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Personal Attributes Profiles based on Clustered Leadership Behaviors in Peruvian Managers

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Abstract

The purpose of this study was to investigate the differences in the personal attributes profiles of Peruvian part-time MBA students clustered into high- and low-level leadership behaviors. Various instruments were used to test leadership styles, five personality domains, critical thinking, and emotional intelligence. Differences in the profiles based on demographic variables, leadership outcomes, and personal attributes were evaluated, and a hierarchical logistic regression analysis tested whether participants' leadership levels were related to the seven attributes proposed. Statistically significant differences between clusters with large effect sizes were found for three personality domains (emotional stability, extraversion, and conscientiousness) and for three leadership outcomes. Small to moderate effect sizes were found for critical thinking, age, and working experience. The study findings could be used for the design of MBA programs.

Key words: Leadership, personality domains, critical thinking, emotional intelligence, cluster analysis, logistic regression

In the latter half of the 20th century, Burns (1978) stated, "The crisis of leadership today is the mediocrity or irresponsibility of so many of the men and women in power, but leadership rarely rises to the full need for it" (p. 1). Burns also asserted that "leadership is one of the most observed and least understood phenomena on Earth" (p. 2), thus initiating a vast amount of research and literature on the subject of leadership. Another influential researcher in the area of leadership studies maintained that "leadership is often regarded as the single most critical factor in the success or failure of institutions" (Bass, 1990, p. 8). Leadership is, as indicated by Bass (1990), a personal attribute that is still a preoccupation for both the research community and business leaders.

At the beginning of the 21st century, the implications of leadership for organizations continue to be a matter of concern, as indicated by the numerous studies of business leadership. The nature/nurture debate about whether leaders are made or born continues to be disputed in psychology (Shriberg, Shriberg, & Lloyd, 2002). On the nature side, the argument is that individual personality and leadership behaviors are based largely on genetics. On the nurture side, researchers argue that personality and leadership qualities are learned and are based less on heredity and more on life experience (Shriberg et al., 2002).

Personality domains, as related to leadership styles, are attributes that have merited special attention among researchers and academics. A considerable amount of research has been produced which studies the relationships between personality domains and leadership styles. According to Bono and Judge (2004), out of 15,000 articles published since 1990 on leadership, 1,738 (12%) included the keywords personality and leadership.

Some research has been conducted which relates emotional intelligence to leadership. However, little research has been conducted on the effects of the combined relationships of

personality domains and emotional intelligence and other personal attributes such as critical thinking on leadership behaviors, and this research gap is evident in the literature. Personality, critical thinking, and emotional intelligence attributes, among others, have drawn the attention of researchers, mainly in developed countries such as the United States, Australia, Canada, Norway, Singapore, and India, and studies have been conducted to assess the specific influence of these attributes on leadership behaviors. Peru seems to be the only developing country where researchers have conducted similar studies.

Personality traits are important aspects to consider with respect to leaders and followers (Shriberg, Shriberg, & Kumari, 2005). Five traits have been recognized in the NEO Personality Inventory (NEO PI) as important domains of personality: extraversion (E), agreeableness (A), conscientiousness (C), emotional stability (the opposite of neuroticism (N)), and openness to new experiences (O). Each domain is made up of six facets (Costa & McCrae, 1992, 1995, 1997; Judge & Bono, 2000).

Critical thinking (CT) is a normative enterprise in which people apply appropriate criteria and standards directed toward some end or purpose that needs intellectual resources (Bailin, Case, Coombs, & Daniels, 1999). Paul and Elder (2001) indicated that critical thinking enables thinkers to produce and assess intellectual work. Moreover, Paul and Elder suggested that critical thinking is an art, not a science. Watson and Glaser (1980) presented five subtests of the critical thinking appraisal: inference, recognition of assumptions, deduction, interpretation, and evaluation of arguments.

Salovey and Mayer (1990) defined *emotional intelligence* (EI) as "the subset of social intelligence that involves the ability to monitor one's own and other's feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (p.

189). Caruso, Mayer, and Salovey (2002) presented emotional intelligence as a four-branch model: perceiving emotions, facilitating thought, understanding emotions, and managing emotions.

Burns (1978) defined *leadership* as the process whereby "leaders [induce] followers to act for certain goals that represent the values and the motivations—the wants and needs, the aspirations and expectations—of both leaders and followers" (p. 19) and "the reciprocal process of mobilizing, by persons with certain motives and values, various economic, political, and other resources, in a context of competition and conflict, in order to realize goals independently or mutually held by both leaders and followers" (p. 425). According to Avolio and Bass (2004), there are five major components of transformational leadership: idealized influence regarding both attributes (IIA) and behaviors (IIB); inspirational motivation (IM); intellectual stimulation (IS); and individual consideration (IC). Transactional leadership components are the following: contingent reward (CR) and active management-by-exception (MBEA) (pp. 97-98). Passive/avoidant behavior components are the following: passive management-by-exception (MBEP) and laissez-faire (LF); both types of behavior are presumed to have negative impacts on followers (p. 99). A review of the literature is presented in the Appendix.

Leadership has been studied mostly in terms of personality features, and the NEO PI-R and the Multifactor Leadership Questionnaire (MLQ) have been the most commonly used instruments to measure personality and leadership attributes, respectively. Extraversion seems to be the domain most consistently positively related to high leadership behaviors. Neuroticism and agreeableness appear to be negatively related to high leadership behaviors. Conscientiousness and openness to experiences are two domains that seem to support transformational leadership behaviors. However, the numerous studies conducted did not show clear and consistent results

regarding the link between personality domains and transformational leadership behaviors (Judge, Bono, Ilies, & Gerhardt, 2002).

Emotional intelligence has been the second personal attribute most studied in its relationship to leadership behaviors. Emotional intelligence has been shown to correlate with all transformational leadership components. Critical thinking has not been taken into account in these studies as a personal attribute that contributes to the making of better leaders. Its inclusion as a personal attribute influencing leadership thus needs further study.

There have been only a few multivariate studies relating personality, critical thinking, and emotional intelligence to leadership behaviors. Thus, they pose a challenge to future research in the field. The study of these personal attributes is based on clustered leadership behaviors. A relatively large sample is used to form two groups: participants showing a consistent high-level leadership behavior in one group and participants showing a consistent low-level leadership behavior in the other. The personal attributes profiles of these two leadership clusters are then analyzed according to the five personality domains (namely neuroticism, extraversion, openness to new experiences, agreeableness, and conscientiousness), the total value of critical thinking, the total value of emotional intelligence, and six demographic variables, namely, gender, age, working experience, profession, university attended, and region where the studies are performed. Leadership outcomes measured by the MLQ, namely extra effort (EE), effectiveness (EFF), and satisfaction (SAT), are also considered for the elaboration of the profiles (Avolio & Bass, 2004).

The aim of this research study was to compare the personal attributes profiles of two groups of participants showing high- and low- level leadership behaviors and to assess the possible differences in these attributes to identify the extent to which each of these attributes plays a role in the participants' behavior, depending on their status of high-level or low-level

leadership. Using the leadership level (high or low) as dependent variable, a binary logistic regression was used to study its relationship to the five domains of personality, critical thinking, and emotional intelligence, after controlling the effect of demographic variables.

