intellect and Conscientiousness, which replicates previous research by Farsides and Woodfield (2003) and Busato et al. (2000). It is logical to expect that individuals who are creative and hardworking are better performers in university.

The group average leadership emergence scores are positively related to group performance, which indicates that the leadership emergence ratings have criterion validity. In fact, leadership emergence as measured in leaderless discussion groups is often used as a criterion for selecting leaders (Catano et al., 2001). The group average academic performance, personality attributes, and emotional intelligence facets, however, are not significantly related to group performance. This does not support previous research findings. Kickul and Neuman (2000) found in their study that conscientiousness and cognitive ability predicted team performance. Offermann et al. (2004) found that group members' overall emotional competency better predicted team performance than cognitive ability, because individuals with strong interpersonal understanding and skills were better able to respond to group dynamics. In the current study, however, none of the group-level antecedents is significantly related to team performance. This may be because that the subject matter knowledge required for the discussion topic acts as a hurdle for the teams to act effectively.

*Practical Implications*

Lord and Hall (1992) assert that leadership is a complex issue that should be understood in multivariate dimensions, and special attention should be paid to the various mediation effects. The current study examines motivation to lead through multiple facets, and explores motivation to lead as an underlying psychological state that can be predicted from individuals' traits and abilities, and that will most directly predict leadership behaviours in voluntary settings. Results indicate that the major traits and abilities such as academic performance, Extroversion, Conscientiousness, others-emtotions appraisal, use of emotion, and interpersonal emotional intelligence are essential for motivating an individual to be a leader. Individuals with motivation to lead, in turn, are more likely to assume a leadership role. Due to their motivation, these individuals will further develop their leadership ability and satisfaction, and endeavor to be an effective leader (Chan & Drasgow, 2001). Thus, academic performances, personality measures, and emotional intelligence measures might not only be useful in understanding individual differences in future job performance, but also in understanding voluntary leadership behaviour and overall group performance, especially among university graduates. This suggests that these antecedents can be used as criteria for selecting and promoting leaders among university graduates. Cognitive ability is an inherited and stable capacity which has long been used as a major criterion in personnel selection (Herrnstein & Murray, 1994). Academic performance is also used as an indicator in selecting new graduates for employment. The Big-Five personality is relatively stable throughout adulthood (McCrae & Costa, 1996), and it also begins to be used as a criterion for selection (Catano et al., 2001). Emotional intelligence, on the other hand, is "learnable at almost any age" (Cooper, 1997; p. 32), thus is not only amenable to selection, but also open to training and

development as well (Ashkanasy & Daus, 2005).

The motivation to lead concept brought significant contributions to the understanding of the process of leadership development and how it is linked to leadership performance (Chan & Drasgow, 2001). It represents individuals' views and self-conceptions when they face leadership opportunities, and affects their subsequent actions. This suggests that aside from selecting those with good attributes and capabilities, organizations can also pay special attention to those who are highly motivated to be leaders, as their motivations will lead them to persist in their future efforts and self-development. In addition, psychological states are changeable (McClelland, 1975) and might be trainable; as they are not only reflective of individuals' general traits and abilities, but also changeable experience and self-efficacy. That is to say, leadership emergence behaviour might be amenable to training and development, as its underlying motivation can be cultivated.

Finally, the current study also provides support for using leaderless discussion groups in selecting leaders. Groups with higher overall leadership emergence behaviours have higher group performance.

*Limitations and Future Research*

One possible limitation of this study is the measurement of university students' academic performance as an indicator of cognitive ability. Although the present study found significant effects of academic performance on motivation to lead and leadership emergence, this result is not the same as cognitive ability's effect on the outcomes. Academic performance might reflect other factors than pure cognitive ability such as Conscientiousness (Digman, 1989), learning style (Busato et al., 2000), motivation (Farsides & Woodfield, 2003), previous education, family background, and other situational factors. As academic achievement is an indicator of overall

individual achievement, and the motivational aspect of achievement is often associated with leadership perceptions (Bass, 1990a; Judge et al., 2004), the current results may overestimate the effect of cognitive ability on motivation to lead and leadership emergence. The results only suggest how good academic achievements may affect a student's leadership tendency among other less successful students. Also, there is also a range restriction on cognitive ability, as a university sample may represent a more intelligent group than the average population (Farsides & Woodfield, 2003), and the missing values of QPA might be associated with lower achievers among the university students. Moreover, the accuracy of the self-recall of QPA might also be questionable. Thus, future research should re-examine the effects of cognitive ability through some reliable and valid cognitive ability tests rather than using academic achievement indicators, or use official records of academic performance rather than self-report scores. However, the findings of the effects of self-reported academic achievement of university students in predicting motivation to lead and leader emergence are still meaningful, because in often situations employers only have QPA to evaluate when hiring new university graduate, and often students self-report this on their resumes they send to employers.

Another possible limitation is that the samples included in the current study are from a university student population, with an average age of 21 years and a significantly larger proportion of women than men. Thus, the results obtained might not be generalizable to a population over the life span and of equal representation of both genders. Future research should try to extend to a more representative sample of the general population or a working sample. However, the current results still shed light on hiring university graduates. For example, the Canadian Forces use leaderless discussion group as part of their selection procedures for the university graduates

applying for their naval officer positions (Catano et al., 2001). On the other hand, university students may be less biased, hold less stereotypes about leadership, and are more able to exhibit their leadership behaviour than participants sampled from a working environment. Thus, the understanding of university students' tendency towards leaders can be less biased than using a working sample.