Method

The dimensions of this quantitative research study were the following: basic research, descriptive in purpose, cross-sectional in design, and collecting quantitative data using survey techniques.

Participants

Several classes of students (1763 students in all) enrolled in the managerial executive MBA program at a leading business graduate school based in Lima, Peru, constituted a non-probabilistic purposive sample (Huck, 2008). The managerial executive MBA is a 26-month, six-cycle, part-time program, and working students attend classes every other weekend. Active students enrolled were invited to participate in the study at the beginning of the MBA program. The program is being taught in Lima, the capital, and the six other most important cities in Peru, namely Piura, Chiclayo, Trujillo, Cajamarca, Arequipa, and Cusco by almost the same faculty members. Among the seven research venues, the first four are sea level coastal cities; Cajamarca, Arequipa, and Cusco are located in the highlands, between 7,800 to 9,600 ft above sea level. In Peru, the best universities and the headquarters of the most important national and multinational companies are located in Lima. The MBA students studied for their undergraduate degrees mostly in local universities. These cities provided diversity for the sample.

The characteristics of the sample used are as follows: (a) the participants possessed about 10 years of working experience on average; (b) they reported diverse careers, ranging from medical doctors to engineers; (c) a gender analysis showed a male to female ratio of 7:3; (d) they

had spent their undergraduate years mostly in the best ranked private and public Peruvian universities; (e) they demonstrated diverse hierarchical positions in companies, from owners and chief executive officers to line managers, among others; (f) their ages ranged from 22 to 66 years old; (g) they worked in middle and high level positions in different companies; and (h) they lived in different regions of Peru. Those students took classes every other weekend and shared a common goal, namely, to obtain an MBA degree at a leading Peruvian business school. Peruvian managers of firms legally operating in Lima and in the other six main cities of the country constituted the abstract population (Huck, 2008). Lima, Peru's capital, concentrates almost 47.3% of the country's GDP with nine million inhabitants in contrast to the 3.64% GDP average contribution of each of the six most important cities with one million inhabitants each on average (Instituto Nacional de Estadística e Informática del Perú, 2010). Most Latin American countries have a similar concentration of political, social, educational, and economic power in the country's capital.

Instruments

Four questionnaires that measured personality (NEO PI-R Form S), critical thinking (WGCTA Form A), emotional intelligence (MSCEIT), and leadership (MLQ Form S) variables were the instruments used for data collection. These four reliable and valid instruments were administered using the Spanish version provided by the supplying companies. The demographic information requested was gender, age, years of working experience (WE), university attended for the undergraduate years of study, degree obtained (profession), and city where the MBA program was delivered.

The participants' personality was assessed using the Revised NEO Personality Inventory (NEO PI-R) that consists of 30 facet scales that define the broad domains of the five-factor (Big

Five) model of personality (Costa & McCrae, 1995, 1997). The NEO PI-R Form S is a 240-item questionnaire that assesses the personality construct. The instrument does not report a final total score for personality but one score for each of the five domains, and it uses a 5-point Likert-type scale (0-4). The five domains of personality are measured by six facets, each having eight items (48 items per domain = 192 points).

Critical thinking was assessed using the Watson Glaser Critical Thinking Appraisal (WGCTA) Form A, which measures cognitive abilities using five subtests (Watson & Glaser, 1980). The WGCTA Form A is an 80-item questionnaire, from which five subtests are derived (16 items in each subscale). In each subtest, scenarios are presented, and two or five alternative answers are provided; the respondent is asked to select the correct one. One point is assigned for each correct answer. The instrument reports one total score (up to 80 points) for critical thinking and individual scores for each subtest, although the latter are not recommended for use due to the low reliability scores observed (Watson & Glaser, 1980).

Emotional intelligence was measured using the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), which assesses the four-branch model of EI (perceiving, using, understanding, and regulating emotions) with 141 items that are divided among eight tasks (two for each branch). The test yields seven scores: one for each of the four branches, two area scores (two branches are combined for each area), and a total EI score. The general consensus scoring option for this test was used (Mayer, Salovey, & Caruso, 2002; Mayer, Salovey, Caruso, & Sitarenios, 2003).

Finally, the leadership styles (transformational, transactional, and passive-avoidant) were measured using the Multifactor Leadership Questionnaire (MLQ) Leader Form 5x-Short. This test assesses the previously indicated nine leadership factors and three leadership outcomes: extra

effort (EE), effectiveness (EFF), and satisfaction (SAT). The MLQ yields 12 scores. One second order score is obtained from the five factors that describe the transformational leadership behavior, but there is no final single score, whether for transactional leadership (two scores) or for passive-avoidant leadership behaviors (two scores), or for the three leadership outcomes (Avolio & Bass, 2004). The MLQ Leader Form 5x-Short is a 45-question questionnaire that attempts to determine the multiple factors constituting a person's leadership styles and uses a 5-point Likert-type scale (0-4) indicating the frequency of use of each of the 12 areas being measured.

Leadership and personality were measured using the self–report questionnaires. Self-reports were considered appropriate for various reasons: participants knew that the individual results were confidential and known only to themselves, and these mature experienced students attempted to impress no one, were not searching for promotion, and were not seeking to be evaluated by the school. These students, starting an MBA program, were willing to be assessed to know their leadership styles, as they previously had performed in leadership positions before starting the program, and they wanted to have a description of their personality traits. They intended to use the results for their personal improvement in their future managerial activities and to reach the goals established in the managerial part-time MBA program they had just started. These students had various professions, worked in different types of organizations, private and public, and had various experiences of work, which made it neither feasible nor practical to use raters to assess their leadership styles.

These mature professionals were asked to be as sincere and honest as possible. Following the recommendations of the Collaborative Institution Training Initiative (CITI, 2005), the paper-and-pencil questionnaires were filled in comfortable classrooms, with an adequate allocation of

time. The managerial executive MBA students participating in the research were assured of confidentiality and the protection afforded to human research participants before starting the survey.

Analyses

It is possible to separate a large sample in two or more groups to differentiate leadership behaviors. "Cluster analysis is the name of a group of multivariate techniques whose primary purpose is to group objects based on the characteristics they possess" (Hair, Anderson, Tatham, & Black, 1998, p. 473). Two clustering methods were used: the two-step clustering (TSC) and the non-hierarchical k-means clustering (k-means), for which a log-likelihood distance and an Euclidian distance, respectively, were used as distance measures to form the clusters. The TSC method was used with the 36 ordinal MLQ items corresponding to the four items in each of the IIA, IIB, IM, IC, IS, CR, MBEA, MBEP, and LF areas, and three clusters were requested. The k-means method was used asking for three clusters as well and using the nine total scores obtained for the nine areas of the MLQ. In both methods, three clusters of students were formed and identified as high-, intermediate-, and low-level leadership styles; next, the intermediate-level clusters were eliminated. The final high- and low-level leadership behavior groups were formed with those students shown in those clusters through both methods.