Although the current study has employed multiple external raters and used different sessions to measure leadership emergence and other attributes in order to reduce common-method variances, there are still situational factors that might contaminate the evaluations. For instance, there are variations of the number of participants in each group, with a range between 4 and 8 people, which might contribute to different behaviours of individuals between groups. There are also other between-group variations that could not be adequately captured, such as arrangement of different companions. In addition, within each group, the composition of male and female members and the seating conditions might also affect individual behaviour. The gender composition and seating of the external observers may affect the ratings as well. For instance, when the participants were seated in a circle, those who faced the raters tended to be perceived as exhibiting more leadership characteristics, as their behaviour could be more adequately captured by the observers. Future studies should try to arrange equal numbers of participants in each group; balance the number of women and men in each group, or have separate groups for men and women; and have external raters seated at different positions to overcome some of these situational influences. These results also suggest that when using leaderless discussion groups to select leaders, special attention should be paid to the arrangements, such as the number of people in the group, the composition of male and female participants and raters, and the seating of the group members and observers, among other factors.

The current study reveals that different language speakers vary in the three aspects of motivation to lead and in their leadership emergence. Future research can tap into how individuals with different cultural backgrounds differ in their motivation to lead and leader emergence. For instance, do people live in English-speaking areas and French-speaking areas have different values towards being leaders and different tendencies to emerge as a leader when they are grouped together?

Another interesting finding of the present study is that affective-identity motivation to lead turns out to be most predictive of leadership behaviour in voluntary situations. Future research can examine the three aspects of MTL in different contexts, such as comparing leaders and non-leaders in industry, government, and non-profit organizations etc. to understand if noncalcualative and social-normative MTL have a more profound effect in well-regulated and formal situations. Or, when using experiments, different conditions can be set up, for instance, some conditions provide incentives or create responsibilities for being a leader while others don't, so as to compare the effects of the noncalcualtive MTL facet. Another possibility is to validate the noncalculative MTL construct by relating it with organizational citizenship behaviour or altruism. Also, it will be interesting to look at whether social-normative MTL varies among individuals with different socioeconomic status and educational backgrounds.

Another possibility of the chief effect of affective-identity MTL in predicting leadership emergence and mediating the other antecedents in predicting leadership emergence is that affective-identity MTL may be the major component of motivation to lead in predicting leadership behaviour, whereas the other two dimensions, noncalculative motivation to lead and social-normative motivation to lead, merely act as important moderators of affective-identity MTL in different situations. Future

research should try to better understand the theoretical basis of the MTL constructs and further modify the scales.

*Concluding Remarks*

The current study explores for the first time the direct effects of motivation to lead on determining leadership emergence behaviour. The results confirm the proposition that motivation to lead most directly affects individuals' immediate leadership behaviour in a voluntary setting (Chan & Drasgow, 2001). However, the three dimensions, namely, affective-identity MTL, noncalculative MTL, and social-normative MTL, vary in their importance in predicting leadership emergence, and they can be predicted from different subsets of antecedents. Affective-identity MTL most significantly predicts leadership emergence, and most significantly reflect individuals' academic achievement, personality characteristics, and emotional intelligence. Thus, it remains to be explored in future research how context might affect the three MTL dimensions in influencing individuals' decision to assume leadership roles; and what other factors might shed light on shaping individual differences in aspects of MTL.

References

Ackerman, P. L., & Heggestad, E. D. (1997). Intelligence, personality, and interests: Evidence for overlapping traits. *Psychological Bulletin, 121,* 219-245.

Ashkanasy, N. M., & Daus, C. S. (2005). Rumors of the death of emotional intelligence in organizational behavior are vastly exaggerated. *Journal of Occupational Behavior, 26,* 441-452.

Atwater, L. E., Dionne, S. D., Avolio, B., Camobreco, J. F., & Lau, A. W. (1999). A longitudinal study of the leadership development process: Individual differences predicting leader effectiveness. *Human Relations, 52(12),* 1543-1562.

Bagby, R. M., Parker, J. D., & Taylor, G. J. (1994). The twenty item Toronto Alexithymia Scale-I. Item selection and cross-validation of the factor structure. *Journal of Psychosomatic Research, 38,* 23-32.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84,* 191-215.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37(2),* 122-147.

Bar-On, R. (1997). *The Emotional Quotient Inventory (EQ-i): Technical Mannual.* Toronto: Multi-Health Systems.

Barling, J., Slater, F., & Kelloway, E. K. (2000). Transformational leadership and emotional intelligence: an exploratory study. *Leadership and Organizational Development Journal, 21,* 157-161.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51(6),* 1173-1182.

Bass, B. M. (1990a). *Bass & Stogdill's handbook of Leadership: Theory, research and*

*managerial implications*. New York: Free Press.

Bass, B. M. (1990b). From transactional to transformational leadership: Learning to share the vision. *Organizational Dynamics, 18(3),* 19-31.

Busato, V. V., Prins, F. J., Elshout, J. J., & Hamaker, C. (2000). Intellectual ability, learning style, personality, achievement motivation and academic success of psychology students in higher education. *Personality and Individual Difference, 29*, 1057-1068.

Catano, V. M., Cronshaw, S. F., Wiesner, W. H., Hackett, R. D., & Methot, L. L. (2001). *Recruitment and selection in Canada.* Ontario: Nelson.

Caruso, D. R., Mayer, J. D., & Salovey, P. (2002). Emotional intelligence and emotional leadership. In R. E., Riggio, S. E., Murphy, & F. J. Pirozzolo (ed.). *Multiple intelligence and leadership* (pp. 55-74) Mahwah, NJ: Lawrence Erlbaum Associates.

Chan, K-Y., & Drasgow, F. (2001). Toward a theory of individual differences and leadership: Understanding the motivation to lead. *Journal of Applied Psychology, 86,* 481-498.

Chan, K-Y., Rounds, J., & Drasgow, F. (2000). The relation between vocational interests and the motivation to lead. *Journal of Vocational Behavior, 57,* 226-245.

Charbonneau, D., & Nicol, A. A. M. (2002). Emotional intelligence and leadership in adolescents. *Personality and Individual Differences, 33,* 1101-1113.

Cooper, R. K. (1997). Applying emotional intelligence in the workplace. *Training and development, 51(12),* 31-38.

Costa, P. T., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) Professional Manual.* Odessa, FL:

Psychological Assessment Resources Inc.

Daus, C. S., & Ashkanasy, N. M. (2005). The case for the ability-based model of emotional intelligence in organizational behavior. *Journal of Organizational Behavior, 26,* 453-466.

Davis, M., Stankov, L., & Roberts, R. D. (1998). Emotional intelligence: In search of an elusive construct. *Journal of Personality and Social Psychology, 75,* 989-1015.

Day, A. L., & Carroll, S. A. (2004). Using an ability-based measure of emotional intelligence to predict individual performance, group performance, and group citizenship behaviours. *Personality and Individual Differences, 36,* 1443-1458.

Day, D. V., Sin, H-P, & Chen, T. T. (2004). Assessing the burdens of leadership: effects of formal leadership roles on individual performance over time. *Personnel Psychology, 57(3),* 573-605.

DeNeve, K. M., & Cooper, H. (1998). The happy personality: A meta-analysis of 137 personality traits and subjective well-being. *Psychological Bulletin, 124,* 197-229.

Digman, J. M. (1989). Five robust trait dimensions: Development, stability, and utility. *Journal of Personality, 57,* 195-214.

Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. *American Reviews Psychology, 41,* 417-440.

Dulewicz, V., & Higgs, M. (1999). Can emotional intelligence be measured and developed. *Leadership and Organization Development Journal, 20(5),* 242-253.

Dulewicz, V., & Higgs, M. (2000). Emotional intelligence: A review and evaluation study. *Journal of Managerial Psychology, 15(4),* 341-372.

Ellis, R. J. (1988). Self-monitoring and leadership emergence in groups. *Personality*

*and Social Psychology Bulletin, 14,* 681-693.

Farsides, T., & Woodfield, R. (2003). Individual differences and undergraduate academic success: the roles of personality, intelligence, and application. *Personality and Individual Differences, 34(7),* 1225-1243.

Fiedler, F. E. (1967). *A theory of leadership effectiveness.* New York. McGraw-Hill.

Fiedler, F. E., & Garcia, J. E. (1987). *New approaches to effective leadership: Cognitive resources and organizational performance.* New York: Wiley.

Fisher, B. A. (1985). Leadership as medium: Treating complexity in group communication research. *Small Group Behavior, 16,* 167-196.

Friedman, H. S., Tucker, J. S., Schwartz, J. E., Martin, L. R., Tomlinson-Keasey, C., Wingard, D. L., & Criqui, M. H. (1995). Childhood Conscientiousness and longevity: Health behaviors and cause of death. *Journal of Personality and Social Psychology, 68,* 696-703.

Galton, F. (1869). *Hereditary genius.* New York: Appleton.

Goldberg, L. R. (1990). An alternative "description of personality": The Big-Five factor structure. *Journal of Personality and Social Psychology, 59,* 1216-1229.

Goldberg, L. R. (1992). The development of markers of the Big-Five factor structure. *Psychological Assessment, 4,* 26-42.

Goldberg, L. R. (1999). A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models. In I. Mervielde, I. Deary, F. De Fruyt, & F. Ostendorf (Eds.), *Personality Psychology in Europe,* Vol. 7 (pp. 7-28). Tilburg, The Netherlands: Tilburg University Press.

Goleman, D. (1995). *Emotional intelligence.* New York: Bantam Books.

Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25

years: Applying a multi-level multi-domain perspective. *Leadership Quarterly, 6(2),* 219-247.

Herrnstein, R. J., & Murray, C. (1994). *The bell curve: Intelligence and class structure in American life.* New York: Free Press.

Hersey, P., & Blanchard, K. (1977). *Management of organizational behavior: Utilizing human resources* (2nd ed.). New York: Prentice-Hall.

Hogan, R., Curphy, G. J., & Hogan, J. (1994). What we know about leadership. *American Psychologist, 49,* 493-504.

Holland, J. L. (1973). *Making vocational choices: A theory of careers.* Englewood Cliffs, NJ: Prentice Hall.