Descriptive statistics of the NEO PI-R, WGCTA, MSCEIT, and MLQ scores were calculated for the high- and low-level leadership behavior groups and for the whole sample. Based on the findings for the five domains of personality, for the total scores of critical thinking and emotional intelligence, and for the three leadership outcomes, personal attributes profiles were described for the two clusters formed with high- and low-level leadership students.

Chi-square tests were performed to evaluate the possible relations between students' leadership levels and demographic characteristics such as gender, university attended for the undergraduate years of study, degree obtained (profession), and the city location where the MBA program was delivered. Independent samples t-tests were performed to test whether the high-level leadership group was significantly different from the low-level leadership group in age, working experience, personality domains, CT, EI, and leadership outcomes. Cohen's *d* measures were calculated to evaluate effect sizes.

A hierarchical binary logistic regression was then performed in an exploratory approach, using the leadership behaviors level (high or low) as the dependent variable, the five domains of personality and the total scores for critical thinking and emotional intelligence as the independent variables, and the students' demographics as control variables. The goal of this analysis was to identify the extent to which each one of the personal attributes plays a role in explaining why students have the status they have on the dichotomous variable (Huck, 2008). In the first step, the control variables (gender, age, working experience, profession, university attended, and MBA location) were introduced. In the second step, the independent variables N, E, O, A, C, CT, and EI were introduced in the model.

Results

To identify students with opposite leadership behaviors in this sample of 1763 managerial executive MBA students, two well-differentiated groups were formed using a two-step and a k-means cluster analyses methods. One group of 215 students showed consistent high-level leadership behavior with both methods, and another group of 266 students showed consistent low-level leadership behavior. A group of 1282 students showing intermediate-level leadership behavior was left aside. Table 1 shows the demographic composition of the original sample and

the new reduced two-group sample. Table 2 shows the descriptive statistical information for the nine leadership areas of the whole sample and the two groups with high- and low-level leadership behaviors.

Table 1

Sample Demographic Composition

	Total		High L.		Low L.	
Demographics	1763	(%)	215	(%)	266	(%)
Location						
MBA Lima	1166	(66)	151	(70)	174	(65)
MBA outside Lima	597	(34)	64	(30)	92	(35)
Gender						
Male	1262	(72)	164	(76)	185	(70)
Female	501	(28)	51	(24)	81	(30)
Profession						
Engineering	894	(51)	107	(50)	149	(56)
Business, Economics, & Accounting	690	(39)	81	(38)	95	(36)
Other	179	(10)	27	(12)	22	(8)
University attended						
Consortium universities	493	(28)	69	(32)	76	(29)
Other private universities	492	(28)	51	(24)	68	(25)
Public and military universities	778	(44)	95	(44)	122	(46)

Note. The consortium is composed of the four best universities of Peru, all private and located in Lima. Percentage is rounded-off to the nearest integer.

Table 2

Leadership Styles Descriptive Statistics for Total and Clustered Leadership Behaviors

Leadership styles	Groups	*M*	*Mdn*	*SD*	Min.	Max.	Skewness
Areas							
II(A)	High L.	2.98	3.00	.61	1.25	4.00	- .35
(0-4)	Total	2.46	2.50	.66	.25	4.00	- .20
	Low L.	2.02	2.00	.55	.50	3.50	- .09
II(B)	High L.	3.71	3.75	.30	2.50	4.00	- 1.11
(0-4)	Total	3.16	3.25	.55	.75	4.00	- .61
	Low L.	2.56	2.50	.42	1.25	3.50	- .21
IM	High L.	3.91	4.00	.18	2.75	4.00	- 2.92
(0-4)	Total	3.42	3.50	.52	.25	4.00	- 1.00
	Low L.	2.92	3.00	.41	1.50	4.00	- .29
IS	High L.	3.52	3.50	.41	2.00	4.00	- 1.07
(0-4)	Total	2.93	3.00	.57	.33	4.00	- .37
	Low L.	2.39	2.50	.43	1.00	3.50	- .11
IC	High L.	3.31	3.25	.48	1.50	4.00	- .28
(0-4)	Total	2.84	2.75	.57	.50	4.00	- .10
	Low L.	2.38	2.25	.46	1.00	4.00	.12
CR	High L.	3.40	3.50	.47	1.75	4.00	- .58
(0-4)	Total	2.85	2.75	.60	.25	4.00	- .30
	Low L.	2.34	2.25	.44	1.00	3.50	- .20
MBEA	High L.	3.39	3.50	.59	.75	4.00	- 1.44
(0-4)	Total	2.90	3.00	.64	.50	4.00	- .45
	Low L.	2.44	2.50	.50	1.25	3.75	- .06
MBEP	High L.	.56	.50	.51	.00	2.00	.77
(0-4)	Total	.77	.75	.55	.00	3.75	.81
	Low L.	.89	.75	.53	.00	2.75	.64
LF	High L.	.19	.00	.37	.00	2.75	3.12
(0-4)	Total	.43	.25	.47	.00	3.75	1.57
	Low L.	.60	.50	.45	.00	2.25	.93

Note. *N* = 266, 1760, 215 valid cases. II(A) = idealized influence attributes; II(B) = idealized influence behavior inspirational; IM = motivation; IS = intellectual stimulation; IC = individualized consideration; CR = contingent reward; MBEA = active management-by-exception; MBEP = passive management-by-exception; LF = laissez-faire; TL = transformational leadership; TcL = transactional leadership; PA = passive-avoidant. Values are 0 - 4 in each area and totals.

Data analyses were performed by studying the observations collected with the four indicated instruments. Cronbach's alpha coefficients were used to assess the internal consistency of the scales of personality domains; the values obtained ranged from .81 to .91. The reliability of the critical thinking and emotional intelligence total scores were assessed via split-half method, corrected by the Spearman-Brown formula; high values were obtained: .73 and .86, respectively. Cronbach's alpha coefficient for the MLQ areas and outcomes showed relatively low reliabilities, ranging from .30 to .75. Table 3 shows the scores for reliability and other descriptive statistics for the whole sample and the two groups with high- and low-level leadership behaviors, comparing the five domains of personality, critical thinking, emotional intelligence, age, and working experience and the three leadership outcomes: extra effort, effectiveness, and satisfaction.