House, R. J., & Aditya, R. N. (1997). The social scientific study of leadership: quo vadis? *Journal of Management, 23(3),* 409-473.

Howell, D. C. (2002). *Statistical methods for Psychology.* Pacific Grove, CA: Thomson Learning.

Humphrey, R. H. (2002). The many faces of emotional leadership. *The Leadership Quarterly, 13,* 493-504.

Hunter, J. E., & Hunter, R. F. (1984). Validity and utility of alternative predictors of job performance. *Psychological Bulletin, 96,* 72-98.

International Personality Item Pool (2001). A Scientific Collaboratory for the Development of Advanced Measures of Personality Traits and Other Individual Differences (http://ipip.ori.org/). Internet Web Site.

James, W. (1880). Great men, great thoughts, and their environment. *Atlantic Monthly, 46,* 441-459.

Judge, T. A., Bono, J. E., Ilies, R., & Gerhardt, M. W. (2002). Personality and leadership: A qualitative and quantitative review. *Journal of Applied Psychology,*

*87,* 765-780.

Judege, T. A., Colbert, A. E., & Ilies, R. (2004). Intelligence and leadership: a quantitative review and test of theoretical propositions. *Journal of Applied Psychology, 89(3),* 542-552.

Kenny, D. A., & Zaccaro, S. J. (1983). An estimate of variance due to traits in leadership. *Journal of Applied Psychology, 68,* 678-685.

Kickul, J., & Neuman, G. (2000). Emergent leadership behaviors: The function of personality and cognitive ability in determining teamwork performance and KSAs. *Journal of Business and Psychology, 15(1),* 27-52.

Landy, F. J. (2005). Some historical and scientific issues related to research on emotional intelligence. *Journal of Occupational Behaviour, 26,* 411-424.

Langston, C. A., Sykes, W. E. (1997). Beliefs and the Big-Five: Cognitive bases of broad individual differences in personality. *Journal of Research in Personality, 31,* 141-165.

Law, K. S., Wong, C. S., & Song, L. J. (2004). The construct and criterion validity of emotional intelligence and its potential utility for management studies. *Journal of Applied Psychology, 89,* 483-496.

Locke, E. A. (2005). Why emotional intelligence is an invalid concept. *Journal of Organizational Behavior, 26,* 425-431.

Lord, R. G. (1977). Functional leadership behavior: Measurement and relation to social power and leadership perceptions. *Administrative Science Quarterly, 22,* 1144-133.

Lord, R. G., De Vader, C. L., & Allinger, G. M. (1986). A meta-analysis of the relation between personality traits and leadership perceptions: an application of validity generalization procedures. *Journal of Applied Psychology, 71,* 402-410.

Lord, R. G., & Hall, R. J. (1992). Contemporary views of leadership and individual differences. *Leadership Quarterly, 3,* 137-157.

Lord, R. G., & Maher, K. J. (1991). *Leadership and information processing: Linking perceptions and performance.* Boston, MA: Unwin Hyman.

MacKinnon, D. P., Krull, J. L., & Lockwood, C. M. (2000). Equivalence of the mediation, confounding and suppression effect. *Prevention Science, 1(4),* 173-181.

Mayer, J. D., Salovey, P., & Caruso, D. (2000). Models of emotional intelligence. In Sternberg, R. J. (ed.), *Handbook of Intelligence* (pp. 396-422). Cambridge: University Press.

Mayer, J. D. (1995). A framework for the classification of personality components. *Journal of Personality, 63(4),* 819-878.

McCabe, M. P. (1991). Influence of creativity and intelligence on academic performance. *Journal of Creative Behavior, 25,* 116-122.

McClelland, D. C. (1975). *Power: the inner experience.* New York: Irvington Publishers.

McClelland, D. C. (1985). *Human motivation*. Glenview, IL: Scott, Foresman.

McCrae, R. R., & Costa, P. T. (1996). Toward a new generation of personality theories: Theoretical contexts for the five-factor model. In Wiggins J. S. (ed.), *The five-factor model of personality* (pp. 51-87). New York: Guilford.

Miner, J. B. (1977). *Motivation to manage: A ten-year update on "Studies in Management Education" research.* Atlanta, GA: Organizational Measurement Systems Press.

Mumford, M. D., & Stokes, G. S. (1992). Developmental determinants of individual action: Theory and practice in applying background measures. In Dunnette, M.

D. (ed.), *Handbook of industrial and organizational psychology* (pp. 61-138). Palo Alto, CA: Consulting Psychologists Press.

National Aeronautics and Space Administration (2004). Survivor on the moon (on line). Available: http://media.nasaexplores.com/lessons/01-026/5-8_1.pdf.

Newsome, S., Day, A. L., Catano, V. M. (2000). Assessing the predictive validity of emotional intelligence. *Personality and Individual Differences, 29,* 1005-1016.

Offermann, L. R., Bailey, J. R., Vasilopoulos, N. L., Seal, C., & Sass, M. (2004). The relative contribution of emotional competence and cognitive ability to individual and team performance. *Human Performance, 17,* 219-243.

Pescosolido, A. T. (2002). Emergent leaders as managers of group emotion. *The Leadership Quarterly, 13,* 583-599.

Preacher, K. J., & Leonardelli, G. J. (2001, March). Calculation for the Sobel test: An interactive calculation tool for mediation tests [Computer software]. Available from http://www.unc.edu/~preacher/sobel/sobel.htm.

Podsakoff, P. M., MacKenzie, S. B., Lee, J-Y., & Podsaoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88,* 879-903.

Rosenthal, R., & Jacobson, L. (1968). *Pygmalion in the classroom.* New York: Holt, Rinehart & Winston.

Sackett, P. R., Gruys, M. L., & Ellingson, J. E. (1998). Ability-personality interactions when predicting job performance. *Journal of Applied Psychology, 83,* 545-556.

Sanchez, S. A. (2004). The relationship among motivation to lead, cognitive ability, and personality. *Dissertation Abstracts International Section A: Humanities and Social Sciences. 64 (7A),* 2566.

Saucer, G., & Goldberg, L. R. (1996). The language of personality: Lexical

perspectives on the five-factor model. In Wiggins, J. S. (ed.), *The five-factor model of personality: theoretical perspectives* (pp. 21-50). New York: Guilford.

Schein, V. E. (1973). The relationship between sex role stereotypes and requisite management characteristics. *Journal of Applied Psychology, 57,* 95-100.

Schein, V. E. (1975). Relationship between sex role stereotypes and requisite management characteristics among female managers. *Journal of Applied Psychology, 60,* 340-344.

Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: practical and theoretical implications of 85 years of research fidings. *Psychological Bulletin, 124,* 262-274.

Schutte, N. S., Malouff, J. M., Hall, L. E., Haggerty, D. J., Cooper, J. T., Golden, C. J., & Dornheim, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences, 25,* 167-177.

Singer, M. (1991). The relationship between employee sex, length of service and leadership aspirations: A study from valence, self-efficacy and attribution perspectives. *Applied Psychology: An International Review, 40,* 417-436.

Stogdill, R. M. (1948). Personal factors associated with leadership: A survey of the literature. *Journal of Psychology, 25,* 35-71.

Stricker, L. J., & Rock, D. A. (1998). Assessing leadership potential with a biographical measure of personality traits. *International Journal of Selection and Assessment, 6,* 164-184.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Needham Heights, MA: Allyn & Bacon.

Taggar, S., Hackett, R., Saha, S. (1999). Leadership emergence in autonomous work teams: Antecedents and outcomes. *Personnel Psychology, 52(4),* 899-927.

Tett, R. P., Guterman, H. A., Bleier, A., & Murphy, P. J. (2000). Development and content validation of hyperdimensional taxonomy of managerial competence. *Human Performance, 13,* 205-251.

Van Rooy, D. L., & Viswesvaran, C. (2004). Emotional intelligence: a meta-analytic investigation of predictive validity and nomological net. *Journal of Vocational Behavior, 65,* 71-95.

Vroom, V. H. (1964). *Work and motivation.* New York: Wiley.

Weisinger, H. (1998). *Emotional intelligence at work.* San Francisco, CA: Jossey-Bass Publishers.

White, R. K., & Lippett, R. (1960). Leader behavior and member reaction in three "social climates". In Cartwright, D. & Zander, A. (ed.), *Group Dynamics: Research and theory* (pp. 527-553). Evanston, IL: Row, Peterson, and Company.

Wolff, S. B., Pescosolido, A. T., Druskat, V. U. (2002). Emotional intelligence as the basis of leadership emergence in self-managing teams. *The Leadership Quarterly, 13,* 505-522.

Wong, C. S., & Law, K. S. (2002). The effects of leader and follower emotional intelligence on performance and attitude: An exploratory study. *The Leadership Quarterly, 13,* 243-274.

Zaccaro, S. J., Foti, R. J., & Kenny, D. A. (1991a). Self-monitoring and trait-based variance in leadership: An investigation of leader flexibility across multiple group situations. *Journal of Applied Psychology, 76,* 308-305.

Zaccaro, S. J., Gilbert, K. K., Thor, K. K., & Mumford, M. D. (1991b). Leadership and social intelligence: Linking social perceptive and behavioral flexibility to leader effectiveness. *Leadership Quarterly, 2,* 317-342.

Zeidner, M., & Matthews, G. (2000). Intelligence and personality. In Sternberg, R. J.

(ed.), *Handbook of Intelligence* (pp. 581-610). Cambridge: University Press.


This is a two-session study that will **require** you to participate in **both sessions**. Participation of the second session will be appointed at the completion of the first session. You will be awarded **2** bonus points in total and in addition, will have a chance to win a **$50** lottery for participation in both sessions.

Personal Code (e.g., last 4 digits of your ID#):_____

Saint Mary's University

You are invited to participate in the following study related to motivation to be leaders. On the following pages, there are phrases describing people's behaviors. Please describe how accurately each statement applies to *you*. Describe yourself as you generally are **now**, not as you wish to be in the future. Describe yourself as you **honestly** see yourself, in relation to other people you know of the same sex as you are, and roughly your same age. Please read each statement carefully, and then circle the corresponding number on the scale. Your responses will be kept **confidential**. Your participation is greatly appreciated.