Table 3

Demographics Descriptive Statistics for Total and Clustered Leadership Behaviors

	Groups	*M*	*Mdn*	*SD*	Min.	Max.	Skewness	Reliability
Personality Domains[a]								
Neuroticism (N)	High L	49	48	19	8	115	.41	
(0 - 192)	Total	65	64	21	4	149	.33	.91
	Low L.	75	73	19	19	138	.38	
Extraversion (E)	High L.	146	148	15	96	176	- .40	
(0 - 192)	Total	129	130	18	60	176	- .19	.87
	Low L.	118	118	15	62	159	- .04	
Openness to	High L.	119	119	17	64	158	- .26	
experience (O)	Total	111	111	15	64	160	.10	.80
(0 - 192)	Low L.	104	104	13	74	138	.24	
Agreeableness (A)	High L.	119	119	15	75	163	.05	
(0 - 192)	Total	113	113	15	58	163	- .08	.81
	Low L.	109	109	14	59	162	- .02	
Conscientiousness (C)	High L.	155	157	14	104	184	- .53	
(0 - 192)	Total	141	141	17	72	184	- .31	.88
	Low L.	130	131	15	84	170	.01	
Critical	High L.	53	53	7	34	70	- .04	
thinking[b] (CT)	Total	53	53	8	28	73	- .03	.73
(0 - 80)	Low L.	53	53	8	35	72	.04	
Emotional	High L.	48	49	4	36	56	- .27	
intelligence[c] (EI)	Total	46	47	5	22	57	- .79	.86
(0 - 100)	Low L.	45	46	5	30	57	-.65	
Age	High L.	35	33	7	23	58	1.03	
(22 – 66 years)	Total	33	32	6	22	66	1.06	___
	Low L.	33	31	6	23	66	1.36	
Working	High L.	11	9	7	1	40	1.35	
experience (WE)	Total	9	8	6	1	44	1.36	___
(1 – 44 years)	Low L.	9	8	8	1	44	1.83	
Outcomes[d]								
Extra effort	High	3.72	4.00	.34	2.33	4.00	-1.26	
(0 – 4)	Total	3.16	3.33	.61	.67	4.00	-.62	.69
	Low L.	2.61	2.67	.51	1.33	4.00	-.04	
Effectiveness	High L.	3.73	3.75	.33	2.25	4.00	-1.45	
(0 – 4)	Total	3.25	3.25	.53	.75	4.00	-.54	.70
	Low L.	2.80	2.75	.44	1.75	4.00	-.09	
Satisfaction	High L.	3.73	4.00	.39	2.00	4.00	-1.69	
(0 – 4)	Total	3.25	3.50	.59	.50	4.00	-.73	.59
	Low L.	2.81	3.00	.53	1.00	4.00	-.35	

Note. M, Mdn, and *SD* were rounded out to the nearest integer.

[a] *N* = 202, 1708, 261 valid cases. Reliability is Cronbach's alpha. Results range from 0 to 192.

[b] *N* = 215, 1761, 266 valid cases. Reliability is Spearman-Brown Equal length Split-half. Results range from 0 to 80.

[c] *N* = 215, 1755, 266 valid cases. Reliability is Spearman-Brown Equal length Split-half. Results range from 0 to 100.

[d] *N* = 215, 1749, 266 valid cases. Results range from 0 to 192.

Chi-square tests of independence revealed no significant association between the leadership behavior level of the student and gender (χ^2 (1) = 2.71, p =.10), university attended (χ^2 (2) = .73, p = .70), undergraduate degree (profession) (χ^2 (2) = 3.14, p = .21), and MBA location (χ^2 (1) = 1.26, p = .26). Significant differences (p < .01) were found between the high- and low-level leadership behaviors groups in N, E, O, A, C, EI, Age, WE, EE, EFF, and SAT, but a large effect, Cohen's |d| > .8, was found only for neuroticism (d = -1.37), extraversion (d = 1.85), openness to experience (d = .94), conscientiousness (d = 1.71), emotional intelligence (d = .81), extra effort (d = 2.57), effectiveness (d = 2.39), and satisfaction (d = 2.00), as Table 4 shows.

Table 4

Tests of Differences between Means for Personal Attributes in Clustered Leadership Behaviors

	t	*df*	*p*	*ΔM*	Cohen´s *d*
N	14.65	432.7	.000*	-26.366	-1.37**
E	-19.79	430.6	.000*	28.347	1.85**
O	-9.90	364.9	.000*	14.055	.94**
A	-7.24	413.0	.000*	9.994	.67
C	-18.21	444.8	.000*	25.219	1.71**
CT	-1.13	459.9	.261	0.771	.10
EI	-8.98	475.9	.000*	3.416	.81**
Age	-3.07	423.4	.002*	1.889	.28
WE	-3.66	409.4	.000*	2.147	.34
EE	-28.63	466.0	.000*	1.113	2.57**
EFF	-26.49	476.1	.000*	0.933	2.39**
SAT	-22.15	474.7	.000*	0.922	2.00**

Note. * p < .01. **|d| > .8.

The hierarchical binary logistic regression analysis used high-level leadership as the reference category of the dependent variable. Demographic variables were introduced in the first block as control variables. Independent variables, namely the five personality domains, critical thinking, and emotional intelligence were introduced in the second block, with MSCEIT total raw scores expressed as percentages. Table 5 shows significant relationships for extraversion (AOR = 1.08, $p < .001$), openness to experience (AOR=1.044, $p = .001$), agreeableness (AOR = 1.027, $p = .043$), conscientiousness (AOR = 1.080, $p < .001$), and for emotional intelligence (AOR = 1.141, $p = .005$). The overall model was significant (χ^2 (15) = 397.92, $p < .001$).

Table 5

Logistic Regression Coefficients and Confidence Intervals for the Independent Variables

	B	*SE*	*Wald*	*df*	*p*	*Exp (B)*	95.0% CI for *Exp (B)*
N	-.012	.011	1.232	1	.267	.988	.966-1.009
E	.077	.014	31.309	1	.000**	1.080	1.051-1.110
O	.043	.013	11.530	1	.001**	1.044	1.019-1.071
A	.026	.013	4.109	1	.043*	1.027	1.001-1.053
C	.077	.013	34.230	1	.000**	1.080	1.053-1.109
CT	.003	.027	.012	1	.914	1.003	.951-1.057
EI	.132	.047	7.912	1	.005**	1.141	1.041-1.250
Constant	-37.547	5.040	55.498	1	.000**	.000	

Note. * $p < .05$. ** $p < .01$. Demographic variables are gender, profession, university attended, working experience, age, location; they were introduced in the model in the first block as control variables.

Discussion

Transformational leaders are usually long-term visionaries and strategically-minded persons whose task is to lead followers towards the established visions of their organizations to make these more competitive in the global arena (Waldman & Javidan, as cited in Bass & Riggio, 2006; Tichy & Devanna, 1990). Hetland and Sandal (2003) stated, "With growing globalization, research on cultural similarities and differences concerning leadership is crucial" (p. 167). Hetland and Sandal argued that cultural differences need to be taken into account when research about leadership from developed countries is applied to developing countries. This research study is one of the very few ones performed in a developing country.

Significant Findings

There are several noteworthy findings arising out of this study. First, the cluster analysis was performed with two different ways of forming the clusters: the one used the 36 scores corresponding to the four items of each of the nine areas of transformational and transactional leadership behaviors, and the other used the nine total scores for each area of transformational and transactional leadership behaviors. The method helped highlight that human beings usually behave using a mixture of leadership styles according to circumstances, environments, and the groups being led (Avolio & Bass, 2004; Bass, 1990).

Second, the cluster analysis helped identify two groups out of the 1763 participants in the sample: one of 215 students showing consistently high-level leadership behavior, and the other of 266 students showing low-level leadership behavior. The study findings may have shown that self-report measures results are not necessarily and routinely upwardly biased, which is one of the main misconceptions held about common method bias in organizational research (Conway & Lance, 2010). In this study, the self-report method was appropriate, given the characteristics of

the sample. The participants constituted a group of mature professionals who knew that their confidential information was protected and that the study findings would be only used by themselves for their personal improvement in their future managerial activities and in the starting managerial MBA program they were enrolled for.

Third, the high-level leadership group was composed of those participants using predominantly transformational and transactional behaviors, and less frequently a passive-avoidant behavior, in contrast to the low-level leadership group in which participants showed a relatively low use of transformational and transactional behaviors and a relatively high use of passive-avoidant behavior. According to Bass and Riggio (2006), "Each of the components of transformational leadership (as well as the elements of transactional leadership) can be scrutinized to determine whether they indicate authentic or inauthentic leadership" (p. 14). This statement is confirmed in the findings shown in Table 2 contrasting the values for the high- and low-level leadership groups, in relation to those of the total sample, for those areas composing the transformational, transactional and passive- avoidant leadership styles.

Fourth, the group with a high-level leadership profile showed high values in the areas of transformational and transactional behaviors and very low values in the areas of passive-avoidant behavior in contrast to the values shown by the findings for the low-level leadership profile group, as Table 2 shows. The fact that the high-level leadership group showed high scores for transformational and transactional leadership behaviors might indicate that human beings usually develop a combination of these two leadership behaviors when leading followers at their level of managerial activity. This evidence confirms the MLQ foundations as stated by Avolio and Bass (2004).

Fifth, another interesting finding is that the leadership level (high or low) did not seem to be related to characteristics such as gender, university attended, profession, and MBA location. Participants from Lima were expected to have a different leadership level from that shown by participants from other cities because the best universities to pursue undergraduate studies are situated in the capital city, as is the case in most Latin American countries, except Brazil and Mexico. Statistically significant differences between group means were found for age and working experience, but those differences are considered small to moderate according to the calculated effect sizes (.28 and .34 respectively).

Personal Attributes Comparison

At the personality level, the group with a high-level leadership profile showed relatively low neuroticism (M = 49, SD = 19), which indicates a tendency for emotional stability. Such individuals are usually calm, gentle, and relaxed people who are able to confront stressful situations without difficulty (Costa & McCrae, 1992, pp. 14-15). In contrast, the group with a low-level leadership profile showed an average score in neuroticism (M = 75, SD = 19). Individuals with an average score in neuroticism are emotionally stable, calm, even-tempered, and relaxed, but they frequently become angry and hostile, and they are prone to be sad and anxious when faced with stressful situations that become difficult for them to deal with. They are average in controlling their impulses and desires (Costa & McCrae, 1992, p. 16).

The group with a high-level leadership profile scored high in extraversion (M = 146, SD = 15); these individuals like to be part of large groups, are assertive, active, talkative, energetic, optimistic, and joyful (Costa & McCrae, 1992, p. 15). The group with a low-level leadership profile presented a low score in extraversion (M = 118, SD = 15); these individuals are somewhat

reserved, even-paced, and independent. They are often seen as shy, and they enjoy their personal space (Costa & McCrae, 1992, p. 17).

The group with a high-level leadership profile scored average in openness to new experiences (M = 119, SD = 17), and so did the group with a low-level leadership profile (M = 104, SD = 13). People scoring average in openness to new experiences are practical individuals who are intellectually curious, searching for equilibrium between known and new aspects of life. They are practical people, willing to entertain novel ideas and experiences, but they also show some conventional stances. Usually, they aim to reach equilibrium between the new activities and those previously known (Costa & McCrae, 1992, p. 15, 17).

The group with a high-level leadership profile presented an average level of agreeableness (M = 119, SD = 15), and so did the group with a low-level leadership profile (M = 109, SD = 14). People scoring average in agreeableness are gentle, kind, and trustworthy, but they can sometimes become stubborn and competitive. Individuals who score average in agreeableness are sympathetic, tender-minded, and compliant people but occasionally self-righteous and competitive (Costa & McCrae, 1992, pp. 17-18).

The group with a high-level leadership profile scored high in conscientiousness (M = 155, SD = 14), which indicates they are very responsible, punctual, and reliable. These individuals have a strong sense of commitment to their work, they do things efficiently, and they put a lot of effort to reach their goals (Costa & McCrae, 1992, 1995). The group with a low-level leadership profile scored low in conscientiousness (M = 130, SD = 15); these individuals have a lower opinion of their abilities, are hasty, not well organized, more casual to moral obligations, sometimes lazy; they lack ambition and are aimless and low in self-discipline (Costa & McCrae, 1992, 1995).

The group with a high-level leadership profile showed high scores in conscientiousness and extraversion and a low score in neuroticism, personality domains favorable to good leadership behaviors. This group should have had a higher score in openness to new experiences, which is an important personality domain for transformational leadership behaviors because those individuals are unsatisfied with the *status quo*.

At a critical thinking level, results were disappointing. In the comparison between the high- and low-level leadership profiles, the scores for this attribute were the same for both groups, which might indicate that critical thinking is not related to or does not contribute to improving the individuals' leadership personal styles. Critical thinking is related to the ability to define problems, select outstanding information that contributes to the solution of problems, recognize solid and non-solid assumptions, formulate and select outstanding hypotheses, establish valid conclusions, and determine the validity of inferences (Watson & Glaser, 1980). Research on critical thinking as an important personal attribute for leadership should be pursued.

Goleman (2004) indicated that the mental trait that perhaps has the greatest influence over human thinking is emotion, and Goleman's research, along with other recent studies, clearly shows that emotional intelligence is the *sine-qua-non* of leadership. At the quantitative level, there were a few differences in emotional intelligence between the high- and low-level leadership profiles, but these differences do not reflect a qualitative distinction; in other words, in both profiles, the scores showed individuals who reach an average competence level in emotional intelligence. These results indicate they have the capacity to recognize their own emotions and other people's emotions, understand their magnitude and causes, and use that knowledge to handle them successfully.

The MLQ also measures three outcomes: EE, EFF, and SAT, which are not related to any leadership style but are important to know whether individuals recognize the need to make an extra effort, whether that extra effort is effective, and whether they are satisfied with their leadership behavior. The results shown in Table 3 indicate that the scores of the high-level leadership group are high compared to the low-level leadership group scores.

In the logistic regression model, extraversion, openness to new experiences, consciousness, and emotional intelligence were found to be significant ($p < .001$). The results appear to replicate findings in studies performed in developed countries showing that these personal attributes and leadership styles are truly cross-cultural, thus giving the lie to beliefs held by cultural relativists and situationists.

Research extending the significance of this study ought to be made in the form of a longitudinal study using the same instruments at the end of the MBA program to assess whether the 26-month part-time program has had any influence on leaders' behaviors and personal attributes. The results of the longitudinal study could be helpful for the design of the curricular structure of MBA programs. Replication of this study in other developed and developing countries would also be necessary.