Response Options

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Very Inaccurate | Somewhat Inaccurate | Neither Inaccurate nor Accurate | Somewhat Accurate | Very Accurate |

I...

| | | | | | |
|---|---|---|---|---|---|
| 1. Am the life of the party. | 1 | 2 | 3 | 4 | 5 |
| 2. Feel little concern for others. | 1 | 2 | 3 | 4 | 5 |
| 3. Am always prepared. | 1 | 2 | 3 | 4 | 5 |
| 4. Get stressed out easily. | 1 | 2 | 3 | 4 | 5 |
| 5. Have a rich vocabulary. | 1 | 2 | 3 | 4 | 5 |
| 6. Don't talk a lot. | 1 | 2 | 3 | 4 | 5 |
| 7. Am interested in people. | 1 | 2 | 3 | 4 | 5 |
| 8. Leave my belongings around. | 1 | 2 | 3 | 4 | 5 |
| 9. Am relaxed most of the time. | 1 | 2 | 3 | 4 | 5 |
| 10. Have difficulty understanding abstract ideas. | 1 | 2 | 3 | 4 | 5 |
| 11. Feel comfortable around people. | 1 | 2 | 3 | 4 | 5 |
| 12. Insult people. | 1 | 2 | 3 | 4 | 5 |
| 13. Pay attention to details. | 1 | 2 | 3 | 4 | 5 |
| 14. Worry about things. | 1 | 2 | 3 | 4 | 5 |
| 15. Have a vivid imagination. | 1 | 2 | 3 | 4 | 5 |
| 16. Keep in the background. | 1 | 2 | 3 | 4 | 5 |
| 17. Sympathize with others' feelings. | 1 | 2 | 3 | 4 | 5 |
| 18. Make a mess of things. | 1 | 2 | 3 | 4 | 5 |
| 19. Seldom feel blue. | 1 | 2 | 3 | 4 | 5 |
| 20. Am not interested in abstract ideas. | 1 | 2 | 3 | 4 | 5 |
| 21. Start conversations. | 1 | 2 | 3 | 4 | 5 |
| 22. Am not interested in other people's problems. | 1 | 2 | 3 | 4 | 5 |
| 23. Get chores done right away. | 1 | 2 | 3 | 4 | 5 |

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Very Inaccurate | Somewhat Inaccurate | Neither Inaccurate nor Accurate | Somewhat Accurate | Very Accurate |

| | | | | | |
|---|---|---|---|---|---|
| 24. Am easily disturbed. | 1 | 2 | 3 | 4 | 5 |
| 25. Have excellent ideas. | 1 | 2 | 3 | 4 | 5 |
| 26. Have little to say. | 1 | 2 | 3 | 4 | 5 |
| 27. Have a soft heart. | 1 | 2 | 3 | 4 | 5 |
| 28. Often forget to put things back in their proper place. | 1 | 2 | 3 | 4 | 5 |
| 29. Get upset easily. | 1 | 2 | 3 | 4 | 5 |
| 30. Do not have a good imagination. | 1 | 2 | 3 | 4 | 5 |
| 31. Talk to a lot of different people at parties. | 1 | 2 | 3 | 4 | 5 |
| 32. Am not really interested in others. | 1 | 2 | 3 | 4 | 5 |
| 33. Like order. | 1 | 2 | 3 | 4 | 5 |
| 34. Change my mood a lot. | 1 | 2 | 3 | 4 | 5 |
| 35. Am quick to understand things. | 1 | 2 | 3 | 4 | 5 |
| 36. Don't like to draw attention to myself. | 1 | 2 | 3 | 4 | 5 |
| 37. Take time out for others. | 1 | 2 | 3 | 4 | 5 |
| 38. Shirk my duties. | 1 | 2 | 3 | 4 | 5 |
| 39. Have frequent mood swings. | 1 | 2 | 3 | 4 | 5 |
| 40. Use difficult words. | 1 | 2 | 3 | 4 | 5 |
| 41. Don't mind being the center of attention. | 1 | 2 | 3 | 4 | 5 |
| 42. Feel others' emotions. | 1 | 2 | 3 | 4 | 5 |
| 43. Follow a schedule. | 1 | 2 | 3 | 4 | 5 |
| 44. Get irritated easily. | 1 | 2 | 3 | 4 | 5 |
| 45. Spend time reflecting on things. | 1 | 2 | 3 | 4 | 5 |
| 46. Am quiet around strangers. | 1 | 2 | 3 | 4 | 5 |
| 47. Make people feel at ease. | 1 | 2 | 3 | 4 | 5 |
| 48. Am exacting in my work. | 1 | 2 | 3 | 4 | 5 |
| 49. Often feel blue. | 1 | 2 | 3 | 4 | 5 |
| 50. Am full of ideas. | 1 | 2 | 3 | 4 | 5 |

The following questions are describing people's emotions and behaviors. Please use the rating scale below to describe the extent that you agree to each statement.

Response Options

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Totally Disagree | Disagree | Neither Disagree nor Agree | Agree | Totally Agree |

1. I have a good sense of why I have certain feelings most of the time.
   1 2 3 4 5
2. I have good understanding of my own emotions.
   1 2 3 4 5
3. I really understand what I feel. 1 2 3 4 5
4. I always know whether or not I am happy. 1 2 3 4 5
5. I always know my friends' emotions from their behaviour.
   1 2 3 4 5
6. I am a good observer of others' emotions. 1 2 3 4 5
7. I am sensitive to the feelings and emotions of others.
   1 2 3 4 5
8. I have good understanding of the emotions of people around me.
   1 2 3 4 5
9. I always set goals for myself and then try my best to achieve them.
   1 2 3 4 5
10. I always tell myself I am a competent person. 1 2 3 4 5
11. I am a self-motivating person. 1 2 3 4 5
12. I would always encourage myself to try my best.
    1 2 3 4 5
13. I am able to control my temper so that I can handle difficulties rationally.
    1 2 3 4 5
14. I am quite capable of controlling my own emotions.
    1 2 3 4 5
15. I can always calm down quickly when I am very angry.
    1 2 3 4 5
16. I have good control of my own emotions. 1 2 3 4 5

Instructions: The following questions describe people's ability to use emotions. Please use the rating scale below to describe how well you are able to display the ability described. Before responding, try to think of actual situations in which you have been called on to use the ability.

Response Options

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Very low ability | Low ability | Average | High ability | Very high ability |

| | | | | | |
|---|---|---|---|---|---|
| 1. Communicate your feelings effectively. | 1 | 2 | 3 | 4 | 5 |
| 2. Stay calm when you are the target of anger from others. | 1 | 2 | 3 | 4 | 5 |
| 3. Accurately communicate what you experience. | 1 | 2 | 3 | 4 | 5 |
| 4. Identify when you experience mood shifts. | 1 | 2 | 3 | 4 | 5 |
| 5. Know when you become defensive. | 1 | 2 | 3 | 4 | 5 |
| 6. Know the impact that your behaviour has on others. | 1 | 2 | 3 | 4 | 5 |
| 7. Work out conflicts. | 1 | 2 | 3 | 4 | 5 |
| 8. Develop consensus with others. | 1 | 2 | 3 | 4 | 5 |
| 9. Mediate conflict between others. | 1 | 2 | 3 | 4 | 5 |
| 10. Exhibit effective interpersonal communication skills. | 1 | 2 | 3 | 4 | 5 |
| 11. Articulate the thoughts of a group. | 1 | 2 | 3 | 4 | 5 |
| 12. Influence others, directly or indirectly. | 1 | 2 | 3 | 4 | 5 |
| 13. Build trust with others. | 1 | 2 | 3 | 4 | 5 |
| 14. Build support teams. | 1 | 2 | 3 | 4 | 5 |
| 15. Make others feel good. | 1 | 2 | 3 | 4 | 5 |
| 16. Provide advice and support to others, as needed. | 1 | 2 | 3 | 4 | 5 |
| 17. Accurately reflect people's feelings back to them. | 1 | 2 | 3 | 4 | 5 |
| 18. Recognize when others are distressed. | 1 | 2 | 3 | 4 | 5 |
| 19. Help others manage their emotions. | 1 | 2 | 3 | 4 | 5 |
| 20. Show empathy to others. | 1 | 2 | 3 | 4 | 5 |
| 21. Engage in intimate conversations with others. | 1 | 2 | 3 | 4 | 5 |
| 22. Help a group to manage emotions. | 1 | 2 | 3 | 4 | 5 |
| 23. Detect incongruence between others' emotions or feelings and their behaviours. | 1 | 2 | 3 | 4 | 5 |

Instructions: The following questions are describing people's behaviors. Please use the rating scale below to describe the extent that you agree to each statement.

Response Options

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Totally Disagree | Disagree | Neither Disagree nor Agree | Agree | Totally Agree |

1. Most of the time, I prefer being a leader rather than a follower when working in a group. 1 2 3 4 5
2. I am the type of person who is not interested to lead others. 1 2 3 4 5
3. I am definitely not a leader by nature. 1 2 3 4 5
4. I am the type of person who likes to be in charge of others. 1 2 3 4 5
5. I believe I can contribute more to a group if I am a follower rather than a leader. 1 2 3 4 5
6. I usually want to be the leader in the groups that I work in. 1 2 3 4 5
7. I am the type who would actively support a leader but prefers not to be appointed as leader. 1 2 3 4 5
8. I have a tendency to take charge in most groups or teams that I work in. 1 2 3 4 5
9. I am seldom reluctant to be the leader of a group. 1 2 3 4 5
10. I am only interested to lead a group if there are clear advantages for me. 1 2 3 4 5
11. I will never agree to lead if I cannot see any benefits from accepting that role. 1 2 3 4 5
12. I would only agree to be a group leader if I know I can benefit from that role. 1 2 3 4 5
13. I would agree to lead others even if there are no special rewards or benefits with that role. 1 2 3 4 5
14. I would want to know "what's in it for me" if I am going to agree to lead a group. 1 2 3 4 5
15. I never expect to get more privileges if I agree to lead a group. 1 2 3 4 5
16. If I agree to lead a group, I would never expect any advantages or special benefits. 1 2 3 4 5
17. I have more of my own problems to worry about than to be concerned about the rest of the group. 1 2 3 4 5

Next page...

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Totally Disagree | Disagree | Neither Disagree nor Agree | Agree | Totally Agree |

18. Leading others is really more of a dirty job rather than an honorable one.
    1 2 3 4 5
19. I feel that I have a duty to lead others if I am asked.
    1 2 3 4 5
20. I agree to lead whenever I am asked or nominated by the other members.
    1 2 3 4 5
21. I was taught to believe in the value of leading others.
    1 2 3 4 5
22. It is appropriate for people to accept leadership roles or positions when they are asked. 1 2 3 4 5
23. I have been taught that I should always volunteer to lead others if I can.
    1 2 3 4 5
24. It is not right to decline leadership. 1 2 3 4 5
25. It is an honor and privilege to be asked to lead. 1 2 3 4 5
26. People should volunteer to lead rather than wait for others to ask or vote for them.
    1 2 3 4 5
27. I would never agree to lead just because others voted for me.
    1 2 3 4 5

Instructions: Please respond to the following demographic items.