References

Avolio, B. J., & Bass, B. M. (2004). *Multifactor Leadership Questionnaire. Manual and sampler test* (3rd ed.). Redwood City, CA: Mind Garden.

Bailin, S., Case, R., Coombs, J. R., & Daniels, L. B. (1999). Conceptualizing critical thinking. *Journal of Curriculum Studies, 31*(3), 285-302.

Barling, J., Slater, F., & Kellowat, E. K. (2000). Transformational leadership and emotional intelligence: An exploratory study. *Leadership & Organization Development Journal, 21*(3), 157-161.

Bass, B. M. (1990). Bass & Stogdill's handbook of leadership: Theory, research, and managerial applications (3rd ed.). New York, NY: The Free Press.

Bass, B. M., & Riggio, R. E. (2006). Transformational leadership (2nd ed.). Mahwah, N.J.: Lawrence Erlbaum Associates.

Bono, J. E., & Judge, T. A. (2004). Personality and transformational and transactional leadership: A meta-analysis. *Journal of Applied Psychology, 89*(5), 901-910.

Boyatzis, R. E., Goleman, D., & Rhee, K. S. (2000). Clustering competence in emotional intelligence: Insights from the Emotional Competence Inventory (ECI). In R. Bar-On & J. D. A. Parker (Eds.), Handbook of emotional intelligence (pp. 343-362). San Francisco, CA: Jossey-Bass.

Bradley, J. P., Nicol, A. A. M., Charbonneau, D., & Meyer, J. P. (2002). Personality correlates of leadership development in Canadian forces officer candidates. *Canadian Journal of Behavioral Science, 34*(2), 92-103.

Burns, J. M. (1978). Leadership. New York, NY: Harper & Row.

Cable, D. M., & Judge, T. A. (2003). Managers' upward influence tactic strategies: The role of manager personality and supervisor leadership style. *Journal of Organizational Behavior*, *24*(2), 197-214.

Caruso, D. R., Mayer, J. D., & Salovey, P. (2002). Relation of an ability measure of emotional intelligence to personality. *Journal of Personality Assessment*, *79*(2), 306-320.

Cellar, D. F., Sidle, S., Goudy, K., & O'Brien, D. (2001). Effects of leader style, leaders' sex, and subordinate personality on leader evaluations and future subordinate motivation. Journal of Business and Psychology, 16(1), 61-72.

CITI course. (2005). The protection of human research subjects. Retrieved from https://www.citiprogram.org/aboutus.asp.

Conway, J. M., & Lance, C. E. (2010). What reviewers should expect from authors regarding common method bias in organizational research. Journal of Business and Psychology, 25, 325-334.

Costa, P. T., & McCrae, R. R. (1992). NEO PI-R professional manual. Odessa, FL: Psychological Assessment Resources.

Costa, P. T., & McCrae, R. R. (1995). Domains and facets: Hierarchical personality assessment using the Revised NEO Personality Inventory. Journal of Personality Assessment, 64(1), 21-50.

Costa, P. T., & McCrae, R. R. (1997). Stability and change in personality assessment: The revised NEO personality inventory in the year 2000. Journal of Personality Assessment, 68(1), 86-94.

Crant, J. M., & Bateman, T. S. (2000). Charismatic leadership viewed from above: The impact of proactive personality. *Journal of Organizational Behavior, 21*(1), 63-68.

D'Alessio, F. (2006). The influence of personality, critical thinking, and emotional intelligence attributes in Peruvian managers' leadership. Dissertation Abstracts International [DAI-A 67/09]. (UMI No. 3235055).

D'Alessio, F. (2008). The influence of personality domains and working experience in Peruvian managers' leadership styles: An initial study. *Journal of CENTRUM Cathedra, 1*(1), 13-33. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1479672.

Gardner, L., & Stough, C. (2002). Examining the relationship between leadership and emotional intelligence in senior level managers. *Leadership & Organizational Development Journal, 23*(1/2), 68-78.

Goleman, D. (2004). What makes a leader? Harvard Business Review, 82(1), 82-91.

Hair, J. F., Jr., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). Multivariative data analysis (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Hetland, H., & Sandal, G. M. (2003). Transformational leadership in Norway: Outcomes and personality correlates. European Journal of Work and Organizational Psychology, 12(2), 147-170.

Huck, S. W. (2008). Reading statistics and research (5th ed.). Boston, MA: Pearson Education.

Instituto Nacional de Estadística e Informática del Perú [National Institute of Vital Statistics and Information Technology of Peru]. (2010). Producto bruto interno por departamentos 2001-2009 [GDP per Peruvian department 2001-2009]. Lima, Peru: Author.

Judge, T. A., & Bono, J. E. (2000). Five-factor model of personality and transformational leadership. Journal of Applied Psychology, 85(5), 751-765.

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(4), 765-780.

Kaplan, R. S., & Norton, D. P. (1996). The balance scorecard. Translating strategy into action. Boston, MA: Harvard Business School.

Kejriwal, A., & Krishnan, V. R. (2004). Impact of Vedic worldwide and Gunas on transformational leadership. Vikalpa, 29(1), 29-40. Retrieved from http://www.vikalpa.com/article/article_detail.php?category_id=11&action=article&aid=9&rowstart=48.

Kobe, L. M., Reiter-Palmon, R., & Rickers, J. D. (2001). Self-reported leadership experiences in relation to inventoried social and emotional intelligence. *Current Psychology: Developmental * Learning * Personality * Social, 20*(2), 154-163.

Kornor, H., & Nordvik, H. (2004). Personality traits in leadership behavior. *Scandinavian Journal of Psychology, 45*(1), 49-54.

Lim, B. C., & Ployhart, R. E. (2004). Transformational leadership: Relations to the five-factor model and team performance in typical and maximum contexts. *Journal of Applied Psychology, 89*(4), 610-621.

Mayer, J. D., Salovey, P., & Caruso, D. R. (2002). Mayer-Salovey-Caruso emotional intelligence test (MSCEIT). User's manual. North Tonawanda, NY: Multi-Health Systems.

Mayer, J. D., Salovey, P., Caruso, D. R., & Sitanerios, G. (2003). Measuring emotional intelligence with the MSCEIT v 2.0. *Emotion, 3*(1), 97-105.

McCormack, L., & Mellor, D. (2002). The role of personality in leadership: An application of the five-factor model in the Australian military. *Military Psychology, 14*(3), 179-197.

Murensky, C. L. (2000). The relationship between emotional intelligence, personality, critical thinking ability and organizational performance at upper levels of management. Dissertation Abstracts International, 151. (UMI No. 9962991)

Palmer, B. R., Gardner, L., & Stough, C. (2003). The relationship between emotional intelligence, personality and effective leadership. *Australian Journal of Psychology, 55*, 140-145. Retrieved from http://www.mendeley.com/research/relationship-between-emotional-intelligence-personality-effective-leadership/

Palmer, B., Walls, M., Burgess, Z., & Stough, C. (2001). Emotional intelligence. *Leadership & Organizational Development Journal, 22*(1), 5-10.