1. Age: _____
2. Gender: a. Male b. Female
3. Is English your first language: a. Yes b. No
4. What's your overall QPA in university? _____(out of 4.0)
5. How many years of work experience do you have? _____ (years)

Thank you for your participation!

Please make an appointment with the researcher for the second session of this study

## Saint Mary's University

You are invited to participate in the following **Leaderless Discussion Group**. You will be given a survivor game situation and possible solutions. Please think carefully and make your decision on the best solution. Then you are going to discuss your solution with your group members. No leader is assigned during the discussion and the discussion will be organized by all group members. After the discussion you will be asked to evaluate the behavior of the group. Your ratings will be kept **confidential**. Your participation is greatly appreciated.

**Survivor situation:** You are a space crew originally scheduled to rendezvous with a mother ship on the lighted surface of the moon. Mechanical difficulties, however, have forced your ship to crash-land at a spot some 200 miles from the rendezvous point. Since survival depends on reaching the mother ship; 5 most critical items available must be chosen for the 200 mile trip. Below are the 16 items left intact after landing. Your task is to discuss with your team and reach a **consensus** on which **5 items** to bring for the trip:

1. Box of matches
2. Food concentrates (4 packages)
3. 50 feet of nylon rope
4. Parachute silk (I large piece)
5. Solar-powered, portable heating unit
6. Two .45 caliber pistols (with shells)
7. One case of dehydrated milk
8. Two 100 lb. tanks of oxygen
9. Stellar map (of the moon's constellations)
10. Flashlight
11. Self-inflating life raft
12. Magnetic compass
13. Gallons of water (5)
14. Signal flares (3)
15. First-aid kit with injection needles
16. Solar-powered FM receiver transmitter

5 Most Critical Items:

Your solution:

1. _____ 2. _____
3. _____ 4. _____
5. _____

Group consensus:

1. _____ 2. _____
3. _____ 4. _____
5. _____

Rater form: Rater #_____ Group # _____

1. If you were asked to assign a leader to this same group to discuss another topic, please rate your opinion on each member being selected a leader. 1 = *strongly disagree*, 5 = *strongly agree.*

| Group Member: | | | | | |
|---|---|---|---|---|---|
| No 1. | 1 | 2 | 3 | 4 | 5 |
| No 2. | 1 | 2 | 3 | 4 | 5 |
| No 3. | 1 | 2 | 3 | 4 | 5 |
| No 4. | 1 | 2 | 3 | 4 | 5 |
| No 5. | 1 | 2 | 3 | 4 | 5 |
| No 6. | 1 | 2 | 3 | 4 | 5 |
| No 7. | 1 | 2 | 3 | 4 | 5 |
| No 8. | 1 | 2 | 3 | 4 | 5 |

2. How much did each individual contribute to the effectiveness of the group discussion? 1 = *nothing*, 5 = *extreme amount.*

| | | | | | |
|---|---|---|---|---|---|
| No 1. | 1 | 2 | 3 | 4 | 5 |
| No 2. | 1 | 2 | 3 | 4 | 5 |
| No 3. | 1 | 2 | 3 | 4 | 5 |
| No 4. | 1 | 2 | 3 | 4 | 5 |
| No 5. | 1 | 2 | 3 | 4 | 5 |
| No 6. | 1 | 2 | 3 | 4 | 5 |
| No 7. | 1 | 2 | 3 | 4 | 5 |
| No 8. | 1 | 2 | 3 | 4 | 5 |

3. Please rate the amount of influence each group member has exerted to the group? 1 = *nothing*, 5 = *extreme amount.*

| | | | | | |
|---|---|---|---|---|---|
| No 1. | 1 | 2 | 3 | 4 | 5 |
| No 2. | 1 | 2 | 3 | 4 | 5 |
| No 3. | 1 | 2 | 3 | 4 | 5 |
| No 4. | 1 | 2 | 3 | 4 | 5 |
| No 5. | 1 | 2 | 3 | 4 | 5 |
| No 6. | 1 | 2 | 3 | 4 | 5 |
| No 7. | 1 | 2 | 3 | 4 | 5 |
| No 8. | 1 | 2 | 3 | 4 | 5 |

4. Please evaluate the exhibitions of leadership behaviour of each group member. 1 = *nothing*, 5 = *extreme amount.*

| | | | | | |
|---|---|---|---|---|---|
| No 1. | 1 | 2 | 3 | 4 | 5 |
| No 2. | 1 | 2 | 3 | 4 | 5 |
| No 3. | 1 | 2 | 3 | 4 | 5 |
| No 4. | 1 | 2 | 3 | 4 | 5 |
| No 5. | 1 | 2 | 3 | 4 | 5 |
| No 6. | 1 | 2 | 3 | 4 | 5 |
| No 7. | 1 | 2 | 3 | 4 | 5 |
| No 8. | 1 | 2 | 3 | 4 | 5 |