Paul, R., & Elder, L. (2001). Critical thinking: Tools for taking charge of your learning and your life. Upper Saddle River, NJ: Prentice Hall.

Ricketts, J. C. (2003). The efficacy of leadership development, critical thinking dispositions, and student academic performance on the critical thinking skills of selected youth leaders. Dissertation Abstracts International, 130. (UMI No. 3095110).

Rosete, D., & Ciarrochi, J. (2005). Emotional intelligence and its relationship to workplace performance outcomes of leadership effectiveness. *Leadership & Organization Development Journal, 26*(5), 388-399.

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition and Personality, 9*(3), 185-211.

Shriberg, A., Shriberg, D. L., & Lloyd, C. (2002). Practicing leadership. Principles and applications (2nd ed.). New York, NY: John Wiley.

Shriberg, A., Shriberg, D. L., & Kumari, R. (2005). Practicing leadership. Principles and applications (3rd ed.). New York, NY: John Wiley.

Tichy, N. M., & Devanna, M. A. (1990). The transformational leader. New York, NY: John Wiley.

Watson, G., & Glaser, E. M. (1980). Watson-Glaser Manual—Forms A and B. San Antonio, TX: The Psychological Corporation.

Appendix

Personality and Leadership Studies

Leadership has been studied mostly as it relates to personality, as shown in the outcomes of the 13 research studies discussed in this section. Judge and Bono (2000) developed the first experiment in the field of personality and leadership in the Midwest United States. They applied the Neuroticism Extraversion Openness Personality Inventory Revisited (NEO PI-R) and the Multifactor Leadership Questionnaire (MLQ) to participants who were enrolled in or were alumni of community leadership programs. They assessed 14 samples of leaders in 200 organizations. The findings showed that "Extraversion and Agreeableness positively predicted transformational leadership; Openness to Experience was positively correlated with transformational leadership, but its effects disappeared once the influence of the other traits was controlled. Neuroticism and Conscientiousness were unrelated to transformational leadership" (p. 751).

Crant and Bateman (2000) found that social desirability was positively associated with neuroticism and agreeableness, but not with proactive personality, conscientiousness, extraversion, and openness to experience. For these researchers, "The proactive personality scale was a more powerful predictor of perceived charismatic leadership than all of the Big Five personality factors" (p. 71). Thus, results suggested that a self-reported proactive personality is positively related to supervisors' independent ratings of charismatic leadership. For this study, Crant and Bateman tested a sample of 156 dyads composed of managers and their supervisors employed by a Puerto Rican financial services organization. The managers' average age was 32 and the supervisors' average age was 39. The instruments used were the NEO PI – R inventory,

the Bateman & Crant's, Conger & Kanungo's, Williams & Anderson's methodologies, and Marlow-Crowne Social Desirability Scale.

Cellar, Sidle, Goudy, and O'Brien (2001) used the NEO PI-R inventory and Eagly, Makhijani, and Klonsky tests scores on 165 undergraduates at a large US Midwestern urban university. There were 99 women, 62 men, and 4 individuals who did not report their gender. They concluded that "Participants low in Agreeableness rated their future levels of effort and task interest lower if the leader exhibited a leader style that was inconsistent with gender role stereotypes" (p. 70). In this respect, the results partially supported that disagreeable participants would rate gender-inconsistent behavior more harshly.

Bradley, Nicol, Charbonneau, and Meyer (2002) used the Assessment of Background and Life Experiences (ABLE) and the MLQ questionnaire in the Basic Officer Training Course (BOTC) to assess a sample of 174 Canadian Forces officer candidates evaluated by instructors and peers in terms of various aspects of the BOTC scores. Results showed that "Dominance, energy level, and internal control predicted some leadership criteria, with dominance predicting the most. Overall, these results indicate that measures of personality are associated with leadership development in the military" (p. 92).

McCormack and Mellor (2002) used the NEO PI-R Inventory and the Evaluation and Development Report- Officers (EDRO) to evaluate a sample of 99 Australian Army commissioned officers, from the rank of second lieutenant to that of lieutenant colonel. From the sample, 97 officers were men and 2 were women, 47 were in active duty, and 48 were reserve officers; ages ranged between 21 and 53 years. The researchers concluded that "Effective leaders in the Australian Army are characterized by high Conscientiousness and Openness and by low

Extraversion" (p. 192). The results supported the usefulness of the five-factor model for exploring the role of personality in leadership effectiveness among military officers.

Judge, Bono, Ilies, and Gerhardt (2002) used the NEO PI-R inventory, and the Hogan method to carry out a meta-analysis using 222 correlations from 73 samples. Results showed correlations between neuroticism, conscientiousness, extraversion, and openness to experience and leadership, and over 90% of the individual correlations were greater than 0. Extraversion was the most consistent correlate of leadership across study settings and leadership criteria (leader emergence and leadership effectiveness). Overall, the five-factor model had a multiple correlation of .48 with leadership, indicating strong support for the leader trait perspective.

Cable and Judge (2003) used the NEO PI-R inventory, the Influence Behavior Questionnaire (IBQ), and the MLQ to obtain longitudinal data from 189 managers from 140 different organizations, who had received their MBA over the previous 10 years at a business school in the Southeastern United States. The IBQ is composed of nine variables: (a) rational persuasion, (b) consultation, (c) inspirational appeal, (d) ingratiation, (e) personal appeal, (f) exchange, (g) coalition, (h) legitimizing, and (i) pressure. Results established that managers scoring high on extraversion were more likely to use inspirational appeal and ingratiation; those scoring high on openness to experience were less likely to use coalitions; those scoring high on emotional stability were more likely to use rational persuasion and less likely to use inspirational appeal; those scoring high on agreeableness were less likely to use legitimization or pressure; and those scoring high on conscientiousness were likely to use rational appeal. Furthermore, results from Cable and Judge's study confirmed that managers' upward-influence strategies depended on the leadership styles of their supervisors.

Hetland and Sandal (2003) used the 16 PF5 and MLQ questionnaire to evaluate 100 mid-level Norwegian managers employed in five different companies. Findings showed that "Transformational leadership was strongly associated with the outcome measures in both subordinates' and superiors' ratings, when controlling for the impact of transactional and passive-avoidant leadership" (p. 147). Researchers concluded that "the relatively weak associations with personality give rise to optimism that these leadership behaviors may be learned" (p. 167).

Kejriwal and Krishnan (2004) carried out research using the Guna and Vedic and the MLQ questionnaire to test 140 students, 97 males and 43 females, aged between 16 and 20 years, with no working experience, from a prominent school in eastern India. They found that Sattva and Vedic worldviews separately and Sattva-Rajas combinations enhance transformational leadership while Sattva and Vedic worldviews together do not enhance it, and Tamas reduces it. The researchers affirmed that "The immense significance of personality and worldview as an aid to understanding and enhancing transformational leadership warrants more research across different cultures" (p. 38).

Lim and Ployhart (2004) used the International Personality Item Pool (IPIP), NEO PI-R, and the MLQ test to carry out research on 276 military personnel from the Singapore Armed Forces: 39 team leaders, 202 followers, 20 superiors of combat teams, and 15 assessment center advisors. Findings showed that extraversion was positively related to transformational leadership while neuroticism and agreeableness were negatively related to it. Lim and Ployhart concluded that "Transformational leadership related more strongly to team performance in the maximum rather than the typical context" (p. 610).

Kornor and Nordvik (2004) used the NEO PI-R and the Change, Production and Employee (CPE) test to assess 106 Norwegian leaders holding leadership positions at a middle management level. Results showed that "The strongest predictors of the CPE total score were Conscientiousness and Extraversion; Openness to experience and Agreeableness were specific predictors for change and employee, respectively" (p. 49). Findings also showed that people tend to be consistent in their self-report regardless of context, and that leadership styles are related to personality traits.

Subsequent to their leading study, Bono and Judge (2004) used the NEO PI-R and the MLQ to develop a meta-analysis accumulated on 384 correlations from 26 independent studies. Results were quite modest, indicating the Big Five may not be the best way to discover relationships between personality attributes and transformational and transactional leadership. Extraversion was the strongest and most consistent correlate of transformational leadership, especially with respect to the charisma dimension: idealized influence combined with inspirational motivation.

D'Alessio (2008) used the NEO PI-R inventory and MLQ to assess 500 part-time MBA students of CENTRUM Católica business school in Lima, Peru. D'Alessio found that extraversion was the highest correlation with transformational leadership styles. Agreeableness had no significant correlation with any of the leadership styles, and openness to experience showed a significant correlation only to transformational leadership style. Neuroticism showed weak correlations with transformational leadership and strong correlations with passive-avoidant leadership styles. Findings also showed that conscientiousness and extraversion may encourage individuals to emerge as leaders. Transformational and transactional leadership behaviors were more frequently used with increasing working experience.

Emotional Intelligence and Leadership Studies

In Canada, Barling, Slater, and Kellowat (2000) carried out studies using the EII, SASQ, MLQ, TMMS, and MLQ tests on a sample of 49 managers of a large pulp and paper organization. No data on age or gender were collected to maintain the participants' anonymity. Results showed that idealized influence, inspirational motivation, and individualized consideration differed according to the participants' levels of emotional intelligence.

In Australia, Palmer, Walls, Burgess, and Stough (2001) used the Emotional Intelligence Inventory (EII), Seligman Attributional Style Questionnaire (SASQ), MLQ test scores, and Trait Meta Mood Scale (TMMS), on a sample of 43 participants, 10 females and 33 males, with a mean age of 37.5 years. The participants were past and current students of the Swinburne University for Innovation and Enterprise Programs. Results showed that idealized influence, inspirational motivation, and individualized consideration differed according to the participants' levels of emotional intelligence. The hypothesis that transformational leaders would be higher in EI than transactional leaders was not supported; neither total transformational nor total transactional leadership ratings demonstrated significant correlations with either the emotional monitoring or emotional management scales of the TMMS. However, there were significant correlations between some components of transformational leadership and the EI subscales.

In the United States, Kobe, Reiter-Palmon, and Rickers (2001) used the EQ-Inventory, the Mumford, O´Conner, Clifton, Connelly, and Zaccaro, and the Zaccaro, Zazanis, Diana, and Gilbert methods to assess 192 American undergraduate students representing all levels of university education. There were 126 females and 66 males, with a mean age of 22 years. The authors concluded that "both emotional intelligence and social intelligence are important for

leadership among university students. Social intelligence accounted for a larger proportion of variance in leadership experiences than did emotional intelligence" (p. 163).

Gardner and Stough (2002) used the Swinburne University Emotional Intelligence Test (SUEIT) and the MLQ to test a sample comprised of 110 American high-level managers; 76 were males, 30 females, and 4 subjects did not specified their gender; their average age was 42.7 years; 45% had earned postgraduate degrees, and 69 respondents were senior-level managers or above. Findings showed that effective leaders were identified as those who reported transformational rather than transactional behaviors. Emotional intelligence highly correlated with all components of transformational leadership; the components of understanding of emotions (external) and emotional management were the best predictors of this type of leadership style.

Critical Thinking and Leadership Studies

Ricketts (2003) used the Youth Leadership Decision – Making Test, EMI Critical Thinking Disposition Inventory, and the Leadership/Demographic Instrument to assess a sample of 212 youth leaders from 50 states in the National Future Farmers of America Organization. The author found some correlations between leadership variables (training and experience) and critical thinking skill scores. The best predictive models of critical thinking skill scores included the variables GPA, leadership training score, innovativeness sum, age, and gender.

Personality, Emotional Intelligence, and Leadership Studies

In Australia, Palmer, Gardner, and Stough (2003) assessed a sample of 210 participants from the local community, 555 nurses, and 110 senior executives, with the use of the NEO PI-R, Swinburne University Emotional Intelligence Test (SUEIT), and MLQ tests. Results showed there were some moderate correlations between SUEIT and facets of the NEO PI-R inventory.

The SUEIT was found to account for variance in effective leadership over and above personality. This latter finding suggests the SUEIT can predict theoretically related variables (e.g., effective leadership) over and above personality.

Rosete and Ciarrochi (2005) used the Sixteen Personality Factors Questionnaire – Fifth edition (16 PF5), MSCEIT, and Wechsler Abbreviate Scale of Intelligence (WASI), Perspectives on Executive Leadership Capabilities (PELC) to assess a sample of 41 senior executives of an Australian public service. Results showed that executives higher on EI are more likely to achieve business outcomes and be considered as effective leaders by their subordinates and direct managers. Thus, higher EI was associated with higher leadership effectiveness, and EI explained variance not explained by either personality or IQ.

Personality, Critical Thinking, Emotional Intelligence, and Leadership

Murensky (2000) used the Emotional Competence Inventory (ECI) (Boyatzis, Goleman, & Rhee, 1999) and the Balanced Scorecard (BSC) (Kaplan & Norton, 1996) to assess 90 executives (13 females and 77 males) in key leadership roles at an international oil corporation. The results showed that emotional intelligence was independent from the cognitive abilities of critical thinking and overlapped with the five personality domains. Emotional intelligence contributed a minimal amount of variance in predicting organizational performance measured by the balance scorecard, and critical thinking was found not to be related to any of the four scorecard performance perspectives.

D'Alessio (2006) explored the field of leadership and personal attributes for the first time in a developing country. D'Alessio collected data from a sample of 375 managerial MBA students from CENTRUM Catolica business school in Lima, Peru's capital, to evaluate each of the subjects with the NEO PI-R inventory, WGCTA, MSCEIT, and MLQ tests. The study

findings showed that extraversion and conscientiousness were the strongest and most consistent correlations to transformational leadership styles, followed by openness to experience, and that they were negatively related to neuroticism. Agreeableness, critical thinking, and emotional intelligence had no significant effects on transformational leadership styles.